

Has Your Horse Had His “One-A-Day” Today?

Tips for Selecting a Vitamin-Mineral Supplement

Lori K. Warren, Ph.D., PAS
Associate Professor, Equine Nutrition
Department of Animal Sciences, University of Florida

Minor Nutrients with Major Responsibilities

Vitamins and minerals support a variety of functions in the body—from strengthening bones and cartilage, to maintaining fluid balance and protecting tissues from damage. In fact, just about every chemical reaction in the body relies on a vitamin or mineral to be carried out. Despite their vital role, only small quantities of these micronutrients are needed in the diet.

Many of the 16 minerals and 14 vitamins needed by your horse are provided in sufficient quantities in the forage (hay or pasture) and grain you feed. Some vitamins can even be made by your horse (vitamin C and D) or the bacteria inhabiting their hindgut (the 8 different B-vitamins and vitamin K). However, other vitamins and minerals are present in feeds at a level below the horse's daily requirements and must be added to the diet. This is accomplished either by providing a vitamin or mineral supplement, or by purchasing a feed that has been fortified with a balanced level of these micronutrients.

A prime example of a mineral that needs to be supplemented to all horses is salt (NaCl). Forages and feeds are naturally low in salt. Even feeds fortified with 0.8-1% salt often will not meet the horse's requirements, particularly during the Florida summer. Therefore, all horses, regardless of age or productivity level, need a supplemental source of salt in their diet.

Does Your Horse Need a Vitamin or Mineral Supplement?

Other than salt, how can you tell if your horse's vitamin and mineral needs are being met? The most definitive way to determine if a feeding program falls short of the mark is to have your forage and feed analyzed. This allows you to compare the quantities of vitamins and minerals consumed each day to the horse's requirements. An equine nutritionist, county extension agent or veterinarian can help you do this. Unfortunately, conducting a thorough feed analysis may be impractical for some feeding programs.

Providing a supplement “just in case” is a more common approach to ensure the vitamin and mineral needs of a horse are being met. However, unnecessary supplementation can be expensive insurance and, in some cases, even lead to toxicity if your horse's diet was already high vitamins or minerals to begin with.

As a rule of thumb, your horse is more likely to need a vitamin-mineral supplement if you feed one of the following types of diets:

- 1) a forage-only diet (either hay or pasture)
- 2) forage along with unfortified grains (e.g., oats)
- 3) forage along with insufficient quantities of a fortified feed (i.e., you feed less than the minimum amount recommended on the feed bag)

The “One-A-Day” Approach

Once you have determined that your horse needs a vitamin-mineral supplement, you have several choices in the type of product you provide.

It is safer and more effective to select a “complete” or multi-vitamin and mineral supplement, rather than supplementing a single vitamin (e.g., vitamin E) or mineral (e.g., copper) that may be deficient. Providing an excessive amount of one mineral or vitamin can interfere with the absorption and utilization of another. In addition, many minerals and vitamins aren’t very palatable by themselves, which may cause your horse to reduce their feed intake and further contribute to nutrient deficiencies. Similarly, making individual vitamins or minerals available cafeteria-style and relying on your horse to select what is missing from his diet is not only unwise, it’s ineffective. With the exception of salt (NaCl), horses do not possess any “nutritional wisdom.”

As its name suggests, a complete or multi-vitamin and mineral supplement contains multiple vitamins and minerals mixed together in the same product. They are the equivalent of a “One-a-Day” or “Flintstones” vitamin-mineral for people. At a minimum, you should select a product containing calcium, phosphorus, trace minerals (including copper, zinc and selenium), and vitamins A, D, and E. Though present in pasture, hay and unfortified grains, the concentrations of these vitamins and minerals can often be below the horse’s requirements.

Choosing a Supplement

Complete vitamin-mineral supplements are available in three primary forms, each having their own advantages and disadvantages. These include:

- 1) Blocks or bricks
- 2) Loose (granular or crumbles)
- 3) Ration balancing pellets

Mineral blocks (or bricks) are a common sight in horse stalls and pastures. Most provide only salt or mostly salt with a very small amount of trace minerals. Less commonly, blocks can be found that fit the definition of a true complete vitamin-mineral supplement. While blocks offer relatively low cost and convenience, you can never be sure how much of the block your horse is eating every day. In addition, many blocks contain such low levels of minerals that, when combined with a low voluntary intake, they don’t contribute anything significant to the horse’s diet. Daily exposure to sunlight and weather may also render many of the vitamins inactive. Salt blocks are the one exception and can provide both an effective and convenient way to add salt to your horse’s diet.

Loose vitamin-mineral supplements (in either granular or crumble form) can offer the same cost and convenience of blocks, but are more likely to be consumed voluntarily by horses on a daily basis. Loose supplements can be offered free-choice in a weather-protected feeder or top-dressed on the feed to permit better control of vitamin and mineral intake. High quality supplements in loose form contain very concentrated levels of vitamins and minerals. In fact, for the average horse, typical feeding recommendations for loose vitamin-mineral supplements are in the range of 1 to 2 ounces (30-60 grams) per day. To be effective at this feeding rate, select a loose vitamin-mineral supplement that contains at least 12% calcium, 12% phosphorus, 4000 ppm zinc, and 750 ppm copper. If the supplement contains lower mineral concentrations, the feeding rate will likely be higher for an adult horse. If provided free-choice, make sure to keep it

fresh by replenishing the feeder with new loose supplement every 3 to 7 days. You can also encourage intake of loose mineral by mixing it with an equal weight of loose salt (NaCl).

Ration (or diet) balancing pellets are a fairly recent addition to the product line of most feed companies. Though not as concentrated as a loose vitamin-mineral supplement, ration balancing pellets are still much more concentrated than a fortified feed. Unlike the other vitamin-mineral supplements, ration balancers may also provide an additional source of protein. The pellets are available in a high protein form (25-32% crude protein) or lower protein form (10-12% protein).

Ration balancing pellets are similar to (and in some cases, the same thing as) the nutrient-dense pellet included in many fortified sweet feeds. Because ration balancers don't contain the grain and other ingredients of a fortified feed, yet they taste good all by themselves, they can be a good low-calorie alternative for supplying essential nutrients to overweight horses. For horses that do need additional calories, ration balancers can be combined with an unfortified grain (e.g, oats) or beet pulp and fed as a substitute for a fortified feed.

Feeding rates for ration balancers are usually in the range of 1 to 2 pounds per day. To be effective at this feeding rate, select a ration balancer that contains at least 2% calcium, 1 to 2% phosphorus, 400 ppm zinc, and 75 ppm copper. If the ration balancer contains lower mineral concentrations, the feeding rate will likely be higher. If feeding a grass hay or feeding growing horses, select the higher protein ration balancer. For all other horses, the either the low or high protein version will be an effective means for providing vitamins and minerals.

Remember, to safely get the most out of the product you select, follow the manufacturer's feeding recommendations. If you feel the amount recommended is too high or too low for your horse's needs, work with your feed representative, nutritionist or county extension agent to find a more suitable product.