Nutrition Needs in Horses: Overview

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Question: What is the most important nutrient for a horse?

Answer: Water

Horses generally drink about 2 quarts of water for every pound of hay they consume. In higher temperatures, during hard work, or for the lactating mare, the water requirement may be 3-4 times the normal consumption.

Nutrients

Horses require six main classes of nutrients to survive; besides water, they require carbohydrates, protein, fats, vitamins, and minerals.

- **Carbohydrates** are the main energy source used in most feeds. The main building block of carbohydrates is glucose.
- **Protein** is found in every organ and tissue of the body. It is vital for muscle development during growth and exercise. The main building blocks of protein are amino acids. Soybean meal and alfalfa are good sources of protein that can be easily added to the diet. Signs of protein deficiency include a rough or course hair coat, a reduction in growth, weight loss, and performance.
- **Fats** can be added to a feed to increase the energy density of the diet. Vegetable oil is the most commonly used fat source in horse feeds. Certain fatty acids are also essential in the diet. Rice bran also has high fat content and is sometimes added to feeds to increase energy.
- **Vitamins** are fat-soluble (Vitamins A, D, E and K) or water-soluble (Vitamin C, and B-complex vitamins). Horses at maintenance usually have more than adequate amounts of vitamins in their diet if they are receiving fresh green forage and/or complete feed rations. Some cases where a horse would need a vitamin supplement include when feeding a high-grain diet, or low-quality hay, if a horse is under stress (traveling, showing, racing, etc), prolonged strenuous activity, or not eating well (sick, after surgery, etc.). Most of the vitamins are found in green, leafy forages, however Vitamin D is obtained from sunlight, so, typically horses that are stalled for 24 hours a day would need a supplement with Vitamin D. Severely stressed horses may benefit from B-complex and Vitamin C supplements, during periods of high stress.
- **Minerals** are required for maintenance of body structure, fluid balance in cells, nerve conduction, and muscle contraction. The macro-minerals such as calcium, phosphorus, sodium, potassium, chloride, magnesium, and sulfur are needed daily. There are also micro-minerals, such as selenium, which are needed in smaller animals. Sweating increases the horse's need for sodium, chloride and potassium, which is the reason for supplementing with electrolytes if a horse is sweating a lot.

Energy Sources

Carbohydrates in the forms of fermentable fiber or starch are the most common sources of energy. The densest source of

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energy, however, is fat (almost three times more than carbohydrates or proteins) and can be a great source for horses that tend to "run hot." An example of a high fat energy source is Cool Calories 100. Horses exercising, growing, pregnant in late gestation or early lactation need increased energy in their diet.

Forages

Forages are classified as legumes or grasses. The nutrients in the forage vary greatly with maturity of the grasses, fertilization, management, and environmental conditions. In order to determine the nutrient content in forage it is recommended to take samples and get them analyzed by a forage testing lab (contact your local County Extension Office). Some commonly used grasses include orchard grass, timothy, bluegrass, and fescue.

- **Legumes**, such as clover and alfalfa, are usually higher in protein, calcium, and energy than grasses. They have more leaves than grasses and require optimal growth conditions (warm weather and good soil) to contain the best nutrients.
- **Hay** is dried forage, harvested, dried, and baled before feeding to horses. The legume hay can contain 2-3 times more protein and calcium than grass hay. Common grass hays include timothy, brome and orchard grass. Appearance is usually a good indicator of the amount of nutrients in the hay. Moldy or dusty hay should not be fed to horses.

Concentrates (Grains)

1. **Oats** are the most popular grain for horses. Oats have a lower energy value and higher fiber content than most other grains. They are also more palatable and digestible for horses than other grains; however, they can be expensive.
2. **Corn** is the second most common grain for horses. It provides twice as much energy as an equal volume of oats and is low in fiber. Because it is so energy dense it is easy to over feed corn, causing obesity. Moldy corn should never be fed - it can be lethal to horses.
3. **Sorghum** is a small hard kernel that needs to be processed (steam flaked, crushed, etc.) for efficient digestion and utilization by the horse. Like corn, sorghum is high in energy and low in fiber.
4. **Barley** also has hard hulls that should be processed to allow easier digestibility. It has moderate fiber and energy content, and can be a nutritious and palatable feed for horses.
5. **Wheat** is generally only consumed by humans because of its high cost. Its small kernels should be processed for horses to digest. Wheat is higher in energy than corn and best used in a grain mix because of its low palatability.

As you can see, proper nutrition, including supplementation when needed, is essential for the health of your horse. Knowing what your horse needs is a vital step to feeding him day to day.

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