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County Agent's Notes:

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Fescue may have a future after all...

By: Dr. Ernie Flint, Area Agent/Agriculture

Tall fescue has for many years been an important cool season grass in Mississippi pastures. The Kentucky 31 variety has been around since the early 1940s and has proved to be a very adapted, persistent grass, however it has some problems. It has been found that cattle grazing KY 31 tall fescue do not perform as well as those grazing other cool-season grasses such as ryegrass, wheat, and oats, even though the protein, fiber, and energy levels are fairly similar. In the late 1970s and early '80s, research at several Southeastern universities showed that KY 31 fescue was infected with a fungus "endophyte" that was causing poor performance in grazing cattle and even more serious problems with horses.

Weight gain, milk production, and reproductive efficiency were all reduced when fescue was a significant part of the animal diet. Chemicals called alkaloids produced by the fungus resulted in "fescue toxicosis". Other research showed that these chemicals caused blood vessels to constrict, reducing blood flow to the extremities of the animals, and resulting in the condition where they could not effectively get rid of heat. As a result, animals run a low-grade fever. During the summer, animals grazing KY 31 fescue spend a lot of time in the shade or in ponds, trying to cool off. In winter this condition can cause extremities of animals (tail switch, ears, hooves) to be lost as a result of poor blood circulation

After the diagnosis of fescue toxicosis, several varieties of tall fescue that did not contain the endophyte, commonly called “fungus-free” were made available. Animals grazing these grasses performed better, but another problem was soon noticed. These grasses were not as hardy, and stands did not persist as well as KY 31. The reason for this is that while the fungus not only produces alkaloids that are toxic to animals, it also produces chemicals that improve plant hardiness. Cattlemen were left with a difficult situation since with KY 31 fescue stand life was good, but animal performance was reduced.

Most producers decided that stand life was the most important consideration, and began to work at minimizing the fungus problem with special management practices. Grazing to maintain tender, high-quality fescue reduced the problem since toxins become more concentrated in older plants, especially those with seedheads. Also, clovers can be used to dilute the toxins.

The ideal forage plant for this area is one that provides good animal performance like endophyte-free fescue but is as hardy as the old Kentucky 31. Apparently, researchers in New Zealand have found a new way to solve this problem. Instead of trying to make an endophyte-free plant more hardy, they have developed a fungus-infected plant that is less toxic. They have found a fungus endophyte for tall fescue that produces the chemicals needed for plant hardiness but does not produce the alkaloids that cause animal problems. Workers in the United States have also isolated some of these fungi and have produced other lines with this characteristic.

The new strains of fungi can be inserted into existing varieties of fescue to make them safer, as has been done by Dr. Joe Bouton at the University of Georgia. A study done there showed that cattle on fescue with nontoxic endophyte gained as well as those on endophyte-free fescue. Last

year several of us visited with researchers at Mississippi State who have evaluated mares grazing on KY 31, and on fescue with the nontoxic fungus. Preliminary results of this study indicate that mares were often not able to carry foals to term on KY 31, but were not adversely affected by fescue with the nontoxic endophyte.

For Mississippi farmers to take advantage of these new fescues, the older tall fescues will have to be destroyed. Then, the newer types will have to be established. Both of these operations can be expensive. The older grass is often very difficult to get rid of because of its inherent hardness. The stand may require one or more costly applications of herbicide, and the soil will require some type of preparation for the new grass. Also, the cost of the seed for the new fescues is very high when compared with other grasses. With time, the cost of seed may come down as more varieties are made available and competition builds, however at this time the costs may not be justifiable.

Many questions still exist about the new fescue varieties that only time will answer. My suggestion is that we should try these grasses on a small scale initially to evaluate their potential on our local soils, and to see how well they tolerate our local management style. More information will probably be made available in the next year or so. Fescue has proven itself here in the past, so this new technology should only make it better.