

ALFALFA HAY FOR HORSES: MYTHS VS. REALITY

Laurie Lawrence, Ph.D.

Professor, Equine Nutrition
Department of Animal and Food Sciences
University of Kentucky
Lexington, KY 40546-0215
llawrenc@uky.edu

Does it really matter if hay has some mold in it?

Hay that is high in dust or mold can irritate the horse's respiratory tract. Optimum athletic performance depends on a healthy respiratory tract, therefore dusty/moldy hay should never be fed to horses used (or intended for) athletic events. A chronic respiratory disease commonly called "heaves" can be aggravated by moldy and dusty hay. Horses with heaves can have so much difficulty breathing that even mild exercise is impossible. In addition, moldy hay may contain toxins that could affect the horse if they are ingested.

Horse owners should not rely on the nutritional wisdom of horses to prevent problems associated with moldy hay. Horses will usually avoid small patches of moldy hay, but selectivity decreases as hunger increases. Also, in one study horses accepted slightly moldy red clover just as readily as clean alfalfa!

What about hay treated with a preservative?

While it is relatively easy to grow good quality hay in Kentucky, our climate often makes it hard to make mold-free bales. Some preservatives may reduce molding in hay that must be baled under non-ideal conditions. In a study conducted several years ago, three batches of hay were prepared from the same field of alfalfa. One batch of hay was cut and allowed to dry to about 20% moisture before baling (the control hay), the other two batches were baled at a higher moisture content, but one of those batches was treated with a preservative at the time of baling. The preservative was a combination of acetic and propionic acids. During the first week after baling the higher moisture hay without preservative had much higher internal bale temperatures than the control hay or the higher moisture hay treated with the preservative. After several weeks in storage the bales were examined for mold. The untreated hay baled at the higher moisture content had too much mold to be acceptable to horses, whereas the same hay that had been treated with the preservative was virtually indistinguishable from the control hay.

The control hay and the preservative treated hay were then fed to growing horses and intakes between the two hays were not different. In a separate experiment, horses were given a choice between treated and untreated hay. In that study, the horses preferred

the untreated hay. However, as noted above, when horses did not have a choice, they ate preservative treated hay readily. So, if the choice is preservative treated hay with no mold, or untreated, but moldy hay, then the preservative treated hay is definitely a better choice!

How much hay should I purchase for my horse?

The answer to this question will depend on whether the horse lives in pasture with lots of edible grass or if it lives in a stable or in a paddock with limited grass. When horses have access to abundant pasture all day (and night), they probably will not need hay. However, as pasture availability declines, then hay should be substituted for the pasture. In Kentucky, hay is usually fed to pastured horses from about the middle of November until the middle of April, but the exact schedule will depend on the amount of grass in the pasture. When we have dry periods in the summer or fall that affect pasture growth then hay is often offered to the horses.

If a horse lives inside all of the time or lives in a paddock with limited grass, then it will receive hay every day, all year. We have measured hay intake by stabled horses in a variety of experiments. The amount of hay a horse will consume is affected by animal factors (age, body weight, lactation, etc) and by forage factors (type, stage of maturity, etc). In general, an 1100 lb horse will consume between 15 and 20 lb of hay each day. But, many horses will consume more than that, and an extra allowance should be made for waste. So, if a horse owner expects to feed hay every day to a stalled horse, they should plan on about 20 to 25 lb per day (or about 3.5 to 4.5 tons/horse/year). If the horse is pastured most of the time then the hay required will be much less.

Of course, nutrient needs can be met by feeding less forage and more concentrate, but restricting hay intake too much can increase the risk of digestive disturbances and behavior problems. The *minimum* hay (or equivalent pasture) intake for any horse should be above 1 lb of hay for each 100 lb of body weight. This amount of hay will not meet nutrient needs but hopefully it will provide enough fiber to reduce the risk of digestive disorders.

It is important to remember that the amount of hay a specific horse will need is influenced by the nutrient requirements of the horse as well as the nutrient content of the hay, as well as any other feeds the horse is receiving. Lactating mares will consume higher amounts of forage than horses at maintenance. Elite performance horses and weanlings might receive somewhat lower levels of forage because they will be receiving significant amounts of concentrate. During cold weather, horses that live outside may need extra hay to compensate for the calories they use to maintain body temperature.

