



# New Recommendations for Perennial Ryegrass Seedlings for Kentucky Horse Farms

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## Current Situation

Farm visits during the spring of 2001 revealed that a few pastures had perennial ryegrass as a minor component of the pasture (5 percent or less). Subsequent tests on samples of this perennial ryegrass revealed most plants were infected with a fungal endophyte that is similar in life cycle to the endophyte of tall fescue.

These farms seeded varieties thought to be endophyte-free, but these seedlots were not tested for the endophyte. In the past, ryegrass has not been routinely tested for the presence of the endophyte. This finding (infected perennial ryegrass from varieties thought to be endophyte-free) in horse pastures is a minor concern but one that farm managers, farm advisors, and the seed industry can address.

Infected perennial ryegrass is not thought to be related to the Mare Reproductive Loss Syndrome of 2001 because its occurrence did not correlate with the occurrence of foal loss.

To put this issue in perspective, the number of fields where perennial ryegrass was found was low, and the percentage of the pasture that was perennial ryegrass was much lower than tall fescue. Tall fescue is a much greater problem for horses than perennial ryegrass.

## Ryegrass Endophyte Biology and Symptoms

The endophyte of perennial ryegrass is a fungus (*Neotyphodium lolii*) that completes its life cycle within the plant. It is spread only by seed. This plant-endophyte relationship is similar to that in tall fescue but is not the same.

The presence of the fungus in perennial ryegrass may cause the production of either one or both of two classes of alkaloids: lolitrem and ergot-types. Even though a perennial ryegrass plant is infected, it does not necessarily contain alkaloids. In an Australian study, 10 to 17 percent of infected plants produced significant amounts of ergovaline (an ergot-type alkaloid), while 0 to 28 percent produced significant levels of lolitrem B.

Lolitrem potentially affect all horses (stallions, geldings, mares), while the ergot-type alkaloids found in perennial ryegrass mainly affect mares in late gestation.

## Problems in New Zealand and Australia

Infected perennial ryegrass is known to cause "ryegrass staggers" in horses in New Zealand and Australia. Ryegrass staggers is a nerve and muscle disorder that causes horses to tremble. They are unable to move and may fall down. This disorder is not usually fatal, and affected horses normally recover when offered non-toxic feed.

## Problems in the United States

Cattle grazing infected perennial ryegrass have experienced ryegrass staggers in the Pacific Northwest. However, there have been no documented cases of ryegrass staggers in horses in the United States.

## Reproductive Problems

In at least two cases (in South America), pasture produced from endophyte-infected perennial ryegrass seed resulted in symptoms in horses similar to those caused by infected tall fescue.

## Kentucky Recommendations

Any perennial ryegrass seeded into horse pasture or used for the establishment of new horse pasture should be low-endophyte, which means less than 5 percent infected seed. The best way to judge if a bag of seed is low-endophyte is to look at the level of endophyte infection on the green tag affixed to the bag. This green tag will state the level of infection. Seedlots to be used for horse pastures should contain 5 percent or less infected seed. Newer turf-type perennial ryegrasses also can have green tags, but these products will have high levels of endophyte infection.

If you have perennial ryegrass present in pastures now, you do not need to kill it or to be overly concerned. Perennial ryegrass will die out on its own in a short time (two to three years) if seedheads are kept clipped, and it usually comprises a very small part of the pastures where it is found.

If you have seeded significant acreage to a perennial ryegrass and want to get it tested for endophyte content, apply the same methodology used for tall fescue found in Extension publication PPA-30, *Sampling for the Tall Fescue Endophyte in Pasture or Hay Stands*, available from local county Extension offices or on the University of Kentucky College of Agriculture Web site at: <[www.ca.uky.edu/agc/pubs/ppa/ppa30/ppa30.htm](http://www.ca.uky.edu/agc/pubs/ppa/ppa30/ppa30.htm)>. You can get more information on identifying perennial ryegrass and how to sample for the endophyte from the "Ryegrass" section in Extension publication AGR-175, *Forage Identification and Use*, available from local county Extension offices or by visiting the following Web site: <[www.ca.uky.edu/agc/pubs/agr/agr175/ryep.htm](http://www.ca.uky.edu/agc/pubs/agr/agr175/ryep.htm)>.

## Summary

Perennial ryegrass, found as a small percentage of a few horse pastures during 2001, was found to be endophyte-infected. This perennial ryegrass was not correlated to the Mare Reproductive Loss Syndrome. This endophyte is similar to the tall fescue endophyte and can cause problems in horses. The likelihood of problems from perennial ryegrass is very low due to its small proportion in pastures. The perennial ryegrass presently in pastures does not constitute a major concern to horse owners and farm managers. Perennial ryegrass is still a valid component of future horse pasture seedings and renovations, but any seed used should be low-endophyte (5 percent or less) or endophyte-free. This information will be on a green tag issued by the Oregon Department of Agriculture.