

SARE / RESEARCH AND EDUCATION
PROJECT PROFILE

I. GENERAL INFORMATION

Project # The official project number: 95LNE95 - 52

Project Title The title of the project: Fescue Endophyte Research Study

Proj Coord Name(s) of the Project Coordinator(s):
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SARE \$ \$ 9,632 (Total amount of SARE funds this project has been granted,
including all new or renewed contracts with the Regional SARE
Program Host Organization)

Matching NF \$ \$ 7,310. (Total matching non-federal contribution to this project)

Matching Fed \$ \$ _____ (Total matching federal funds contributed to this project)

Project Duration 2 (Number of years that SARE funds were requested for project)

Current Status Current Status of this project. Circle one:
Active
Completed

Report Type Type of report being submitted. Circle one:
Annual
Final

ABSTRACT

Year one of this two year project has provided documentation of fescue endophyte levels from 80 fields on 25 different farms in the Maryland, Pennsylvania, and West Virginia tri-state area. Results have shown that 68% of the fields tested have endophyte levels at 60% or higher.

Data collected the first year has been loaded into a computer database and the information, along with interim recommendations, have been provided to those farmers participating in the study. Sixty percent of the herds found to be grazing infected fescue will be tested to determine herd health by the end of the project.

At the conclusion of the project (January, 1998), results of the fescue endophyte research study will serve as a basis for making sustainable management recommendations to the agricultural community. To accomplish this, an agricultural demonstration field day will be held to share information with the farming community along with a workshop to share results of the study with conservation groups, government agencies and sportsmen's groups.

A final activity will be to develop a publication with our study results, as well as general guidelines and recommendations for treatment of the fescue endophyte.

Year two of the project began with the major participants discussing the hiring of another summer intern to do additional testing. It was decided that we would do the testing with current employees on an as needed basis. We all felt that a sound data collection process was performed during the first year and additional sampling would not change the results of the study.

Because of the variety of sites and differing effects of the fungus on livestock classes, herd health was determined too large of a variable to adequately measure. Confirmation of this was given by a West Virginia University veterinarian. Therefore, we did not pursue this aspect of the research.

A workshop is planned later this year for disseminating project results to the farming community.

Plans still include the development of a publication with study results and recommendations for treatment of high endophyte infected fescue.

ANNUAL REPORT

SARE PROJECT LNE95-52 FESCUE ENDOPHYTE RESEARCH STUDY

OBJECTIVES

Objective 1:

50% of all farms with Fescue pastures in Allegany County will have pasture field tested for Fescue Endophyte by November 1, 1997.

Objective 2:

60% of the herds found to be grazing infected fescue will be tested to determine herd health by the end of the project.

Objective 3:

By January 1, 1998, begin using the results of the Fescue Endophyte Research Study as a basis for making sustainable management recommendations to the agricultural community.

Objective 4:

By January 1, 1998, conduct an agricultural demonstration field day to share with the farming community the Fescue Endophyte Research Study results.

Objective 5:

By January 1, 1998, conduct a workshop for conservation groups, government agencies, and sportsmen's organizations to share results of the study and its correlation to wildlife habitat.

SPECIFIC PROJECT RESULTS

A. Findings and Accomplishments:

1. A total of 85 fields have been tested on 31 different farms in the tri-state area to date. Based on our findings, 68% of the fields tested showed endophyte levels at 60% or higher. The testing period was from June, 1996 to September, 1996; July, 1997; and July, 1998.
2. The fields with "hot" pastures have been identified and made known to the farmers with recommendations as to options for managing and improving pasture quality.
3. A fact sheet with our study results, general guidelines and recommendations for treatment has been developed for public information.
4. A program was given to farmers in a tri-county region around Morgantown, West Virginia, in May, 1997. Results of the 1996 testing period were shared and treatment methods were discussed. A total of 30 producers were present. A display of the project was setup at the Grazing in the Northeast Symposium that was attended by over 200 farmers, researchers, and specialists.
5. A workshop was held in November, 1997 sharing project results and recommendations with more than 50 farmers and landowners in the project target area.

B. Dissemination of Findings:

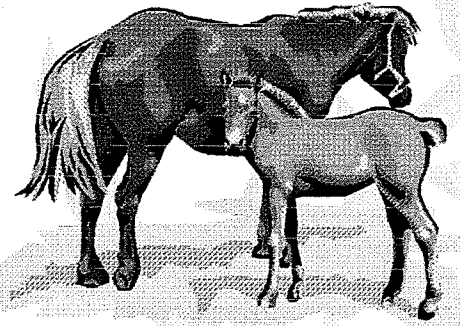
Please refer to Objectives 3, 4, and 5.

