

The Diagnosis of the Tall Fescue Endophyte

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History of Tall Fescue

In 1931 Dr. E. N. Fergus of the University of Kentucky became interested in a tall fescue growing in Kentucky. He collected seed and his subsequent tests led to the release of "Kentucky 31" in 1943. This variety now grows on most of the tall fescue acreage in the United States. This grass was found to be well-adapted, easy to establish, tolerant to a wide range of management practices, and produced good forage yields. Laboratory analysis of fescue compares favorably to many other cool-season grasses in nutritional quality.

However, this new grass was not without its problems. Performance of animals grazing fescue was often variable and disappointing. In the mid- 1970's, researchers noted a difference in the performance of animals grazing different fescue fields. The toxic pastures were found to contain high levels of a fungus growing within the plant (endophyte).

This fungus, (*Acremonium coenophialum*), has two characteristics of practical importance.

- 1. The organism does not affect appearance of the grass; thus, it takes laboratory analysis to detect its presence.
- 2. It is seed-transmitted and apparently not transmitted any other way. Once an infected stand is established it will remain infected.

With knowledge about the presence of the fungus and the level of infection, management decisions can be made to help improve animal performance.

Who Should Use the Testing Service?

There are several situations where livestock producers can use this testing to their advantage. Information on the level of, or the lack of, infestation should be used in making decisions on the management of a particular field. These practices include pasture fertilization, rotation, renovation, or reestablishment.

An approximation of the level of infestation can be made by collecting plant material from the field and submitting it for analysis.

Fescue seed can also be tested for the presence or absence of the fungus. For information on this type of testing please contact the laboratory.

Results are usually available within one week of receipt of the sample. The individual submitting the sample will be notified by mail. Recommendations and interpretation of test results can be received by contacting Keith Johnson, Purdue University Forage Specialist, at (317) 494-4800.

A charge will be made for this laboratory analysis to partially cover the costs involved. Please contact the laboratory for current charges.



Collecting tall fescue tillers (cut tillers on right) for diagnosis of the tall fescue endophytic fungus.

Sampling Procedure for Pastures

To determine the infestation level of a pasture, it is necessary to obtain a good plant tissue sample for analysis. Before the plants form seed heads, the fungus is concentrated in the tiller (stem). A minimum of 50 tillers are required for each field sampled. Only one tiller should be taken from the crown of each random plant selected. The lowest 4-6 inches of an actively growing large tiller should be cut off at ground level and submitted. Be careful to avoid ditches and fence rows that may not be typical of the field as a whole. In mixed stands, take care not to collect any grasses other than fescue; if there is a question, please submit the entire stem or contact your Cooperative Extension Service Agricultural Agent for help in identification.

Packaging and Mailing Procedure

The ideal packaging method is to wrap the tillers in a damp paper towel and seal in a plastic bag. Samples should be sent immediately to the laboratory by first-class mail in a padded envelope or cardboard box. Please collect and mail samples so they will arrive at the laboratory during the weekdays. Samples should be mailed to:

- Animal Disease Diagnostic Lab
Southern Indiana Purdue Agricultural Center
11367 E. Purdue Farm Road
Dubois, IN 47527-9666
- Phone (812) 678-3401

Questions can be directed in writing or by calling the laboratory.

Sample Submission Form

Name _____ Name or number of field _____
 Phone number (____)_____ Size of field (acres)_____
 Address _____ Age of field (years) _____
 _____ Fescue variety if known _____
 County_____

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