Is Feeding Endophyte Infected Fescue Hay Associated with Lameness in Horses

Every farmer in America that owns livestock looks for a low cost, hardy, and nutrient dense plant that they can feed to their animals. At one point tall fescue looked like it could be that plant. However, numerous studies have shown that some plant grazing animals have issues with tall fescue grass. This is due to a fungus that grows in between the cells of the plant and is toxic to certain livestock species. Horses in particular are sensitive to this grass. Consumption of endophyte infected fescue leads to a number of health and reproductive issues in horses that need to be investigated.

Tall fescue is a perennial bunch grass that is well rooted and forms a dense sod. It is similar to ryegrass in appearance with yellowish to dark green leaves with a dull surface. Tall fescue is popular for a number of reasons. It is insect and nematode resistant, thrives in poor soil and poor climates, and it has a long growing season. Most fescue grown is infected with a fungus called *Neotyphodium coenophilum* and produces an endophyte toxin that has detrimental effects on a number of livestock species. The endophyte is present in the seed at the time it is planted and when it becomes a seedling, it infects the base of the leaf. When the grass goes to reproduce, the endophyte infects the stem and travels to the seed head eventually moving into the seed. The fescue that is infected with the endophyte toxin will look the same as the fescue that is endophyte free, the only way to tell if your fescue is infected is to take a sample and send it to a lab (Roberts, 2015).

Cattle, dairy or beef, which graze on endophyte-infected fescue will not perform as well compared to cattle that don’t feed on endophyte-infected fescue. These animals will have a drop in the rate of gain per day since they will have a reduced feed intake. They will also just appear to look worse with rough hair coats and produce lots of saliva. Cows in particular will have a tough time performing when it comes to reproducing, which may include aborting fetuses. Cows will have decreased amounts of prolactin which will lead to a decrease in milk production and a lack of colostrum for calves born to these cows. Sheep seem to fair well feeding on fescue grass that has been infected with the endophyte. They are prone to fescue foot, hyperthermia, and poor wool production (Roberts, 2015).

Horses are the most sensitive to endophyte infected fescue. Mares that ingest endophyte infected fescue during pregnancy can have late term abortions, thickened placentas, stillborn foals, prolonged gestations, dystocia, laminitis, and decreased prolactin levels which leads to agalactia, which is not being able to produce milk (Roberts, 2015). Foals born to mares that have consumed the endophyte infected fescue will be born larger than normal, more prone to infections due to lack of colostrum, uncoordinated, overgrown hooves, lower body temperatures, and have a poor suckling reflex (Roberts, 2015).

Besides giving mares difficult births and inhibiting them from nursing their foals, does endophyte infected fescue cause other problems among horses? One study found that horses that consumed endophyte infected fescue had increased vasoconstriction. Vasoconstriction is “the narrowing of blood vessels by small muscles in their walls, slowing or blocking blood flow (National Library of Medicine, 2015).” Ten horses each received three possible treatments. They were fed endophyte-positive whole seed, endophyte-positive ground seed, or endophyte free ground seed. There were two periods, period one was where the horses were acclimated to being fed a concentrate and alfalfa cubes. Period two consisted of feeding the seed with the concentrate with ad lib cubes of alfalfa. The distal palmar artery of the left foreleg of each horse was scanned for four days during each period. What was discovered that the horses that were fed the endophyte-positive ground seed showed more vasoconstriction than the horses that were fed the endophyte-free seed. The horses that were fed the endophyte-positive whole seed showed some vasoconstriction but they tended to show less vasoconstriction and look more like the horses that were fed the endophyte-free seed (McDowell, 2015).
If feeding endophyte-infected fescue caused vasoconstriction in the legs of horses, could that lead to other potential problems like lameness? According to a study done feeding horses endophyte-infected fescue may increase lameness or sensitivity in a horse’s hooves. Twelve horses consisting of six mares and six geldings were used in a 90 day study that integrated high endophyte fescue hay and low endophyte fescue hay into their diet. While there were no initial differences with amount of blood flowing to the hoof between groups or temperature of the hoof there were differences noticed with lameness between groups. The group that was fed the high endophyte fescue hay showed more of a reaction to the hoof testers on day 60 and day 90 than the group that was fed the low endophyte fescue hay. Geldings tended to show more lameness trotting in a straight line and longeing on day 60 opposed to the mares that were fed the high endophyte-infected fescue hay (Douthit, 2015)

In conclusion, horses that graze on endophyte-infected fescue are at increased risk for vasoconstriction and may increase their chances of coming up lame. Pregnant mares need to be watched closely and need to avoid contact with endophyte-infected fescue to avoid complications with pregnancy, foaling, or lactating. With all of these detrimental effects of feeding fescue grass to horses, what we need to ask is what do horses get out of eating this feedstuff? Is it a good for the horse to feed fescue grass or have a horse on a pasture with fescue grass when the feed stuff may be doing more harm than good?
C. Roberts. Department of Agronomy. Tall fescue toxicosis. Accessed 10/15/15
http://extension.missouri.edu/p/G4669

