University of Minnesota
EXTENSION
Horse Program

Plants Poisonous or Harmful to Horses

Endophyte-Infected Tall Fescue

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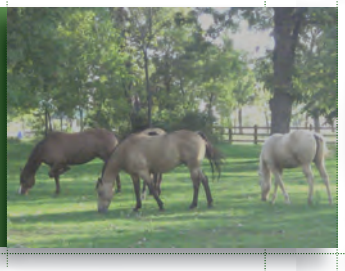

Providing research-based information to Minnesota horse owners

Vegetative tall fescue

Scientific Name: *Festuca arundinacea.*

Origin: Introduced from Europe.

Lifecycle: Perennial.

Identification: There is no physical or visual way to tell the difference between endophyte-infected tall fescue and endophyte-free tall fescue with the naked eye. Tall fescue is a bunch grass. Leaves are numerous, dark green, and shiny. Leaves are smooth on the under surface, but rough to the touch on the upper leaf surface because of the ribbed veins. Endophyte-free tall fescue can be fed to or grazed by horses.

Distribution: Commonly found throughout the United States and Minnesota.

Habitat: Commonly found in pastures and hay fields, and can be grown on poorly-drained soils.

Control: Removal of endophyte-infected tall fescue will most likely require a major pasture or hayfield renovation. There are no herbicides available to selectively remove endophyte-infected tall fescue from grass pastures or hay fields while keeping beneficial grass species. There are herbicides available to remove all grass species from alfalfa or clover pastures or hay fields. The best control is to not plant endophyte-infected tall fescue.

Toxin: The endophyte (an organism that lives within a plant) grows symbiotically with tall fescue and has a positive influence on fescue growth, including defending the plant from pests. The endophyte is not externally visible with the naked eye. Unfortunately, the endophyte induces toxicity in horses. Fescue infected with the endophyte *Neotyphodium coenophialum* (formerly known as *Acremonium coenophialum*) is known to produce many ergopeptide alkaloids. Most of the toxic effects of fescue are now attributed to ergovaline, a specific ergopeptide alkaloid.

When Toxic: Toxic when eaten fresh and when dried in hay. Ergovaline concentrations are usually highest in the seeds

Mature tall fescue

and leaf sheaths. Concentrations in the stems and leaf sheaths tend to peak in late June and then decline as seeds develop. Ergovaline concentrations may be higher after nitrogen fertilization and lower during heavy grazing.

Signs and Effects of Toxicosis: Many clinical syndromes have been associated with endophyte-infected fescue including reproductive loss, fescue foot, summer slump, and fat necrosis. Reduced conception rates, prolonged gestation, weak foals, stillbirths, abortions, thickened placentas, and lack of milk production in mares have been observed in horses fed endophyte-infected fescue. Fescue foot is the loss of feet, ears, tails, or any combination of these due to the vasoconstrictive effect of ergovaline on blood vessels. Summer slump and fat necrosis are rare in horses.

Treatment: Many treatments have been investigated for these syndromes including selenium, copper, thiamine, dopamine antagonists such as metaclopramide, or dopamine agonists such as bromocriptine. The best approach is to avoid endophyte-infected pasture or feed endophyte-free hay. Pregnant mares should be removed from endophyte-infected fescue 45 days before foaling.

Recommendations: Most fescue in Minnesota is endophyte free, but labels of pasture mix containing tall fescue (and other fescues) should be checked. Endophyte infected or enhance fescues should not be planted in Minnesota horse pastures. Endophyte free fescues are commercially available.

Other Information: Tall fescue is adapted to a wide range of soil, including wet soils, is somewhat tolerant of continuous grazing, and has excellent fall productivity. Tall fescue can have marginal winter hardiness and low palatability.

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In Partnership...

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