

Why Supplement?

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Horses need supplements to make up for nutrient deficiencies in basic feeds. To accurately assess the need for supplementation, a ration evaluation must be performed. Use of MicroSteed, a computer program created by Kentucky Equine Research, assesses the nutritional contributions of each dietary component. The ration is then compared against nutrient recommendations set forth by the National Research Council or Kentucky Equine Research. Degree of supplementation can be ascertained based on any differences between actual intake and recommended intake.

The market is flooded with supplements, and it is often difficult for horsemen to determine what supplements their horses need and how best to supply them. Unfortunately, some products deliver nutrients in low doses, less than a horse may actually require, and others contain superfluous nutrients.



ENERGY AND PROTEIN: If a horse is too thin, it needs to consume more dietary energy or perform less work. The best energy supplement is fat, and this can be added to the diet as vegetable oil, rice bran or pollard, or sunflower seeds. Oil contains three times as many calories as oats, so horses can actually gain weight on less grain when supplemented with fat. Many hard-working horses are underfed energy, and performance suffers accordingly.

Protein deficiencies are unlikely in adult horses as protein is needed for growth. If a horse is meeting its energy needs, protein requirements are likely to be fulfilled as well. Alfalfa (lucerne) and clover hays, lupins, peas, and soybeans are great sources of protein. In the case of protein deficiency, one of the aforementioned feeds or soybean meal, which has the best amino acid balance, can be fed. Some supplements supply protein, minerals, and vitamins. Before adding such a supplement, however, the entire diet should be assessed to determine the levels of protein, vitamins, and minerals. Horsemen must not forget the contribution of legume forages to protein requirements. A flake or biscuit of alfalfa hay supplies over 25% of the daily protein requirement for an average mature horse.

CALCIUM AND PHOSPHORUS: Bone strength is dependent upon the correct balance and consumption of these two minerals. One flake of alfalfa hay supplies over 50% of the calcium required by a horse, and grain furnishes most of the phosphorus needed. A diet analysis will reveal deficiencies. If more calcium is needed in the diet, the addition of alfalfa or ground limestone may be all that is necessary. Many diets are low in both minerals. If this is the case, it is safest to choose a supplement containing both calcium and phosphorus. Many mineral supplements do not contain meaningful amounts of phosphorus, so check the label carefully.

ELECTROLYTES: The key electrolytes are those lost in greatest quantities in sweat: chloride, sodium, and potassium. If sufficient hay and chaff are fed, potassium needs are often minimal. All horses should have access to a salt block for free-choice sodium and chloride replacement. Horsemen should not rely on a hard-working horse to consume sufficient electrolytes from a salt block and should make electrolyte supplementation available to the horse. Choose the product that supplies a significant quantity of these three electrolytes. Many products are full of glucose, vitamins, and fillers and supply only small amounts of actual electrolytes. Discard any electrolyte product that lists sugar as its first ingredient.

IRON: Unless a horse has lost large quantities of blood, it will not benefit from iron supplementation. Low blood counts are due to other factors. Excessive dietary iron can interfere with the absorption of other minerals and vitamins and will likely do more harm than good.

Other Trace Minerals

Deficiencies of these nutrients are frequent because many feeds contain low levels of copper and zinc, and many areas, particularly coastal regions, are deficient in selenium. A hard-working or growing horse needs at least 120 mg copper, 400 mg zinc, 300 mg manganese, and 2 mg iodine and selenium per day. Labels list amounts per kg so a bit of arithmetic is necessary to determine what each dose contains. If the supplement contains a concentration of 6,000 mg/kg, a 20-gram dose would supply the needed 120 milligrams of copper per day. Several supplements, each containing trace minerals, are often added to the ration of a horse, contributing to an oversupply of nutrients. Supplements are frequently heaped on top of a premixed feed that contains adequate mineral fortification, setting the stage for oversupplementation.

Supplements often contain chelated minerals, trace minerals that are more readily digested and absorbed by the horse than typical trace minerals.

Selenium and iodine toxicity can occur, and no more than 20 mg selenium and 50 mg iodine per day should be fed to adult horses. A major risk of iodine oversupplementation involves overfeeding seaweed meal, which contains high levels of iodine.

Interest in chromium has escalated over the past several years among horsemen. Chromium can be given as a stand-alone supplement or in combination with other minerals.

Vitamins

VITAMINS A, D, AND E: Vitamin A is abundant in green forages but is rapidly lost as hay and chaff age. A supplement is therefore usually required. Vitamin D is manufactured by horses with adequate exposure to sunlight, but many horses have little access to the sun. Supplemental vitamin D in the diet is beneficial. Approximately 40,000-50,000 IU per day of vitamin A and 4,000-5,000 IU of vitamin D are optimal, but both of these vitamins can be toxic if overfed. Be careful not to double up on supplements or premixed feeds containing these vitamins.

Vitamin E is a major supplemental requirement. An intensely worked horse needs about 1,000 IU per day. Feeding instructions on most vitamin E-only products recommend this dosage, but general vitamin supplements have variable formulations that range from none to 1,000 IU per dose. Vitamin E and selenium are antioxidants and are often packaged together. Vitamin E is an expensive feed ingredient, so care must be taken not to overfeed it.

B VITAMINS: Hard-working and stressed horses need extra B vitamins for energy metabolism, production of red blood cells, and maintenance of appetite. B vitamins of interest to horsemen are thiamine (B1), riboflavin (B2),

B12, and folic acid. The requirement for B vitamins in hard-working horses is less well defined than the need for other nutrients. Some products contain adequate amounts of B vitamins, and others contain scarce levels.

Solving Problems

POOR HOOVES: Some products are aimed at prevention or treatment of certain problems, and these products need to contain the correct nutrients at the correct dosage. For supplements aimed at hoof growth or strength, for instance, the product should supply at least 15 mg biotin per day for a 1000-lb (450-kg) horse, but some do not. Products containing a combination of biotin, zinc, and methionine work better than biotin-only products, but the most important factor in feeding biotin is to allow sufficient time for the supplement to work. Feeding biotin-based products usually results in healthier hooves, from coronary band to sole, in nine to twelve months.

POWDER, PELLET, LIQUID, OR FEED? Supplementary minerals and vitamins are available in various forms. Getting the horse to eat the supplement is critical. The best supplement in the world does little good lying on the bottom of the feed bin or blowing away in the wind. For that reason, pelleted supplements can be useful. Pelleted supplements are often more palatable, and little doubt then exists as to whether or not the horse consumed the supplement. Liquid supplements may be expensive and unpalatable. If only low doses are required, they can be shot into the mouth using a syringe. Some powders mix well with water and can be given orally using a syringe. Most powders have few palatability problems. Occasionally, however, a horse will sort its feed and reject a powdered supplement.

Use of a concentrate that contains energy and protein from straight grains and vitamins and minerals from a premix is an effective way of ensuring horses consume a balanced and economical diet. With these feeds, like all supplements, the recommended amount must be fed to derive the greatest benefit from the added minerals and vitamins. The same situation applies to premixed feeds, which, if properly formulated and fed at the right rate, should deliver all supplemental needs except electrolytes.

EFFECTIVENESS AND VALUE ARE IMPORTANT: Do not choose supplements on price alone, but look for economical products that meet actual needs. A concentrated, low-inclusion product will be more expensive than one in which the dose is larger. Look at the weight of the pack and the dosage amount, not the size of the bucket. Large packages may be more expensive per pack, but cheaper per daily dose. Some nutrients such as vitamin E are very expensive, and a product without vitamin E will be cheaper than one that supplies 1,000 IU of vitamin E per day. ○○