

Will My Horse Eat That?

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In many situations, a horse owner's concern may be different than the title of this presentation. Rather than will my horse eat something, a question such as "what if the horse eats it" may be closer to what needs to be asked.

When looking through horse owners references, it is common to see comments such as "the horse will not readily consume," or "horses may eat this if there is nothing else to choose." As a horse owner, neither statement provides much comfort and can cause concern if the horse were to eat something that caused problems.

The intent of this presentation, is to discuss areas of concern regarding feeding your horses. Certain topics will focus on situations that horse owners can avoid by selecting different feeds or forages, others are meant to provide information that will help horse owners to make decisions on how appropriate certain feeds may be for their horses.

Moldy Feeds

It is or should be, a common practice for horse owners to select hay that is free of mold and dust. Hay that is baled at too high a moisture content is at risk to mold. The mold of concern is that fine powdery dust like mold that is released from the hay when it is disturbed during feeding. The formation of this mold can occur if hay is baled with a moisture content greater than 16.5%. As a horse owner, you can check moisture content when hay is analyzed and if the hay has a higher moisture content, you cannot purchase the hay.

The mold when inhaled by the horse causes an allergic reaction similar to asthma in people. This allergic reaction results in a reduction in elasticity of the alveolar tissue. This loss of elasticity makes it difficult for the horse to exhale. In order to exhale, the horse needs to employ abdominal muscles to aid in exhaling air resulting in the formation of the characteristic heave line. Heaves, broken wind or Recurrent Airway Obstruction are terms for this condition. It is a permanent condition for the horse and prevention is the key.

If a horse owner is faced with hay that has mold, a common recommendation is to wet the hay and prevent the mold spores from becoming airborne during the feeding. It has been believed by many that through inhaling the mold spores was the horse at risk. Ingestion of the mold while a potential health concern, has not received much attention. Research at the University of Guelph may change that attitude. This group looked for the presence of mycotoxins in hay. These are toxins that are produced by mold. In their study, they reported that a number of mycotoxins were present in hay rated as poor quality by the horse owner. However, hay that was rated as good quality also had levels of mycotoxins present. The research reported the presence of mycotoxins, however no clinical signs associated with them were

noted. This research does indicate the importance of selecting and using mold free hay for horses not only because of the respiratory concerns, but also potential problems associated with the ingestion of mycotoxins.

Moldy Grain

The presence of mold in grain is strongly associated with mycotoxins. In general, molds are present everywhere and these molds, as previously mentioned, produce toxins called mycotoxins. In livestock, these toxins have been associated with gastrointestinal tract problems, reduced reproductive efficiency, respiratory ailments and suppression of the immune system. This list and the presence of molds in the environment can make one wonder if it is possible to safely feed a horse. While the molds may be everywhere, they require certain environmental conditions to produce significant levels of mycotoxins. In general, the molds like higher humidity, available moisture and warm temperatures. In Western Canada, the incidence of mycotoxin related problems is low due to a dryer cooler climate. This environment reduces the potential problem, but does not eliminate it especially if harvest conditions are poor.

One class of mold that may be present is the fusarium molds that produce vomitoxin or DON, zeaalonone, fumonisin (responsible for moldy corn poisoning) and others.

As with the hay research, University of Guelph has looked at potential problems with horses fed grain that had defined levels of mycotoxins. That research looked primarily at fuasarium mycotoxins. Horses fed concentrate diets contaminated with this mycotoxins reduced their voluntary feed intake by 36% compared to the controls. The reduction in feed intake is a common result of these mycotoxins.

As a horse owner, how can you use this information? Selecting quality feeds, hay and grain, that are free of mold is a priority.

Concerns in the Pasture

Tall Fescue

Tall fescue is a perennial cool season grass that is widely grown in the Southeastern U.S. How does that apply to Western Canada, you might ask. Horse owners may read about the problems associated with tall fescue and be concerned that some of the fescues commonly grown in Western Canada such as Creeping Red Fescue, may cause the problems. Tall fescue is different and same problems are associated with tall fescue only.

Tall Fescue may have an endophyte fungus growing in it. An endophyte fungus is a fungus that grows in the plant. Endophyte infected tall fescue is known for being tolerant to a variety of growing conditions and levels of management. This tolerance of the plant is due to the endophyte and results in vigorous plant growth, making the forage useful in a number of situations. The endophyte, however, produces a toxin that is problematic with pregnant mares. The following list identifies the problems reported.

