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Frequently Asked Questions Related to Fescue Toxicosis

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What causes Fescue Toxicosis?

In 1931, University of Kentucky Professor Dr. E.N. Fergus was taken to see a highly persistent grass on a hillside in Menifee County, KY. As history tell us this grass, released over a decade later as KY31 tall fescue, soon became the most common pasture grass in the Eastern U.S. However, this highly persistent, easily established grass was not without its drawbacks as producers started noticing issues related to animal performance in animals grazing KY31 tall fescue, commonly referred to today as “Fescue Toxicosis” or “Fescue Toxicity.” In 1977, several researchers at USDA Russell Research Center in Athens, Georgia reported finding a fungus inside the fescue plant thought to be the cause of toxicity. Later, through grazing studies in Alabama, the theory was confirmed when animals grazing endophyte-free fescue showed no signs of toxicity and made excellent weight gains. The fungus associated is an endophyte that grows symbiotically inside the plant cell walls. Recently, it has been determined that is not the presence of the endophyte, but rather ergot alkaloids produced by the *Neotyphodium coenophialum* endophyte, that cause livestock-related toxicity problems.

What are the symptoms of Toxicosis?

Some symptoms of fescue toxicosis are easier to see visually than others. In cows grazing toxic tall fescue, it is not uncommon for them to be thin or in poor body condition, be seen panting and/or salivating excessively, and grazing less often in the hot summer months. Animals may also have a rough hair coat due to retention of their winter hair coat in the spring. Ingestion of ergot alkaloids has been linked to increases in animal core body temperature making it more difficult to dissipate heat to cool themselves. Animals suffering from toxicosis are often observed congregating in ponds and under shade trees. Decreased conception rates in beef cows are common, especially in first calf heifers. Calf weight gains may also suffer as a result of both reduced milk production in cows and reduced grazing of calves thus resulting in an overall lower average daily gain. Lactation can also be significantly reduced in dairy cattle grazing toxic fescue. Mares grazing toxic tall fescue during the end of their pregnancy often have foaling problems that may result in death of the foal, death of the mare, or both. Even if there are no foaling problems, such mares often do not produce adequate quantities of milk for their foal.

Can the endophyte status change in a pasture?

The endophyte does not move from plant to plant. With this in mind, an endophyte free tall fescue pasture can remain “clean” with proper management. “Reinfection” of endophyte free tall fescue pastures often occurs through movement of the toxic endophyte:

1. by cattle that have previously grazed endophyte infected tall fescue pasture and deposited the seeds through defecation
2. by feeding toxic endophyte hay on endophyte free sod or
3. by emergence of toxic seed found present in the soil where endophyte free seed was planted.

There are now three categories of endophyte status of tall fescue commercially available for producer use:

1. Toxic Endophyte Tall Fescue (i.e. Kentucky 31) – the endophyte produces ergot alkaloids that have been linked to fescue toxicosis as discussed in this paper.
2. Endophyte Free Tall Fescue – the endophyte is absent thus resulting in good animal performance, but lacks pest resistance and stress tolerance, leading to decreased plant persistence in our climate.
3. Novel Endophyte Tall Fescue – the endophyte does not produce ergot alkaloids resulting in good animal and plant performance in our climate.

What management options do I have in dealing with the toxic endophyte?

There are several management options:

1. Remove livestock from endophyte infected tall fescue pastures during hot weather
2. Dilute the toxicity by introducing other feed materials into the animal’s diet, thus reducing the amount of toxins being ingested. The most efficient and inexpensive way to do this, in most cases, is to incorporate other complimentary forages into the pasture, especially a legume such as clover.
3. Completely replace or renovate tall fescue pastures with a novel endophyte* tall fescue.

How can I tell if I have toxic fescue in the pasture?

Unfortunately, you cannot look at tall fescue in a pasture and know the endophyte status (whether the fescue is toxic or not). Ask yourself how long it has been there and if you planted it? If the fescue is relatively old and you did not plant it, odds are it is toxic fescue. You can also take a step back and look at cattle performance – do they seem to be gaining weight? Are they spending a lot of time under shade trees or standing in the pond? Even if your animals are not showing the typical signs of fescue toxicosis you may be losing money due to the ingestion of endophyte toxins. There is a strong correlation between the amount of toxins ingested and the negative effects that occur on animals. Even if only a small amount of toxin ingested there is still almost certainly some negative impact typically expressed in animal weight gain.

Unless you test, it's just a guess!

Just like with soil fertility and forage quality, the only way to truly know beyond a shadow of a doubt the endophyte status of your pasture is to test it. There are several state and private labs that can perform the analysis.

Visit the Fescue Diagnostics Lab at Auburn University <http://www.ag.auburn.edu/enpl/services/fescue.htm>

Fescue Diagnostic Laboratory
209 Life Science Building
Auburn University, AL 36849-5409

or <http://agrinostics.com> for more information.

Be aware that endophyte testing determines presence/absence of endophyte, but does not determine ergot alkaloid levels within the plant. With the new release and growing popularity of novel endophyte tall fescue varieties, endophyte presence should be an expected result. If your pasture has been recently seeded and you believe it could be a novel endophyte variety, a separate test should be conducted to determine ergot alkaloid presence/concentration levels.

For more information on tall fescue management visit <http://www.aces.edu/pubs/docs/A/ANR-1239/ANR-1239.pdf> or request ANR-1239 at your local extension office.