

# HORSE PASTURE MONITORING PROGRAM: RESULTS AFTER THREE YEARS

*Tom Keene & S. Ray Smith*

Hay Marketing Specialist  
Extension Forage Specialist  
University of Kentucky

## **Overview**

Since 2001-2002 and the outbreak of Mare Reproductive Loss Syndrome (MLRS) the University of Kentucky has been developing stronger ties with the state's equine industry. Approximately 30% of the foal crop was lost in the Central Bluegrass region during this period with a devastating impact on the industry. Traditionally, many Thoroughbred farms have functioned as independent entities, but MLRS helped them to realize that the University of Kentucky had tremendous amount of expertise that they could provide in the areas of animal health, forage management, and other areas. Initially, there were many theories as to the cause of MLRS with tall fescue and other potential toxic plant species often mentioned. In the end, MLRS was found to be caused by the accidental ingestion of eastern tent caterpillars, but one of the positive outcomes was that farms realized the need to better understand the composition of their pastures.

Horse farms in the Central Kentucky are interested in UK's assistance with pasture evaluation. Although some farms rely on the expertise of their county agents or independent consultants, during the fall of 2005 a team from the UK Forage Extension Program conducted a pilot project to provide an extensive evaluation of horse pastures on 14 Central Kentucky farms. One of the focuses of the pilot project was the evaluation of pastures for percent tall fescue and the potential for stands with significant fescue to cause fescue toxicity in pregnant broodmares. In 2006 and 2007, the program was continued with tremendous success and now almost 50 farms have been enrolled in the program totaling almost 10,000 acres.

Evaluations from participants in the program have been very positive. Mike Owens, past president of the Kentucky Thoroughbred Farm Managers Club (KTFMC) and a program participant said, "UK's Pasture Evaluation project has proved to be a very useful tool in pasture management on the farm. The project identifies and gives the percentage of grasses and weeds in any given pasture, along with the ergovaline levels. Their identification and recommendations are presented in a professional package with a CD that makes for a quick reference tool." Another former KTFMC president, Steve Johnson, states that the "equine industry sorely needs the monitoring and consultation

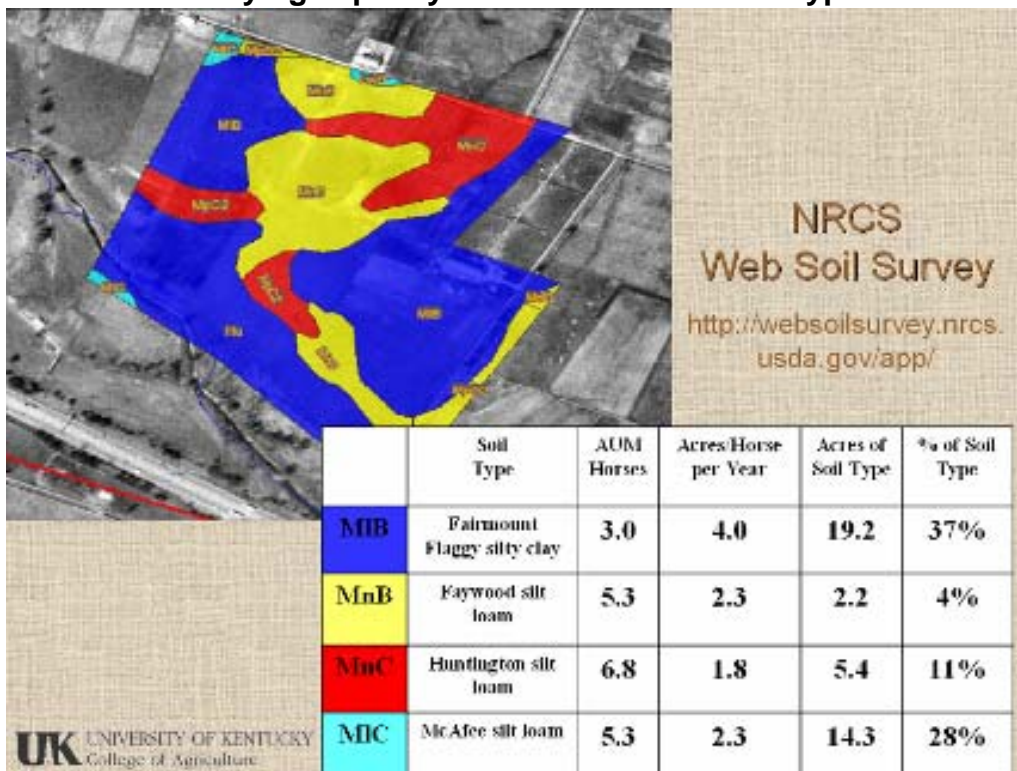
being provided with this service.” Steve goes on to add that “It’s very gratifying to know that UK is addressing the issues that are important on horse farms in Central Kentucky.” A recent participant adds, “I cannot imagine having access to a program that will have as much overall impact on the quality of the horses that we are producing here in the Bluegrass. This program is long overdue!”

