

PRODUCING ALFALFA HAY FOR HORSES -WHAT BUYERS ARE LOOKING FOR

Laurie Lawrence¹

ABSTRACT

Horse owners select hay on a variety of characteristics. The most important factors include: cleanliness of the hay, color, cutting, smell, texture, nutrient content and cost. Alfalfa and alfalfa-mix hays are popular for horses throughout the U.S. but some misconceptions about alfalfa hay still exist. One of the biggest advantages to alfalfa hay is its high palatability to horses. Because it is highly palatable, horses may waste less alfalfa than other types of hay. Because of its high nutrient content, alfalfa is an excellent hay for horses with high nutrient requirements, especially horses with high protein and calcium needs. Alfalfa is especially useful in the diets of growing horses and broodmares. By using alfalfa or alfalfa-mix hays, many horse owners can reduce feed costs while still providing a quality nutritional program.

Key words: alfalfa, horses, hay quality, feeding management

THE THREE C'S

Horse owners frequently mention the “three C’s” (cleanliness, color, cutting) when it comes to choosing hay. The most important factor in selecting horse hay is cleanliness. Horse hay must be free from dust, mold, injurious weeds and any potential toxins. Hay that contains dust or mold can inflame the respiratory tract. Some horses suffer from a condition commonly known as “heaves”, a chronic respiratory condition that seriously impairs the ability to breathe normally. Most horses with heaves are exercise intolerant and thus have little value except as pets, or possibly as breeding animals. Horse owners perceive that there may be an association between feeding moldy or dusty hay and increased incidence of heaves. Research studies have shown that one of the most effective ways of managing horses with heaves is to reduce dust in the feed and bedding. It is also possible for hay mold to affect other systems in the horse such as the digestive system and liver. Horse hay should also be free from other contaminants. For example, some horse owners have concerns about blister beetle poisoning and avoid the use of alfalfa hay.

Color and cutting are often mentioned by horse owners as being important, but there are many misconceptions about these two characteristics. Most horse owners want hay that is green in color. Horse owners often believe that a bright green color is associated with a fresh product that is high in nutritional value. Similarly, a yellowish or bleached appearance is discriminated against. Horse owners must be educated to look beyond the exterior of the bale; commonly the exterior of the bale will have a bleached appearance while the inside of the bale is quite green. In addition, it is possible for hay on the outside of the bale to be very green, while the hay on the inside is gray and moldy. One of the most common questions asked by new horse owners regards the best cutting to buy. In many cases, the best cutting will vary from year to year and from producer to producer. In Central Kentucky, first cutting alfalfa is often of relatively low quality because weather conditions usually prohibit cutting and baling at optimum times. However, in 1999, extremely dry conditions resulted in fairly good quality first cutting hay and essentially no second or third cuttings. Horse owners must learn to avoid conclusions based on cutting and instead evaluate hay based on its cleanliness, color and nutrient content.

NUTRIENT CONTENT

Alfalfa almost always offers more nutrient value per pound than any other forage. However, because of its high nutrient content compared to some other hays, horse owners may consider alfalfa to be too “rich” for their horses. To put this issue in perspective, table 1 shows the nutrient composition of mid-bloom alfalfa hay, mid-maturity timothy hay and blue grass/white clover pasture. Alfalfa is clearly higher in energy and protein value than the timothy hay, but it is actually *lower* in energy and protein value than the pasture. Alfalfa is higher in calcium than both timothy hay and pasture. The pasture values were obtained from a paper published by researcher in Virginia where pastures were sampled during a 12 month period (Wilson et al, 1997). The other values are taken from the

¹Professor, Department of Animal Sciences, University of Kentucky, Lexington KY.

National Research Council publication *Nutrient Requirements of Horses*.

Table 1: Nutrient Composition of Forages Fed to Horses (100% Dry matter basis)

Type of Forage	Digestible Energy/lb	% Crude Protein	% Calcium
Midbloom Alfalfa Hay	1.1 Mcal/lb	18-19%	1.3%
Midbloom Timothy Hay	.9 Mcal/lb	9-10%	.40%
Blue grass/white clover pasture	1.2 Mcal/lb	19-29%	.55%

Because alfalfa is high in energy, protein and calcium, it is a useful feed in rations for growing horses and broodmares. In 1997, two studies examined the use of alfalfa in rations with growing horses. Wall and colleagues (1997) studied 16 Quarter Horse yearling fillies. The fillies were divided into two groups. One group received alfalfa hay and a low protein concentrate containing mostly corn and in mineral supplement. The other group received Bermuda grass hay and a high protein concentrate containing corn, soybean meal and a mineral supplement. The yearlings received these diets for 4 months. During the study, no differences were noted in physical growth measurements of the horses. Coleman and coworkers (1997) used weanling horses and had similar results. In their study, the weanlings received alfalfa cubes with a control concentrate (12% crude protein); a medium protein concentrate (15% crude protein) and a high protein concentrate (19% crude protein). The study lasted for 4.5 months. Average daily gain was the same for all three groups. As with the study by Wall et al (1997) these data show that when alfalfa hay is fed, the amount of protein in the concentrate needed for growth can be reduced.

