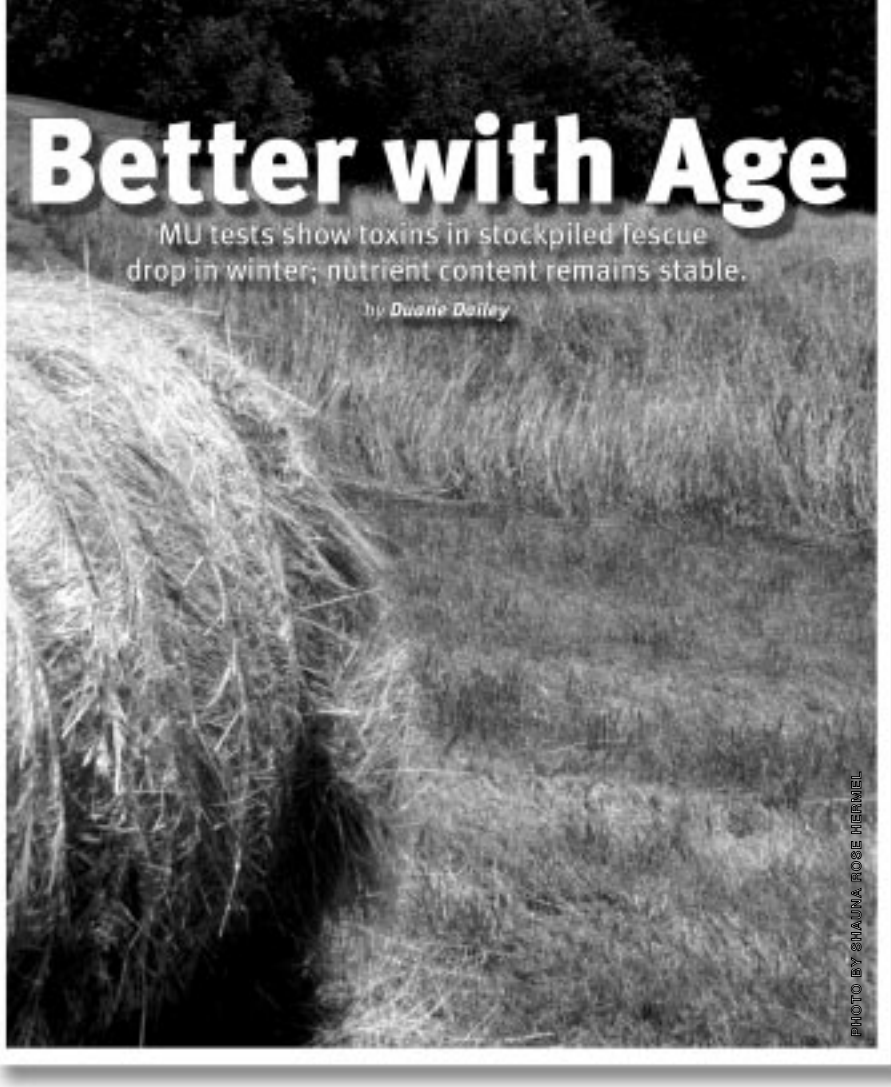

Better with Age

MU tests show toxins in stockpiled fescue drop in winter; nutrient content remains stable.

by *Duane Dailey*

PHOTO BY SHAUNA ROSE HERMEL

Preliminary results from winter-long clipping and testing of stockpiled fescue grass may change how farmers feed their winter hay supply.

Rob Kallenbach, University of Missouri (MU) forage agronomist, says he has been surprised at the results after measuring toxins contained in endophyte-infected fescue pastures. Measured levels of ergovaline in stockpiled fescue declined through the winter, but the nutrient value remained stable. Yield also declined only slightly.

The tests have been conducted for two years at the MU Southwest Research Center near Mount Vernon. Results indicate that stockpiled forage — grass left standing in the pasture instead of being baled — can be fed with good results throughout the winter. The surprise was in the reduced levels of toxin.

"This suggests a strategy of feeding hay first and feeding the stockpile later," Kallenbach says. "That will take some unlearning of how we have traditionally used stockpiled fescue."

Normally, pastures to be stockpiled are grazed short in August, then a shot of nitrogen fertilizer is applied. Cattle are kept off the pastures during the fall regrowth period until after killing frosts.

Producers typically use stockpiled grass to get the cow herd through early winter and begin feeding hay when the stockpile runs out. The University of Missouri's Rob Kallenbach suggests flip-flopping that feeding schedule.

Producers have used the stockpiled grass to get the cow herd through early winter and maybe longer. They begin feeding hay when the stockpile runs out.

Kallenbach sees an advantage to flip-flopping that feeding schedule. "The longer you wait to feed grass, the less ergovaline content there will be for the cows to deal with," he explains.

It's long been known that endophyte-infected fescue produces ergovaline, an ergot-type alkaloid. The endophyte is a fungus that lives between the cell walls in the fescue plant, particularly in the upper stems and seed heads. "Forages with high ergovaline almost always induce a toxic response in livestock," Kallenbach says.

Earliest reports of the problems were of fescue foot in cows grazing on winter fescue pastures. Among many symptoms, ergovaline reduces the blood flow to the animal's extremities. This can result in the freezing of feet, ears and tails. Cows grazing highly infected fescue often lose the tips of their tails. In extreme cases, a cow can lose a hoof.

Ergovaline also reduces feed intake and cuts gains per day.

In the winter of 2000, the first year of measurements, Kallenbach found that the ergovaline content dropped from a high of 450 parts per billion (ppb) on Dec. 15 to only 75 ppb by March 14.

"Early studies by George Garner (an MU agricultural chemist) found that ergovaline content above 150 ppb caused problems," Kallenbach says. In Kallenbach's tests, ergovaline had dropped below the critical level by the end of January.

In the second year, the ergovaline dropped proportionally during the same period. However, the starting level was just under 200 ppb and had almost disappeared by mid-March.

Kallenbach speculated that the difference in ergovaline levels was caused by different weather. The fall of 1999 was extremely dry and warm. The next fall was cool and wet. "In a cool, wet fall, ergovaline is likely to be lower in stockpiled fescue. Perhaps the rainfall tends to wash it out faster in a wet year," Kallenbach says. "Or maybe more ergovaline is produced in a dry autumn. We are not sure yet why tall fescue does this, but we're working on it."

Some beef producers have feared that stockpiled grass loses nutrient value. But the MU tests revealed that the crude protein (CP) content, measured in grams (g) per kilogram (kg), actually went up slightly from mid-December to mid-March both years.

In other measures, acid detergent fiber (ADF) content stayed about the same throughout the winter, as did neutral detergent fiber (NDF).

"Delaying the feeding of the stockpiled fescue results in a higher-quality feed because of potentially fewer problems with ergovaline," Kallenbach says.

"Stockpiled fescue will be a much better feed for beef cows getting ready to calve," Kallenbach says. "It will certainly be better feed than most fescue hay put up in Missouri."

Editor's Note: *Duane Dailey is an Extension and agricultural information senior writer at the University of Missouri–Columbia, which supplied this article.*