With the success of the program, we are offering an expanded pasture evaluation service to horse farms in the Central Bluegrass area in 2008. At the end of this paper an excerpt of the registration form provided to farm owners and managers is included.

### Information Provided to Farms

After the pasture evaluation is completed, the program leader and coordinator sit down for 1 to 1 ½ hours with the farm manager and/or owner and explain the data obtained from their farm evaluation. Each farm receives a notebook containing an overall farm map, a soils map taken from web soil survey, detailed species composition charts from each paddock (20 quadrat samples per paddock), photographs of all quadrat areas, individualized pasture management recommendations, additional publications, and other information on their farm. Since many horse farms do not have a strong agronomic background, a complete explanation of soil types and carrying has proved very useful (Figure 1).

**Figure 1. Horse farm soil map taken from web soil survey with explanation of carrying capacity and acres in each soil type.**



Although there are many pages of data provided to each farm one of the most useful tables is the average species composition from the evaluated pastures, including the percentage of tall fescue, endophyte infection rate, and ergovaline levels at the time of sampling (Figure 2). Part of the discussion includes an explanation of tall fescue consumption by broodmares grazing mixed species pastures and the potential health risks during the last trimester. Microhistological analysis conducted by Morrison (2008) showed that tall fescue consumption is closely correlated with botanical composition in the pasture (Figure 3).

**Figure 2. Average species composition, endophyte percentage, and ergovaline (ppb), from 47 horse farms evaluated in Central Kentucky during 2005-2007.**

Tall Fescue	Blue Grass	Orchard Grass	White Clover	Weeds	Bare Soil	Ergovaline ppb	Endophyte infection %
24	26	12	8	20	10	301	71

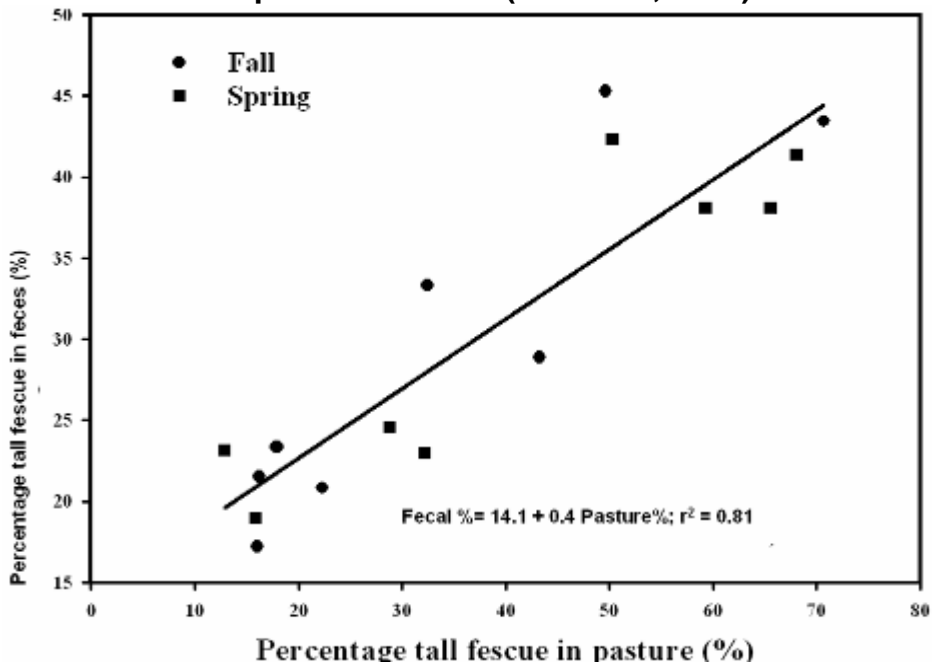
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Amount of Available Forage = 70%

