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## Forage News [1998-06]

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

### U.K. ALL COMMODITY FIELD DAY

The University of Kentucky All Commodity Field Day will be held July 16, 1998 at the University of Kentucky Research and Education Center in Princeton. This year's field day offers something for everyone. Over forty educational exhibits under the big tent, youth activities, and home economics taste testing and displays. There will be 18 walking, wagon and bus tours which will run continuously throughout the day.

See you at

# Field Day '98

### NEW HAY PUBLICATION AVAILABLE

"Minimizing Losses in Hay Storage and Feeding" is a multi-colored, 16-page, practical publication. It was written by Dr. Don Ball, Auburn University; Dr. David Bade, Texas A & M University; Dr. Garry Lacefield, University of Kentucky; Dr. Neal Martin, University of Minnesota; and Dr. Bruce Pinkerton, Clemson University. The publication was funded by twenty-five agribusinesses throughout the U.S. Complimentary copies of the publication are available from any of the sponsors, authors or by contacting us.

### MINIMIZING LOSSES IN HAY STORAGE AND FEEDING

Each year more than 60 million acres of forage crops are harvested for hay in the United States. Annual production from this acreage is over 150 million tons of hay valued at more than 12 billion dollars. Hay is the most widely grown mechanically-harvested agronomic crop in the United States.

As a source of nutrition for livestock, hay offers numerous advantages. It can be made from many different crops; when protected from the weather it can be stored indefinitely with little nutrient loss; package sizes and shapes can vary greatly; and harvesting, storage, and feeding can vary from being done by hand to being completely mechanized. Hay often can meet, or almost meet, the nutrient needs of many classes of livestock.

Because of its many merits, hay is the most commonly used stored feed on livestock farms across the nation.

Unfortunately, losses of hay during storage and feeding are often high, particularly with round bales stored outside in high rainfall areas such as the eastern United States. It is estimated that the total value of hay storage and feeding losses nationwide exceeds three billion dollars annually! On some farms, such losses account for over 10% of the cost of livestock production.

These are real, and not just potential, losses (time, labor, and monetary inputs are lost along with the hay). Unfortunately, many producers probably do not realize how large their losses really are, or that with relatively little effort or expense they could be reduced considerably. (Source: *Minimizing Losses in Hay Storage & Feeding*, D.M. Ball, et al., 1998.)

### REDUCING THE RISK OF HAY FIRES

Each year there are many reports of hay barns burning, as well as of fires occurring in hay stored outside. Fire is always a concern with hay, but it takes on even greater importance when an expensive barn can be lost in addition to the hay.

Fire in stored hay may occur from either external or internal causes. Internally started fires are a result of hay going through an extreme heat. Heating is a direct result of microorganism activity in hay stored at high moisture levels. Even if excessive heating does not result in a fire, it will reduce forage quality.

The principal way to avoid fire resulting from internal heating (sometimes referred to as "spontaneous combustion," though this term is misleading) is to bale hay at proper moisture levels. Hay in round bales should contain no more than 18% moisture when placed inside a barn, while hay in small rectangular bales should contain no more than 20% moisture. Hay that is suspected of being too wet should be stored outside for about three weeks until the danger of combustion due to heating is past. New crop hay should never be placed against dry hay.

The danger of fire from heating of hay of higher-than-optimum moisture can be decreased somewhat by "loose stacking" the bales so good air movement and ventilation can occur. Hay preservatives, which reduce fungal and bacterial growth, sprayed on hay during the baling process help reduce (though do not always prevent) excessive heating in higher moisture hay. Bales known to contain, or suspected of containing, excessive moisture can be temporarily loosely stacked outside, then moved inside after

the danger of fire is past.

If there is a need to check the temperature of hay, it can be done by fitting a sharpened end on a 10-foot section 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 week or two after baling, and therefore periodic monitoring of temperature until it is clear there is no danger of fire is advisable. (Source: *Minimizing Losses in Hay Storage & Feeding*, D.M. Ball, et al., 1998.)

### ATTENTION KFGC MEMBERS!

Don't Miss the Joint Beef-Forage Field Day of the Kentucky Forage and Grassland Council and the Kentucky Cattleman's Association!

Co-Sponsored by the Kentucky Cattleman's Association, the Kentucky Forage and Grassland Council, the University of Kentucky College of Agriculture, and the Natural Resources Conservation Service.

**Where:** The Greg and Joan Ritter farm in Barren County.

**When:** 4 PM Central Time, Thursday, June 18, 1998.

**How do I get there:** From I-65: Take exit 53 10 miles south to Glasgow on Highway 90. Take US31E south 5 miles to Kentucky 252. Go right on Ky 252 for 4.5 miles to the farm.

From Cumberland Parkway: Take US31E south for 3 miles to Ky 252. Turn right on Ky 252 for 4.5 miles to the farm.

**What will I see:** The program topics will include:

Introduction to Farm - *Greg Ritter*

Rotational Grazing - *Garry Lacefield*

Filter Fabric Installation - *Jerry Greer and others*

Erosion Control and Spring Development - *Doug Hatchett*

Temporary Water Systems - *Charlie McIntyre*

Reviving Pastures - *Jimmy Henning*

Beef Alliance - *Gary Tilghman*

Summer and Fall Management of Beef Cattle - *Roy Burris*

Summer Worming - *John Johns*

The Kentucky Agri-Ability Display - *John Hancock*

The Kentucky Water Quality Display - *Henry Duncan*

will be prepared by the Barren County Beef Cattle Association.

For more information, Contact:

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### DETERMINING FORAGE MOISTURE CONTENT USING A MICROWAVE OVEN

1. Chop fresh forage into 1 to 2 inch lengths for ease of handling.
2. Weigh out approximately 100 grams (3.5 ounces) of chopped forage.
3. Spread forage thinly on a microwave-safe dish and place into microwave.
4. Heat for 2 minutes and reweigh.
  - a) If forage is not completely dry, reheat for 30 seconds and reweigh. (Microwaves vary considerably in drying capacity. It is better to dry for short intervals and reweigh until the last two weights are constant, than to overdry and run the risk of burning and damage to over.) Continue this process until back-to-back weights are the same or charring occurs.
  - b) If charring occurs, use the previous weight.
5. Calculate moisture content using the following equation:

$$\% \text{ Moisture Content} = \frac{W1 - W2}{W1} \times 100$$

W1 = weight of forage before heating

W2 = weights of forage after heating

Dry matter (DM) is the percentage of forage that is not water. DM equals 100% minus percent water.

Example: moisture content 14%

$$\text{DM} = 100 - 14 = 86\%$$

Results on an "as-fed basis" reflect total nutrient concentration including water of sample analyzed or to be fed.

(Source: *Southern Forages 1996*. D.M. Ball, C.S. Hoveland and G.D. Lacefield. Page 246.)

### UPCOMING EVENTS

- |           |   |
|-----------|---|
| JUN 18    | KCA/KFGC Field Day, Barren County   |
| JUL 16    | U.K. College of Agriculture All Commodity Field Day, UKREC, Princeton, KY |
| OCT 13-15 | Kentucky Grazing School, UKREC, Princeton, KY                             |

Garry D. Lacefield  
Extension Forage Specialist

Supper will follow the field day compliments of commercial exhibitors and sponsors, KFGC, and KCA and