What is the best kind of hay for horses?

Endophyte-infected tall fescue hay should not be fed to pregnant mares, but otherwise most types of hay can be used for horses as long as they are clean and mold-free. Common hay types fed to horses include alfalfa, timothy, orchardgrass, bromegrass,

Bermudagrass and red clover. We have recently evaluated teff hay for horses. Teff is a summer annual grass that originated in Africa. Like other warm season grasses it can be somewhat high in neutral detergent fiber, especially if it is not harvested until late maturity. We found that horses prefer alfalfa and timothy to teff, but that they will accept teff hay more readily if it cut at an earlier stage of maturity.

The most important consideration when selecting a type of hay for a specific horse is the requirement of the horse. If a horse has high nutrient requirements then a hay with a higher nutrient density (more nutrients per pound) should be selected. If a horse has low nutrient requirements then a hay with low nutrient density should be chosen. In general legume hays harvested in early maturity have the highest nutrient density; whereas grass hays harvested in late maturity have the lowest nutrient density. If you are feeding growing horses or lactating mares, then early maturity alfalfa or alfalfa-grass mix may be desirable. If you are feeding idle, adult horses that tend to be over-weight, then a late maturity grass hay might be the most appropriate.

Doesn't alfalfa make horses sick?

Good quality alfalfa hay that is fed in appropriate amounts will not make a normal horse sick. But, allowing horses unlimited access to very high quality alfalfa hay may result in some digestive upset (such as diarrhea). Horses that have restricted exercise and low nutrient needs can also get too fat if too much high quality alfalfa hay is fed. Therefore, it may be necessary to restrict the amount of very high quality alfalfa that is fed to some horses; especially those with lower nutrient requirements. High quality alfalfa is most useful for horses with high nutrient requirements such as weanlings and lactating mares. Mid and late bloom alfalfa hay as well as alfalfa-grass mixes can be fed to most classes of horses.

Recent research suggests that alfalfa can be more beneficial to the equine digestive tract than some other hays. Many performance horses develop stomach ulcers. No one understands exactly why horses get stomach ulcers, but stress and diet have been proposed as the two most likely causes. A study at Texas A&M University examined the stomachs of horses in training that were receiving diets of forage and grain. When alfalfa was used as the forage, the incidence and severity of the stomach ulcers was less than when grass hay was used as the forage. This study supported an earlier experiment in Tennessee that suggested that a high concentrate diet that contained alfalfa hay was healthier for the stomach than a diet that utilized grass hay. These researchers have suggested that alfalfa might buffer stomach acid more effectively than grass hay because it is higher in calcium, protein and potassium.

Horse owners should be aware that alfalfa hay has been associated with a few problems in horses. Alfalfa hay that may be contaminated with blister beetles should not be fed to horses. Blister beetles contain a toxin that can be fatal to horses. In some parts of the U.S., a small percentage of horses fed alfalfa hay have developed intestinal stones. These "enteroliths" are composed of magnesium and other minerals that collect around some type of small object. If an enterolith becomes large enough it can block the

gastrointestinal tract and cause colic, and potentially death. Although enteroliths can occur, their incidence is quite low.

Doesn't the high protein content of alfalfa cause problems?

A normal adult horse will not be negatively affected in any way by a diet that contains a small or moderate excess in protein. On a dry matter basis, good quality spring pasture grass contains about the same concentration of crude protein as average mid to late bloom alfalfa hay! The excess nitrogen in high protein feeds will be excreted in the urine, so horse owners may find that horses will drink more water and urinate more when they are fed alfalfa than when they are fed a grass hay.

It is a common myth that excess protein causes bone and joint problems in growing horses. Research studies have found that excess calories and rapid growth may predispose horses to growth problems; but excess protein without excess calories is not a factor. A good general guideline for feeding growing horses is to use a nutritionally balanced diet and feed it in amounts that result in moderate, even growth.

Where Can I Get Additional Information?

Alfalfa Hay: The High Quality Hay for Horses. Accessed on 1/15/09. Available at <http://www.alfalfa.org/pdf/Alfalfa%20for%20Horses%20Revised.pdf>

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And visit the website for the University of Kentucky College of Agriculture www.ca.uky.edu