Amount of Tall Fescue in Forage = 34%

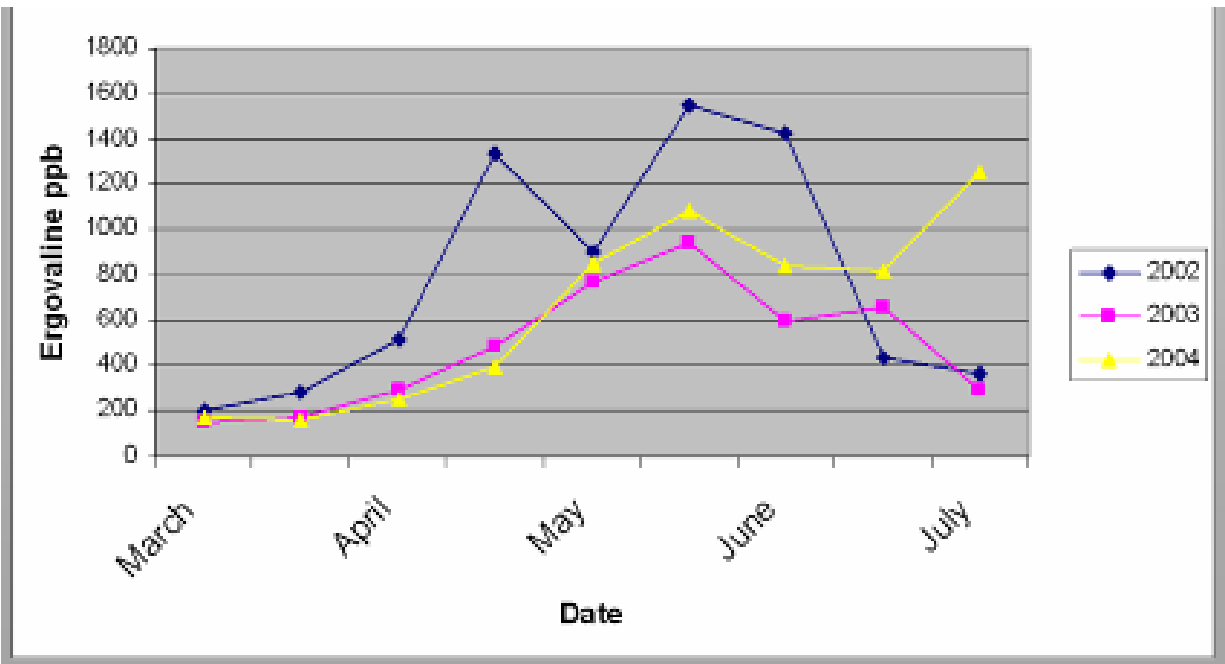
Ergovaline Conc. of Available Forage = 102 ppb

**Figure 3. The percentage of tall fescue consumed by grazing broodmares compared to the percentage of tall fescue in the pastures based on microhistological analysis of fecal samples taken from mixed season grass species mixtures (Morrison, 2008).**



The results from each farm make up the majority of information presented, but some time is spent discussing the principles of pasture management based on research findings in other studies. A number of researchers have shown the variation in ergovaline levels over the growing season, but most horse farm owners and managers are not aware of these findings. They are surprised to learn that ergovaline levels are low in Central Kentucky from December into early April (Bush and Long, unpublished data). Since the goal for Thoroughbred births is early January and the majority are born by early April, then there is a wide window of opportunity for safe late term gestation even on pastures with high percentages of tall fescue. The take home message is tall fescue is an excellent cool season forage grass for pasture cover, non-pregnant mares and other classes of horses, but care should be taken when grazing broodmares on fescue pastures.

**Figure 4. Ergovaline levels (ppb) from all farms monitored during the spring and summer of 2002-2004 (Bush and Long, unpublished data). The levels presented at each data point represent the average of the maximum levels from each farm.**



The last part of the final presentation to farms is the individualized recommendations sections. Although the most important question for most broodmare farms is “how much tall fescue do I have and how do I get rid it,” the program emphasized the need for a wholistic approach to pasture management including the value of rotational grazing, timely fertilizer applications, general weed control, and other management options available to the horse farms.