Forage Should Be Mainstay of Horses' Diet

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Forages, either fresh or harvested, are ideal sources of energy. Legumes and/or grass forages are the mainstay of a horse's diet. Most mature horses should be fed a minimum of 1% and ideally up to 2.0-2.5% of their body weight in forages each day. Eating 2.5% of their body weight in forage would approach the maximum voluntary feed intake for most horses and, depending on the form of the forage, maintain some gastrointestinal tract fill at all times. Consuming forages can provide much of the energy needs of the horse, help maintain gastrointestinal tract function and keep the horse from becoming bored. Harvested forages should be provided in a way to minimize the horse eating off the ground where it would inevitably also consume sand/dirt.

Frequently, when more energy than can be supplied via forages is needed, cereal grains such as oats and corn are increased at the expense of the forage component. However, there is a limit to how much cereal grain can be fed without causing serious nutrient-related ailments. A mature horse should be fed no more than 0.3-0.4% of its body weight in cereal grains/feeding. Alternatively, fats, which have been shown to be an excellent source of energy, may be substituted for a portion of the cereal grains. In this way it is possible to increase the energy density without incurring many of the negative side effects of too much cereal grain.

Even though forage is the mainstay of the horse diet, water is the most important nutrient needed by a horse. A horse should always have a fresh, clean supply of water maintained at a tepid temperature to encourage maximum water consumption. A 1,000 pound horse at rest in a moderate or cool environment and eating dry forage will drink anywhere from three to ten gallons of water per day. The need for water will increase with an increase in ambient temperature, humidity, activity and/or a change in physiological condition.

Horses requires a number of different minerals their diet. Some minerals, especially the major ones may be supplied in adequate amounts via natural feedstuffs. Common feedstuffs are not usually a reliable source of required trace minerals, so supplementation is recommended. Salt or sodium chloride (NaCl) should always be provided as a horse will regulate its own intake. The ratio of calcium (Ca) to phosphorus (P) is particularly important. Since the interaction between Ca and P and their differing sites of absorption in the gastrointestinal tract, a minimum Ca:P ratio of 1:1 and an ideal Ca:P ratio of 2:1 is recommended. The Ca:P ratio can be as high as 6:1 without harm. Forages can be an excellent source of both. Although the P content of legumes and grasses are similar, the Ca content is on the average quite different. Legumes and grasses alike contain about 0.3% P on a 100% dry matter basis. In contrast, the legumes (alfalfa, ladino clover and birdsfoot trefoil) contain an average of 1.4% Ca and the grasses (Kentucky bluegrass, smooth brome, reed canarygrass, orchardgrass and timothy) about 0.4% Ca. Averaging values for some of the more commonly used forages, the Ca:P ratio in legumes ranges from around 3.5:1 to 7:1. The grasses, typically have a much lower Ca:P ratio ranging from 0.6:1 to 2.5:1.

Of the other macrominerals, there is about twice as much magnesium (Mg) in legumes (avg: 0.37%; range 0.27 - 0.47%) as there is in grasses (avg: 0.17%; range 0.09 - 0.33%). Therefore, while the Mg content of the legumes meet the horse's nutritional requirements, some of the grasses don't and another source of Mg should be provided. Legumes contain more sulfur (S) (avg: 0.25%; range: 1.5 - 3.5%) than do the grasses (avg: 0.17%; 0.13 - 0.26%), but the horse's sulfur requirements can be met with either forage. The potassium (K) content of the legumes and grasses are very similar with an average of 2.4% for both. The legume and grass K content is quite high in relationship to the horse's nutritional requirements.

Neither legumes nor grasses are reliable sources of microminerals. Microminerals should be supplemented. Vitamins are essential nutrients needed in very small quantities and may be provided via natural feedstuffs (vitamins A and E), endogenous production by the horse (vitamin C and D) and microbial production in the horse's gastrointestinal tract (vitamin K and B-complex). Fresh, green forages (both legumes and grasses) contain very high quantities of β -carotene which is the precursor for Vitamin A and can therefore meet the horse's vitamin A dietary requirements. However, during the harvesting process as well as during winter storage, much of the β -carotene can be lost and supplementation will most likely be necessary. Similarly, vitamin E content of fresh, green forages will meet a horse's requirements, but when the forages are harvested there is a tremendous loss of vitamin E activity. Supplementation of vitamin E for the horse fed dried forages is recommended.

In general, an economical and nutritionally wise approach to feeding your horse is to consult a reference such as the National Research Council's (NRC) *Nutrient Requirements of Horses* publication (http://www.nap.edu/books/0309039894/html/R1.html). It provides information concerning the nutrient requirements for horses of different sizes and in different physiological conditions. It also lists the common feedstuffs and their nutritional content. Ideally, forage feedstuff should be analyzed for nutritional content. Using those two major pieces of information i.e., what the horse needs nutritionally and the nutrient content of the feedstuffs available, a ration can be designed for the horse by meeting its nutritional requirements in the following order: energy, protein, minerals and vitamins. All horses have nutritional needs in common. They all require water, energy, protein, minerals and vitamins. How much of each of these nutrients and in what relation to each other will vary with the age, activity level, physiological condition, etc. of the horse. The NRC requirements are the minimum amounts of nutrients for normal health, production and performance. Use them as a starting point to fine tune the needs of the individual horse.