

Fescue Hazards

MU toxicosis workshop offers ways to manage pasture to reduce fescue-related losses.

The favorite forage of Missouri grassland farmers, tall fescue, is a major cause of lost potential in livestock production. Herd and flock owners attending a new kind of grazing school learned that the most popular grass in the state has a host of ill effects on

animals, as well as a long list of good qualities.

A fescue toxicosis workshop Oct. 7-8 at the University of Missouri (MU) Southwest Center near Mount Vernon spelled out the good, the bad and the ugly.

“Fescue toxicosis is the No. 1 livestock disorder in the state, cutting livestock gains in half,” Craig Roberts, MU Extension forage specialist, said.

He estimated that endophyte toxins are found in 95% of fescue pastures in the state — and across a wide band of the “Fescue Belt,” from northwest Missouri to West Virginia and south to Georgia and Texas.

Managing the infected

**fescue can add another
pound per head per day in
stocker calf or heifer gains.**

“Most losses from fescue toxicosis are not recognized,” Roberts said. The estimated loss to U.S. livestock producers is \$900 million a year.

Toxic threat

Rich Crawford, animal scientist and head of the MU research farm, said the problem is an endophyte fungus that grows in the stems, leaves and seeds of fescue grass.

“The relationship of fungus to grass is very beneficial for the grass,” Crawford said. “The fungus evolved with the grass in a helpful relationship millions of years ago.”

Alkaloids produced by the fungus protect the grass from predators, such as insects and nematodes. The fungus also makes the grass more drought-tolerant, ideal for surviving on the rockiest and driest hillsides.

Livestock are more tolerant of the toxins than nematodes, but lost gains can be measured in livestock production. The toxins also cause lower milk production, lower wool growth, reduced conception rates and abortions. In the worst cases, cattle eating infected grass become lame and lose hooves and tail switches in freezing weather because the alkaloids restrict blood flow.

Fescue became popular for pastures after studies in Kentucky proved the hardiness of the grass. Most fescue grown in Missouri is Kentucky 31 (KY-31), a variety first planted in the 1940s and 1950s. Most KY-31 fescue has the endophyte fungus, which is what makes the plant hardy.

Endophyte fungus was first linked to poor animal performance in 1977. Since that time, managers have developed practices to alleviate the problems.

In the meantime, new fescue varieties were developed that are endophyte free, or that have a “novel

endophyte” that does not produce the toxic alkaloids.

When endophyte-free varieties were developed and widely used, plant breeders thought they had solved the problem. However, fescue pastures without the fungus’ protection were overgrazed by livestock, died in droughts, or were killed by insects and nematodes.

Fescue without the endophyte requires more careful management.

Newer fescue varieties with novel endophytes, which were discovered in the native range of fescue around the Mediterranean Sea, now offer protection to the grass without the toxic side effects for grazing animals.

The obvious answer would seem to be to replace all old stands of fescue with the new, Roberts said. But, he admits that costly cure is not likely to happen. Killing established stands of fescue is not easy. Many hillsides were originally seeded by airplane and are not likely ever to be tilled for renovation.

Future classes

The MU toxicosis school taught producers how to manage around the endophyte-infected fescue.

Much of the two-day workshop provided management options for toxic fescue pastures that cannot be replaced. Five favored practices suggested to producers were to:

- rotate livestock off fescue at times when the plant is most toxic;
- dilute fescue grass by interseeding legumes and other grasses;
- restrict use of nitrogen fertilizer, which boosts alkaloid levels;
- control seedheads, which have high concentrations of endophyte; and
- ammoniate fescue hay to break down the alkaloids.

Roberts said managing the infected fescue can add another pound per head per day in stocker calf or heifer gains.

Crawford said a typical study at the MU Southwest Center showed calves on infected pastures gained 185 pounds (lb.), compared to 318 lb. on the endophyte-free fescue pastures.

“Loss of gain is the hidden loss,” Roberts said. “If your cattle look the same as your neighbor’s cattle, you might not notice the difference. The first hurdle will be to admit that we have a problem.”

Methods of controlling fescue toxicosis will be taught at additional meetings by MU Extension this year. A 17-page guide on “Tall Fescue Toxicosis and Management” is available on the Internet at www.plantmanagementnetwork.org/feature/fescue/.



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