One of the disadvantages of feeding alfalfa hay to young horses is the high level of calcium and the wide calcium:phosphorus ratio. When alfalfa hay is used for growing horses, it is essential to balance the ration to provide adequate phosphorus. Even when adequate phosphorus is provided in the diet to meet the daily requirement, the calcium:phosphorus ratio may still exceed the recommended range of 1:1 to 2:1 (grams of calcium to grams of phosphorus). Because of this, some people prefer to use an alfalfa-grass hay for growing horses.

As noted above, alfalfa can be a desirable hay for broodmares. Like the growing horse, gestating mares and lactating mares have increased demand for most nutrients. For the mare, nutrient needs are highest during lactation. If the mare is not fed adequate nutrients to meet the need for lactation, she will use her own body stores. On large commercial breeding farms, it is not uncommon for high quality mares to remain in production for 12 to 15 years. In these situations, underfeeding mares essential nutrients such as calcium can have long term effects on their well-being. To illustrate the importance of quality forage in the diet of lactating mares, table 2 compares the percentage of a 1200 lb mare's energy, protein, calcium and phosphorus requirement that is met by 22 lb of dry matter from timothy hay, midbloom alfalfa hay and blue grass/white clover pasture.

Table 2: Percentage of Requirements of 1200 lactating mare that are met by 22 lb of dry matter from different forages

Type of Forage	% of DE requirement	% of Crude Protein Requirement	% of Calcium Requirement	% of Phosphorus Requirement
Midbloom Alfalfa Hay	78%	115%	213%	85%
Midbloom Timothy Hay	64%	64%	65%	85%
Blue grass/white clover pasture	85%	160%	90%	85%

Of the three forages listed in Table 2, it is apparent that alfalfa hay and pasture do the best at meeting the needs of the lactating mare. None of the forages will meet the energy or phosphorus needs of the mare when fed at the rate used in the example (22 lb of dry matter per day). If a horse owner were to feed a concentrate such as oats to meet the energy need, they would need to feed approximately 5 lb with the alfalfa, about 8 lb with the timothy hay and about 4 lb with the pasture. In all cases, the oats would also fulfill the mare's phosphorus requirements, however, when fed with the timothy hay, there would still be insufficient protein and calcium.

Although alfalfa is an excellent feed for many types of horses, it has some drawbacks for mature horses that are not used for breeding and do not receive regular exercise. If a mature 1200 lb gelding were fed mid-bloom alfalfa hay, he would require about 16 lb of hay dry matter per day to maintain his body weight. This is a relatively small volume of feed for a mature horse. When horses do not have enough “filler” they may be inclined to chew on fences, trees and barns. If mature horses at maintenance are allowed to eat mid-bloom alfalfa hay to satisfaction, they will probably gain weight. In addition, when mature non-breeding, non-working horses are fed alfalfa hay, their protein requirement will be greatly exceeded. This does not represent a serious problem to horses with normal kidney function, but it will result in higher urine volumes. If the horses are maintained in stalls, the excess protein in the alfalfa may result in higher bedding use and more stall cleaning.

ECONOMICS

Some horse owners will make a hay choice based on price. For other owners, the perceived well-being of the horse is the primary consideration. For other owners, the feeds are chosen to produce the most competitive horse. When price is a concern, horse owners will frequently consider only the price of the hay per bale or per ton. A better economic decision can be made if the owner considers all of the following: cost of the hay, amount of wasted hay and cost of other feeds needed to make up for nutrients not supplied by the hay. For horses with high nutrient requirements, alfalfa hay can frequently provide an economic benefit to horse owners. For example, if a horse owner owns a lactating mare and alfalfa hay is the same price as timothy hay, the alfalfa has an economic benefit because the mare will need about 35% less grain when she receives alfalfa. Thus, although the monthly cost for hay is the same, the monthly grain bill will be significantly reduced. Alfalfa is typically much more palatable than other hays, thus horses will waste less. In a study reported in 1999, researchers compared the *ad libitum* dry matter intakes of yearling horses fed alfalfa hay, mature brome grass hay or coastal bermudagrass hay (LaCasha et al, 1999). On average, the yearlings consumed 24 kg of alfalfa hay, 22 lb of the brome-grass hay and 16 lb of the bermudagrass hay. When horses were given access to all three hays simultaneously, they clearly preferred the alfalfa.

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