Table 1. Problems associated with Broodmares consuming infected tall fescue.

increase gestation length	weak and dys mature foals
dystocia	increase oat mortality
thickened placenta	increase mare mortality
agalactia	decrease reproductive efficiency

When looking at that list, it is easy to see why horse owners do not want to use tall fescue despite its good agronomic qualities.

The endophyte *Acremonium coenophialum* produces ergot alkaloids with ergovaline being of primary concern. The main effects on the mare are a reduction in prolactin and progesterone production in late gestation. The disruption of these hormones results in the problems listed in table 1.

How can a horse owner prevent these problems? Not using tall fescue in your pasture or hay is the simplest. Another common management practice is to remove mares from tall fescue 60-90 days before foaling. The effects of the alkaloid appears to be short lived and the mares taken off fescue will foal normally.

What about other classes of horses? All other classes of horses seem to tolerate tall fescue and the endophyte. If you are never going to have broodmares and tall fescue would grow in your area, it is a good pasture forage.

Other options are to use endophyte free seed or some of the new novel endodphyte varieties that do not cause the broodmare problems. It is important to know this is a seed born problem and only infected seed causes infected plants.

Remember the fescue of concern is Tall Fescue and the variety most commonly seen with the endodphyte is Kentucky 31.

Perennial Rye Grass

Perennial Rye Grass also has an endophyte associated with it, *Acremonium lolii*. This endophyte produces mycotoxins that cause neurological problems in all classes of horses. The neurological condition appears to be chemical in nature causing signs such as ataxia and general incoordination. Horses will stagger when affected hence the name rye grass staggers. When removed from the pasture, the horses recover uneventfully.

If Perennial Rye Grass is a consideration, make sure that endophyte free seed is selected. In addition, select a forage variety not a turf type as the turf type does have the endophyte to aid in plant vigor.

Alsike Clover

Alsike clover can be an excellent clover to add into pasture and hay mix to gain the benefits of a legume in the mix. This forage is a short lived perennial, but will volunteer when growing conditions are suitable. During periods of higher rainfall or humidity, a toxin is produced by the plant. To date the toxin, while possibly a mycotoxin has not been identified. As many may know, alsike clover can cause severe photosensitivity and liver damage. Removing horses when problems arise will alleviate the photosensitivity, but the liver damage is permanent. If growing conditions do not favor the production of the mycotoxin, then no problems with alsike clover will be seen. This is difficult if not impossible to predict and the best recommendation is to be safe, not sorry, so alsike clover should not be included in pasture or hay mixes intended for horses.

Red Clover

Red Clover may be included in pasture mixed or grown for hay and provides good quality feed. Because of the nature of the plant, it can be hard to cure as hay, making it susceptible to mold formation. Also, during periods of high humidity, mold may form on the growing plant. This mold, found on leaves and stems, produces a mycotoxin called slaframine. Horses consuming this moldy forage are known to salivate excessively or slobber. The condition of slobbers is seen with horses on pasture or eating Red Clover hay. For horse owners, this is a problem, but does not affect the horses as long as they have an adequate supply of water. Removing horses from the source of Red Clover results in a fairly quick recovery.

The preceding information focused on what problems may occur if horses do eat those feeds. This was not meant to alarm horse owners, but rather to inform that there are situations that require decisions to be made. No moldy hay or grain should be the prime criteria for the selection of feeds regardless of the horses being fed or how you are feeding them.

The discussion on tall fescue and perennial rye grass gives horse owners information to use when selecting grasses to be used in hay or pasture. While tall fescue currently is not grown in Alberta, horse owners need to be aware of the potential problems. On the other hand, other fescues can be used because they do not cause the problems seen with tall fescue.

Alsike clover is a legume that should not be used for horse pasture or hay. Photosensitization is problematic and can be resolved, but liver damage is permanent.

Red Clover, while discomfort for the horse owner, is reasonably easy to deal with. In areas where humidity during summer pasture season is low, you would not expect slobbers to be a concern.

Consider what you have available to feed and the horses to be fed. For most situations, will they eat the feed? The answer is yes, even if we don't want them to.

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