



6-1-2003

Forage News [2003-06]

University of Kentucky Department of Plant and Soil Sciences

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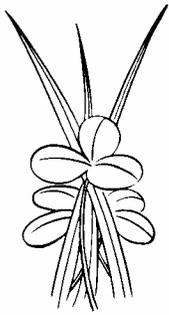


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University of Kentucky Department of Plant and Soil Sciences, "Forage News [2003-06]" (2003). *Forage News*. 177.
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FORAGE NEWS

JUNE 2003

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

PLANT AND SOIL SCIENCES FIELD DAY

The Agronomy Department will sponsor a Plant and Soil Science Field Day at Spindletop Farm in Lexington on Thursday, June 12, 2003. The Field Day will begin at 2:00 p.m. with several demonstrations including: Bale Wrapping, No-till Tobacco, Precision Ag. Equipment, and Water Run-off Management. Walking tours will be offered featuring crops, weeds, and turf. Field tours will be from 4:30-8:30 and will feature Tobacco, Forages and Corn. Two Forage tours will be offered:

Tour 1: Pasture Management and MRLS

1. Jimmy Henning - Mare reproductive loss syndrome overview.
2. Bob Coleman - Managing pastures for horses.
3. Robert Spitaleri - Grazing tolerance of forage varieties.

Tour 2: New Developments in Hay & Silage

1. Norman Taylor - Improving red clover as a hay crop.
2. Mike Collins - Hay storage methods to protect the crop.
3. Bill Witt - Weed control in grass/legume hay crops.

An evening meal will be available (prepared by the Kentucky Beef & Pork Producers).

Directions to Spindletop: From I-75 (North of Lexington): Take the Kentucky Horse Park exit (I-75 Exit 120), travel one mile past the Horse Park and follow field day signs. **From I-64, I-75, or New Circle Road:** Take the Newtown Pike exit (I-64/I-75 Exit 115), travel north toward Iron Works Pike, turn left, then follow field day signs.

KENTUCKY GRAZING SCHOOL

The next Kentucky Grazing School will be held June 17 & 18 at the Bourbon County Extension Office in Paris, Kentucky. Registration fee is \$100 and includes all materials, grazing manual, Southern Forage Book, breaks and selected meals. Fees must be paid to hold a place in the school. Enrollment is limited to the first 45 who register. Make checks payable to Kentucky Forage and Grassland Council and send to: Rebecca Smith, 400 W.P. Garrigus Building, University of Kentucky, Lexington, KY 40546-0215 (phone 859-257-5985). The program will begin at

8:00 on Tuesday, June 17 and conclude at 3:00 on Wednesday, June 18. The school features both classroom and field activities.

KFGC ELECTS NEW BOARD MEMBERS

Congratulations to the following new members of the Kentucky Forage & Grassland Council Board. They were elected by the membership in the recent election.

Producers: Bill Payne and Arthur Young
Industry: Tom Keene, Phil Rowland and Joe Stephens
Public: Allen Johnson and Darrell Simpson

KFGC Officers are:

President: Ken Johnson
V. President: Dan Grigson
Treasurer: Phil Howell

HAY TEMPERATURE

If there is a need to check the temperature of hay, it can be done by fitting a sharpened end on an appropriate length of ½ inch pipe, then driving it into the hay, followed by lowering a thermometer into the pipe. Temperatures below 120°F are normal, and 120° to 140° are in the caution range. Hay heating to 160° or higher is in serious danger of catching fire. Temperature can build in hay, particularly within the first two weeks or longer after baling. (SOURCE: *Minimizing Losses in Hay Storage & Feeding*. D.M. Ball, et.al., Cir. 98-1)

THE INFLUENCE OF SOLAR RADIATION AND VAPOR GRADIENT ON ALFALFA HAY DRYING RATES

Five alfalfa hay harvests were taken during 2001 and 2002 in north central Indiana. The Circle C Equipment, LLC "Super Conditioner" non-intermeshing conditioning rolls and the New Holland/CNH intermeshing conditioning rolls in combination with or without tedding were evaluated for differences in alfalfa hay drying rates. Effectiveness of the treatments was determined in relation to the potential evaporation rates, which is composed of two components, solar radiation and vapor gradient. By using the

environmental data, a universal evaluation of the conditioning roll and bedding treatments was established. The research showed that by comparing the potential evaporation rate to alfalfa hay drying, there was not a significant statistical difference ($P \geq 0.05$) among the treatments. The "Super Conditioner" conditioning rolls in combination with or without bedding did not differ in alfalfa hay drying rates as compared to the intermeshing conditioning rolls with or without bedding. Net radiation contributed 89% to the overall potential evaporation rate, while the vapor gradient contributed 11%. Alfalfa hay dries quicker when it is sunny and is minimally influenced by the relative humidity of the air. (SOURCE: J.W. Sweeten, K.D. Johnson, and R.H. Grant, Department of Agronomy, Purdue University, IN Proceedings AFGC Vol. 12, 2003)

