

Vitamin and Mineral Notes

Vitamins

Generally, green grasses and hays furnish carotene that the horse converts to vitamin A. Vitamin A is important in maintaining the skin and epithelial linings of the digestive, respiratory, urinary, and reproductive tracts. An average pleasure horse needs about 20,000 to 30,000 International Units (I.U.) of vitamin A

Vitamin D is often called the sunshine vitamin because the sun's rays convert substances in the animal's skin and substances in sun-cured forages into vitamin D. Vitamin D is especially important in the absorption and metabolism of calcium and phosphorus for normal bone growth and maintenance. An average horse needs about 3,000 I.U. of vitamin D daily.

Vitamin E is often associated with improved reproduction and muscle maintenance. Green feeds, wheat bran, and wheat germ oil are usually rich in vitamin E. Under conditions of barn confinement, drouthy pastures, or feeding poor-quality forage, horses may not receive adequate amounts of vitamins A, D, and E. In such cases, economical supplements of these vitamins can be mixed in the feed, injected intramuscularly, or furnished in stabilized mineral blocks.

Vitamin K, necessary for blood clotting, is synthesized sufficiently in the body.

The necessary 13 vitamins are synthesized in the horse's cecum. Small supplemental amounts may be beneficial under stress conditions of fast growth, intense training, heavy racing, or breeding. Spent brewers' yeast may be an economical supplemental source of B vitamins.

Homework to better understand nutritional supplements.

<http://www.ker.com/library/advances/239.pdf>

Now you have documentation of what the daily micromineral requirements are.

You have a nutritional analysis of Product X.

This is the conversion calculator:

<http://animalscience.ucdavis.edu/MineralProject/conversion.htm>

Here is one example:

Product X on a per pound basis supplies

Copper (Cu), minimum240 ppm

Daily Requirement as in above article. (Joe Pagen is a great Equine Nutritionist,)

FOR AN IDLE HORSE is 100 mg/day

For an ACTIVE HORSE 250mg/day

Using the Calculator, Product X is supplying 108 mg/lb of supplement fed. Note that is per pound of supplement.

The Math:

$250\text{mg} - 108\text{mg} = 142\text{ mg}$ short of copper.

So if you are feeding a pound of this supplement, you are meeting the needs of an idle horse. What is Product X's recommended feeding rate?

I would prefer higher copper supplementation. Joe doesn't mention a lot about CU for joint health in this paper but its one of the most important micro nutrients for joint health.

For older horses, or horses that are suspected or confirmed Cushings horses, you might consider adding the following:

Vitamin C 500 mg daily

Vitamin E 2000 IU per day

Lysine 10 grams per day

Lysine often has a dramatic effect on muscling in older horses.

Purchase from the least expensive source (Walmart/Target/Walgreens) when a BOGO sale is on.

Ground flax seed as a source of omega-3 fatty acids, 4 to 6 oz per day, with no other added fats. Discontinue all other fat supplements.

Find at the grocery store or health store. MUST be ground.

Keep a bucket of fresh clean water in the stall even if there is an automatic waterer. You may also offer electrolytes in another separate bucket. They must be changed at least twice a day.

Minerals are critical inorganic materials that must be present in adequate amounts for the body to function properly. . It is important to understand that mineral needs will change depending on your horse's age and status (i.e., if the horse is working, gestating or lactating). Most commercial feed companies balance their feed to meet the mineral requirements of different classifications of horses. Forage will also provide minerals. In some cases, additional supplementation of some minerals may provide desirable results. For example, biotin, zinc and copper supplemented above requirements have been shown to improve hoof strength. However, care should be taken because excessive amounts of minerals may also cause toxicities, lead to serious health conditions or interfere with absorption of other minerals.

If your horse does not receive a commercial concentrate or eats very little of it, it may be important to supplement additional vitamins/minerals to his forage diet by feeding a product called a ration balancer.