Forage, Forage Alternatives and Hay Extenders for Horses

Forage Basics

Good-quality forage, a horse's natural feed, is usually the most economical component of the total ration and should be chosen to meet as much of a horse's protein, energy and fiber needs as possible. Good-quality forages are free of weeds, poisonous plants, blister beetles, dust and mold, and they contain green, leafy plants with a high proportion of leaves to stems. Forages for horses should contain 8-16% protein and have digestible energy (DE) values of at least 850 Kcal per lb. A typical 1,000-lb horse should eat between 15 to 35 lb of good-quality forage daily for proper digestive tract function. Overweight and "easy keeper" horses are on the lower end of the requirements and need just a salt/vitamin/mineral product with the forage. Broodmares and elite performance horses are on the upper end and usually need about 6 lb of a limited starch concentrate and possible a high-quality fat supplement along with the forage.

Wild horses graze continuously for 16-20 hours out of every 24. The horse's digestive system is adapted for this type of continuous grazing of small mouthfuls of grass, which is typically comprised of 70% water. When forages are harvested as hay, the water content drops to approximately 11%, allowing the hay to be consumed much more quickly by the horse due to the dry, compact form. When a horse is only given one or two flakes of hay daily, it will consume this amount in about an hour, which leaves a large amount of time devoid of the normal grazing activity.

Also, horses secrete digestive acids continuously, and the hay/grass they consume passes through the foregut in two to six hours. Consequently, if horses do not have hay available at least every six hours, they may be predisposed to a higher risk of gastric acidosis and gastric ulcers. For horses fed cereal grains, some of the grains may ferment in the stomach, resulting in more acid production that also increases the risk of acidosis and ulcer development. Horses should have free-choice access to hay to continuously buffer the stomach acid, provided the hay will not contribute to excess weight gain. If a horse gains too much weight when fed hay free-choice, switch to a hay with a lower caloric (digestible energy) content and/or offer the hay in at least three evenly-spaced meals per day.

Forage Types

Forage types include pasture, grass hay, legume hay and processed forage. Forages should be combined to provide the best program for each individual horse. Be sure to provide between 15 and 35 lb of forage to each horse daily.

Pasture - Good pasture is the ideal forage for many horses. Horses on pasture move around and eat small amounts of grass continuously; the way nature intended for proper functioning of the digestive tract. However, pasture is not always available and doesn't supply enough nutrients for some horses. Pasture can be used to meet some or all of each horse's forage needs.

Grass Hay - Good-quality grass hay is the single feed with the best balance of protein, energy and fiber for horses. Choose grass hays that are bright green in color, free of dust and mold and cut in early stages of development. Allow horses between 1.5% and 3% of body weight (about 15 to 30 lb) of good-quality grass hay per day.

Legume Hay - Alfalfa and clover are examples of legumes. They contain more protein, energy, calcium and vitamin A than grasses. The inclusion of some legumes (20-50%) in rations for growing and working horses and broodmares takes advantage of these additional nutrients. Legume hays should be clean and bright colored and cut at early to mid-bloom stage.

Processed Forages - Alfalfa and Timothy/alfalfa hay cubes and pellets provide consistent, good-quality partial or complete forage sources for horses. They come in dehydrated and sun-cured versions, and contain a higher leaf-to-stem ratio and are more concentrated in nutrients than most long-stemmed hays. Less waste of processed forages generally occurs. Hay cubes are ideal when traveling and can be soaked for senior horses with dental problems. Many people soak hay cubes, hay pellets and beet pulp to help add water to the ration and slow the eating process. This may also help decrease the risk of choke. Also, horses that compete for feed are more likely to choke on any type of feed, so the form of feed should be changed gradually, and horses should be observed when fed any new type or form of feed.

Beware of Fructans

Fructans are starch-like compounds that are not digestible in the foregut and act like corn starch, causing acidosis in the hind-gut which could possibly lead to laminitis in horses. Warm-season grasses in the southern half of the U.S. and legume forages do not contain fructans. Cool-season grasses in the northern half of the U.S. may contain dangerous amounts of fructans, especially in the spring and fall during periods of hot, sunny days and cool or cold nights. If grass hay is imported from the north, it should be tested for high sugar and fructan content and fed accordingly.