APPROXIMATE DIET SELECTION OF GRAZING ANIMALS WHEN OFFERED IN A MIXED PASTURE

Animal Species	Type of Diet		
	Grasses	Broadleaf weeds and legumes	Browse ¹
Cattle	65-75	20-30	5-10
Horses	70-80	15-25	0-5
Sheep	45-55	30-40	10-20
Goats	20-30	10-30	40-60
White-tail deer	10-30	30-50	30-50
Elk, red, and fallow deer	30-60	40-50	10-30

¹Shrubs or trees.
SOURCE: D. Forbes and G.W. Evers, Texas A & M Univ.; D.I. Bransby, Auburn Univ.; M.A. McCann, Virginia Tech Univ.; and W.R. Getz, Fort Valley State Univ. IN Southern Forages 3rd Edition

DESIGNER MILK

The days of designer or humanized milk are nearing reality. In the near future, cow's milk may have properties, such as more calcium, improved quality and yield of cheese, antimicrobial activity, and be modified so that lactose intolerance is eliminated (Karatzas, Nature Biotechnology (2003) 21: 138-139. Designer genes from transgenic clones).

Normal cow's milk protein may have four types of casein: two forms of alpha casein (A1 and A2), one form of beta casein and one form of kappa casein. In milk, casein molecules are clumped together in colloidal micelles with kappa casein forming the outer surfaces and being responsible for many of the properties of milk. Animal scientists at New Zealand's Ruakura Research Center reported in Nature in February 2003 (Brophy *et al.* 2003. Nature Biotechnology 21: 157-162) that they had inserted additional copies of genes that make beta and kappa casein into female bovine fibroblasts by somatic cell nuclear transfer. Transgenic fibroblasts were cultured and cloned and embryos were then implanted into donor cows. Milk from 11 cloned transgenic heifers had twice as much kappa casein, 20% more beta casein and about 20% more milk

protein overall. Higher kappa casein content in milk is linked to smaller micelles, better heat stability, and improved cheese-making properties. They concluded "that it is feasible to substantially alter a major component of milk in high producing dairy cows by a transgenic approach and thus improve the functional properties of milk". Note that the FDA has advised that food from somatic cell nuclear transfer clones or their progeny may not enter human or animal food supply until evaluation of the issue is complete (<http://www.fda.gov/cvm/index/updates/clones.html>).

A2 Milk -- A2 milk from commercial dairy cow herds is on shelves of some New Zealand and Australian supermarkets at 20 cents more per half gallon than regular milk (A1 milk). A2 Corporation scientists claim that A2 milk, which has no beta casein A1, is linked to autism (Asperger's syndrome), child diabetes, schizophrenia and coronary heart disease. More information on "A2 Corporation" is accessible on the web.

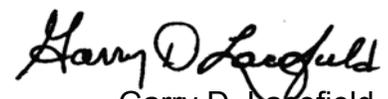
The theory behind A2 milk is that beta casein A1 is the result of mutation in beta casein A2 synthesis. The difference between the A1 and A2 casein is incredibly small: proline, the 67th amino acid in the beta casein A2 sequence has been replaced by histidine. This small structural change alters casein digestion and leads to a fragment of 7 amino acids, called beta casomorphin 7 (BCM-7) that has been associated with schizophrenia, platelet aggregation, and LDL oxidation.

Breeds of dairy cows vary in the amount of beta casein A1 and beta casein A2. Friesians and Holsteins produce both A1 and A2 beta caseins but over 70% of Guernsey's produce beta casein A2 with no beta casein A1. A simple test determines if a cow produces A2 milk, so assembling an A2 milk herd is rather simple. Obviously, A2 milk is a natural product and may be marketed without the regulations and stigma of being from "cloned" or "transgenic" livestock.

Scientists in medical, nutrition, and dairy science and the dairy industry are engaged in heated debate over the role of beta casein A1 in human disease and the nutritional benefits of A2 milk. (Source: C.T. Dougherty)

UPCOMING EVENTS

- JUN 12 UK Agronomy Field Day, Lexington
 - JUN 17-18 Kentucky Grazing School, Bourbon County Extension Office, Paris
 - JUL 17 UK All Commodity Field Day, Robinson Station, Quicksand
 - JUL 24 South Central Kentucky Agriculture Field Day, Bowling Green
 - NOV 25 Grazing Conference, Fayette County Extension Office, Lexington
- 2004**
- JAN 9 Forages at KCA, Bowling Green
 - JAN 22 Heart of America Grazing Conference, Evansville, Indiana
 - FEB 26 24th Kentucky Alfalfa Conference, Cave City


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June 2003