

Down on the Farm



Alfalfa Hay: A Major Component in Many Horse Diets

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The United States Department of Agriculture (USDA) estimated that in 1994, nearly 24 million tons of alfalfa hay were produced in the Western United States (Idaho, Washington, Oregon, California, Utah and Nevada). Excellent climatic conditions, including plenty of warm weather and the ability to control rainfall by turning on or off the irrigation system, make "The West" alfalfa headquarters.

The majority of this alfalfa hay fuels milk production in the dairy industry. However, a significant amount of alfalfa finds its way into the horse feed industry. In fact, in many western locations, alfalfa hay production is so prevalent that it becomes the only stored forage available for horses.

As many horse people are aware, alfalfa has been blamed (justly or unjustly) for many problems associated with horse production. "Too much of this nutrient" or "not enough of that nutrient" are common phrases found in discussions regarding alfalfa hay for horses. The simple fact of the matter is that a considerable number of very good horses are raised and perform each year on diets consisting of a large percent age of alfalfa. Therefore,

common sense tells us that alfalfa can be used successfully in horse feeding programs. The following discussion will outline methods to maximize the benefits of alfalfa and balance the weaknesses often associated with alfalfa.

The Protein Issue

After water, the major constituent of the horse's body is protein. Eighty percent of the muscles and 20 percent of the skeleton consist of some type of protein. Consequently, protein is essential for growth and for the repair and formation of new tissue. Protein is also the building material for enzymes and many hormones, giving it a vital role in the regulatory processes of horses. Blood solids are largely protein, and because antibodies and other immune substances are proteins, this nutrient also plays a major function in fighting infection.

As a rule, protein requirements decrease with age. Mature horses use protein to maintain body tissues and synthesize antibodies, blood, hormones and the like, rather than build new masses of muscle and bone associated with growth. Therefore, the younger the horse, the greater the protein requirement when expressed as a percentage of total diet. The exception to the relationship of age and protein requirements is for late pregnancy

and lactation, when the mare has increased protein requirements for proper nourishment of the foal.

Alfalfa hay is an excellent source of protein, both in content and quality. It is not unusual for mid-bloom alfalfa hay to have a crude protein content of 17 percent or greater. The amount of protein supplied by alfalfa can go a long way toward satisfying the high protein requirements of young growing horses. In the case of mature horses, free-choice alfalfa hay will certainly provide enough protein to satisfy requirements.

What happens to protein fed in excess of requirements? Since dietary proteins (amino acids) are not stored in the body as surplus, any extra is broken down and used as an immediate energy source or stored as fat. Protein which is used for energy has the added task associated with disposal of the nitrogen connected to the protein. The nitrogen is filtered out of the blood by the kidneys and voided in the urine. Contrary to popular lore, dealing with this by-product of protein conversion is not "hard on the horse's kidneys" unless they have been overtaxed in some other way. The additional water necessary to void nitrogen in the urine may be critical if horses have limited access to water. As a practical recommendation, select alfalfa

hays which do not contain extremely high levels of protein (greater than 17 percent crude protein).

The Mineral Story

Today's horses are expected to perform at higher and higher levels, to mature more rapidly, to produce more offspring and to live a longer productive life than ever before. All of these factors—performance, growth rate, reproduction and age—complicate the nutrient requirements of the horse in ways unforeseen 20 years ago. Wild horses survive on forage alone. However, wild horses are never expected to perform on the track or in the arena, and their low reproductive rate would drive most professional breeders out of the business. Everything we expect a horse to do for us exacts a price. It then becomes necessary to replace the nutrients being expended if performance is to be maintained. Couple a complex set of mineral requirements with forages that are often marginal in mineral content, and we have the potential for performance problems.

The mineral content of alfalfa hay is largely dependent on the mineral content of the soil. As would be expected, the mineral content of soil varies from region to region and has certainly changed over the past 20 to 30 years. The mineral content of your alfalfa compared to the mineral content of your neighbor's, or even your grandfather's (20 years ago), is certainly different. As a trend, the trace mineral profile (copper, zinc and selenium) of alfalfa is marginal when compared to the trace mineral requirements for growing and performance horses. It is generally recommended that horses being fed strictly alfalfa hay diets be supplemented with additional trace minerals. This trace mineral fortification typically comes in the form of pelleted grain concentrates or low intake mineral supplements.

For young, growing horses two minerals, calcium and phosphorus, are vital for proper skeletal formation. Alfalfa hay is an excellent source of highly available calcium, but unfortunately is often a poor source of phosphorus. To grow a sound skeleton, young horses

first need adequate amounts of both calcium and phosphorus. Next, the young horse requires calcium and phosphorus in the correct ratio to one another. Ideally, we would like to have a total dietary calcium to phosphorus ratio of between one and a half to two parts calcium to one part phosphorus. Feeding strictly alfalfa hay, it is not uncommon to have large amounts of calcium with marginal amounts of phosphorus. In addition, the ratio of calcium to phosphorus in some alfalfa hays approaches 15 parts calcium to

one part phosphorus. It is recommended that young, growing horses receive supplemental phosphorus in the form of alfalfa cubes fortified with phosphorus, correctly formulated grain concentrates, and/or mineral supplements with plenty of phosphorus.

In conclusion, the availability and nutrient content of alfalfa hay make it a logical forage for horses. Selecting alfalfa hay with moderate protein content and providing additional diet fortification with minerals help make this a balanced forage for horses.

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