Pasture and Hay Alternatives

Under normal circumstances, pasture and hay are the preferred forages for horses. With prolonged wet conditions, pastures may not provide a source of good-quality forage. Then, as more hay is needed to make up for the poor-quality pasture forage, hay may become scarce. If hay is harvested from stressed grass, it may have higher than normal fiber and lower energy content. Hay grown on Western, irrigated land by professional growers may be available, but only in truckload quantities. Local dealers can often obtain hay in truckload quantities if a group of horse owners are willing to purchase it jointly.

Whenever possible, some long-stemmed hay should be provided to prevent boredom and the development of stable vices. The equine digestive system needs at least 0.5 lb per 100-lb body weight daily of good-quality, chewable, long-stem forage to encourage gut digestive activity. This means a 1,000-lb horse needs at least 5 lb of hay or a long-stem forage source per day for healthy gut function. However, hay alternatives may be used on a short-term basis until hay becomes more affordable and available. Hay alternatives include processed forages, such as hay cubes and pellets, and feeds with a high-fiber content made with soybean hulls and/or beet pulp and with a feeding rate of about 1% of body weight. Soybean hulls and beet pulp have digestible energy similar to oats at about 1.3 Mcal per lb. Oat hulls and rice hulls can be used to increase the fiber content in pelleted feeds.

Clean, wheat straw is not very palatable, but can be used as part of the ration to provide fiber. Oat hay can be used, but has a higher starch content than other hays due to the partially formed oats it contains. Oat straw, available after the oats are completely mature and harvested, is similar to wheat straw. Straw will be more palatable if combined with hay or other forage sources in a cube or pellet form or if molasses or other appetite stimulator are added.

Complete feeds made for senior horses without normal tooth functioning or horses with respiratory issues or allergies are another option. They should contain at least 16% fiber if used as a hay alternative. These feeds are usually available with varying energy content and quality of ingredients; so, choose the best one for your horses. The advantage of using these feeds is that they should be completely balanced for vitamins and minerals. If used, make sure to follow the recommended feeding rate to provide all of the vitamins and minerals. It is better to buy both hay and hay extenders and combine them. A good program would consist of half high-digestible-fiber fortified feed and half as a combination of long-stemmed hay, hay cubes, and/or hay extender pellets. Table 1 contains ADM Animal Nutrition™ horse feed options. Take a week to 10 days to transition the horses to the new feed(s) and total rations. Whenever it is necessary to feed less long-stemmed hay, if possible, you should divide the total ration into more meals so that there is less time between meals.

Summary

When long-stemmed hay is very expensive, of poor quality or not available, hay alternatives are an option as partial or complete hay replacements. First, based on the horse's life stage and usage, choose a feed with appropriate digestible energy content that is high in digestible fiber and with a feeding rate near 1% of the horse's body weight. Then combine any available good-quality hay with processed hay cubes and/or pellets and hay extenders made of digestible fibers, such as soybean hulls, beet pulp and ground alfalfa. Clean fibers, such as oat hulls, rice hulls and straw, may also contribute to the total ration to provide bulk. Another option is to feed a complete feed containing feed and forage. When using a complete feed, make sure to use one with the correct energy content for your horse and with a crude fiber content of at least 16%. Feed the total ration in as many meals as possible based on your management system.

Table 1. ADM Animal Nutrition High-Digestible Fiber Horse Feeds

Feed	Protein, %	Fat, %	Fiber, % (max.)	Feeding Rate, lb/horse/day
Patriot® Ultra-Fiber™	13	6	20	6-8
SENIORGLO®	14	8	20	6-8
JUNIORGLO®	19	6	20	4-8
PRIMEGLO®	14	8	22	2-4
Patriot® Feed Easy Complete	14	2.5	24	16-20
Patriot® Senior Complete	14	7	20	16-20
Forage First® Hay Extender	11	2.5	30	16-20

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