



# Understanding Endophyte-Infected Tall Fescue and Its Effect on Broodmares

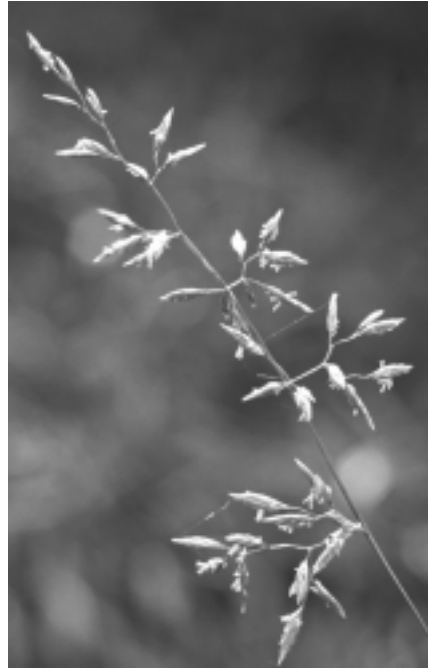
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Tall fescue is a cool-season perennial grass that is found in varying abundance in most Kentucky horse pastures. It is a coarse grass with broad leaves and prominent veins that is bunchy when allowed to get very tall. It has broader leaves and is more drought tolerant than bluegrass.

Most “old” fescue contains an internal plant fungus known as an endophyte (**endo** = **inside** + **phyte** = **plant**) that makes the plant more tolerant of environmental stresses but is detrimental to broodmares in the last third of gestation. Broodmares consuming endophyte-infected tall fescue during late gestation may experience prolonged gestation (as long as 13 to 14 months), dystocia or foaling difficulty, thickened placenta (“red bag” foal) or agalactia (a decrease or absence of milk production), and reduced breeding efficiency following parturition. Foals may be born weak or dead. Endophyte-infected tall fescue apparently causes few adverse effects in non-pregnant horses.

Newer varieties of tall fescue are available without the endophyte and are safe for all classes of horses. However, unless you know that the fescue you find in your pasture or hayfield is endophyte-free (either by personal knowledge or by test), it is better to assume that it is infected with the endophyte.

This publication will outline what you can do to determine if fescue is present in your feeding program, what steps you can take to avoid the problems associated with fescue toxicosis, and what to do if you suspect fescue toxicosis.



## Determining the Presence of Endophyte-Infected Fescue

Fescue may enter the horse diet from hay, pasture, bedding, or, in rare instances, a grain mix. It is easier to identify tall fescue in pastures or hayfields during active growing periods and before it is cut for hay. It is difficult to identify in mixed grass hays. During the hay-curing process, tall fescue leaves will roll into a tight cylinder, making identification difficult. Therefore, learn how to identify tall fescue in your fields and distinguish it from other pasture grasses such as bluegrass and orchardgrass (see the reference list at the end of the publication and ask your county Extension agent for help). Walk pastures and hayfields that are part of your horse feeding program and scout for the presence

of tall fescue. The “safe” threshold for infected tall fescue in a pasture or in hay is not precisely known, but small amounts of tall fescue are common in most fields and should not be an automatic source of concern.

## How to Avoid Problems with Tall Fescue

If endophyte-infected fescue is present in the pastures, remove mares from the pasture during the last 60 to 90 days of gestation and feed a fescue-free diet. If it is not possible to remove the horses from the tall fescue, the tall fescue will have to be removed from the pasture. The infected fescue can be removed from the pasture by spot treatment or by re-establishment. You can get advice on pasture renovation from your county Extension agent. If you do not have access to a non-infected pasture for your mares, place them in drylot and feed high-quality, fescue-free hay as your main source of roughage. It is important to remove the mares from the infected forage, as you cannot just feed other feeds and hope to dilute the effects of the infected pasture. Monitor your mares



*Remove pregnant mares from infected forage 60-90 days prior to foaling.*

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for udder development during the last 30 days of gestation. Attend to mares during foaling to provide assistance as required. Alert your veterinarian to the possibility that your mares may have been exposed to endophyte-infected fescue during the later stages of gestation. In the late 1990s, a drug, domperidone, was tested on horses and found to be effective in treating fescue toxicosis. Horse owners should consult with their veterinarian regarding the use of domperidone on their farms.

## What to Do If You Suspect Fescue Toxicosis

Because fescue may enter the horse diet from many sources, it is important to characterize all of the sources if you suspect that endophyte-infected fescue is creating a problem. The toxic compounds in tall fescue are present in very small quantities (parts per million and parts per billion) and in some cases are destroyed by the way samples are handled.

To fully determine the likely cause of the toxicosis, all aspects of the forage components have to be analyzed. In many cases, commercial assays for the toxic compounds are expensive and slow. Therefore, in most cases, it will not be possible to get a complete characterization quickly. Planning ahead will allow you to make the necessary decisions for the management of your mares and reduce the risks associated with fescue toxicosis.

### *Pasture*

Locate and identify fescue in the pasture fields that the pregnant mare was grazing. Make notes on the relative percentage of the field that is in fescue and its height relative to the other grasses. To determine if the fescue is infected with the endophyte, 2x2x2-inch "divot" samples of the fescue are required that have approximately 1 inch of soil and 1 inch of grass. Take approximately 20 samples for a 10-acre field of fescue. Keep these moist and get them to your local county Extension office or to the Division of Regulatory Services on the

University of Kentucky campus at the corner of Alumni Drive and University Drive in Lexington. There is a fee for this service, based on the number of samples taken (usually around \$20). This assay is most accurate when fescue is actively growing, usually during the months of April, May, and June. At other times, other types of tests must be used.

### *Supplemental hay*

Check a flake of the hay being fed for the presence of fescue. However, be aware that many grasses may look similar when cured into hay, and fescue may not be definitely identified. Currently no test for the presence of the endophyte in hay is commercially available. If you suspect your hay contains a high level of fescue, you should consider an alternative hay source.

### *Grain mix*

If supplemental feed was being fed, take samples of this material for analysis. Some feed can be contaminated with ergot fungal bodies, which cause the same symptoms as fescue toxicosis.

### *Bedding*

It is common to bed horses on pasture clippings which may have been taken from fields that contained significant amounts of fescue. If horses were bedded on this type of material, determine if fescue was present. Fescue leaves will most likely be rolled up when present in bedding or hay, making identification more difficult. The alkaloids in fescue are still toxic in hay or clippings made from infected plants. Seedheads of infected tall fescue plants contain the highest concentration of toxic alkaloids.



### *Other sources*

In some cases, used bedding from other barns is spread onto pastures used by pregnant mares. If this is the case, determine if fescue is present. All bedding should be composted prior to spreading on pastures to reduce contamination.

The following are good sources of information about fescue and the endophyte.

*Fescue for Horses: Problem or Opportunity?* D. Ball, M. Putnam, G. Lacefield, and C. Hoveland. Special Publication, Oregon Tall Fescue Commission, Salem, Oregon. Available at no cost from Jimmy Henning (859) 257-3144, N222D Agricultural Science Building North, Department of Agronomy, University of Kentucky, Lexington, Kentucky 40546-0091.

*Alternatives for Fungus-Infected Tall Fescue.* Garry Lacefield and Jimmy Henning. University of Kentucky Cooperative Extension Service Publication AGR-119.

*Sampling for the Tall Fescue Endophyte in Pasture or Hay Stands.* P. Vincelli, M. Siegel, and E. Fabrizius. University of Kentucky Cooperative Extension Service Publication PPA-30.