C. Site Information:

The project was accomplished in the Appalachian Mountain region, involving two physiographic provinces, the Allegheny Plateau and the Ridge and Valley. Soils in the project area vary from shallow and shaley on to ridges to deep and fertile in the flood plains and stream terraces. Within Allegany County, where a majority of the testing was done, the eastern part of the county receives 10-15 inches less precipitation per year than the Allegheny Plateau to the west.

D. Economic Analysis:

Since the average test results showed a 60% or higher endophyte level, animal health in certain classes of livestock were at risk. Dairy cattle, breeding mares, meat animals, and young animals would have a higher risk of breeding or production losses. See attached recommendations for these classes of livestock.



DAIRY CATTLE AND BREEDING MARES - Low Infestation

This includes pasture and hayland that is comprised of 50% or more Fescue and contains less than 25% endophyte fungus.

- * Try to maintain a 50 - 60% grass and a 40 - 50% legume mixture.
- * Frostseed or drill clovers in early spring every 2 - 3 years.
- * Keep Fescue in a non-seed producing state by mowing or grazing regularly.
- * Make sure animals are getting adequate nutritional requirements and supplements.
- * Take cows or mares off "Hot" Fescue pastures during the last third of pregnancy, especially during peak hot summer months (ie. July and August.) This will improve milk production levels in both cows and mares.

DAIRY CATTLE AND BREEDING MARES - High Infestation

This includes pasture and hayland that is comprised of 50% or more Fescue and contains more than 25% endophyte fungus.

- * Replace Fescue with a certified endophyte free variety or an alternative forage species. This can be done by traditional plowing and planting or chemically spraying and notilling. Using Management Intensive Grazing (MIG) is NOT recommended with these classes of livestock.



High endophyte fescue is common in pastures and hay fields through out the Northeast. Toxicity can only be tested by collecting field samples and viewing under a high powered microscope. By testing field data, estimates can be made to inform farmers of potential production losses.

**Allegheny Soil Conservation District
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Fescue Endophyte Study Fact Sheet

Project Range: 3/1996 - 6/1998

The research project was primarily funded through a **SARE** Grant in order to do local testing as a means of providing forage information to farmers in the Maryland, Pennsylvania, and West Virginia region. Continued testing is available upon request.



RECOMMENDATIONS FOR ENDOPHYTE INFECTED TALL FESCUE FORAGE

BEEF CATTLE AND SHEEP - Low Infestation

This includes pasture and hayland that is comprised of 50% or more Fescue and contains less than 50% endophyte fungus.

- * Try to maintain a 50 - 60% grass and a 40 - 50% legume mixture.
- * Frostseed or drill clovers in early spring every 2 - 3 years.
- * Keep Fescue in a non-seed producing state by mowing or grazing regularly.
- * Make sure animals are getting adequate nutritional requirements and supplements.
- * Focus on target calving or lambing intervals (45 days) by removing cows and ewes from "HOT" fescue pastures during peak breeding times.

BEEF CATTLE AND SHEEP - High Infestation

This includes pasture and hayland that is comprised of 50% or more Fescue and contains more than 50% endophyte fungus.

- * Follow the recommendations above and consider replacement of high endophyte Fescue with an endophyte free variety or an alternative species. This can be done by traditional plowing and planting, chemically spraying and notilling, or using Management Intensive Grazing (MIG) to keep plant heights below 6 inches. This will suppress the Fescue and encourage other forages to repopulate the stand.



Animals feeding on Tall Fescue forages with high levels of endophyte toxicity react differently depending on the type and class of livestock. Here is a young calf staying close to water because body temperatures are elevated from the 100% fungus levels in the pasture. Breeding stock and younger animals are the most intolerant. Symptoms include reduction in weight gains, poor milk proction, less time feeding, longer periods between gestation, and various other reproduction problems.

Testing results have shown that the average level of endophyte infestation in the 86 fields tested were well above 60 percent. In any class of livestock, this is considered to be high levels of toxicity. At these levels it is most likely that some production loss is taking place. If your animals are showing any of the above symptoms, please contact your Vet or give use a call at (301) 777-1494.