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Horse Talk

FAT SOLUBLE VITAMINS FOR HORSES SPECIFICALLY VITAMIN A & D

Many horse farms and individual owners add no additional vitamins to their feeding program. They rely exclusively on the vitamin content of their forages, plus whatever vitamin content is contained in the grain mixture they feed. Some farms' tack rooms look like health food stores, full of tins and tubs of all kinds of vitamin mixtures. Each horse has their own recipe for a vitamin/supplement mixture that they feed once or twice per day.

To simplify the data and information, let's break down vitamins into two categories. The first category includes the FAT SOLUBLE VITAMINS. These vitamins include Vitamins A, D, E and K. The second category of vitamins are the WATER SOLUBLE VITAMINS, such as the B vitamins and Vitamin C, which will be discussed in a future issue of Horse Talk.

The fat-soluble vitamins are stored in the liver of the horse and dispatched when needed by the body. What level of fat soluble vitamins are necessary? What is the maximum level tolerable? The following data was taken and/or calculated from NRC Nutrient Requirements of Horses.

All of the numbers below are calculated on a "dry matter" intake basis. Normally, grain mixtures contain about 12% moisture; hay will vary, but is usually around 15% moisture. As an example, if you are feeding 15 pounds of field-dried hay the dry matter content would be about 12.75 pounds ($15 \times .85 = 12.75$ dry matter pounds).

VITAMIN A - Maintenance, growing and working horses can get by on 909 IU/lb per pound of dry matter consumed, per day. If you have a horse that is eating 20 pounds of dry matter, hay and grain, per day he would need about 18180 IU/lb of Vitamin A per day ($909 \times 20 = 18180$ total IU's needed). Keep in mind that good, fresh hay will contain beta-carotene, which can be converted by the horse to Vitamin A; however, only testing of the hay can guarantee its reliability. Hay content will vary from field to field and the length of time it is stored.

The maximum tolerable level of Vitamin A is 7272 IU/lb per pound of total ration dry matter consumed. Therefore, if your total ration dry matter is 20 pounds per day, the absolute total Vitamin A upper limit would be 145,440 IU's per day ($7272 \times 20 = 145,440$ IU/day). Keep this in mind if you are adding Vitamin A in the form of a supplement. Do the math and add up what is on your feed tag plus what you are supplementing. Overfeeding can be just as bad as underfeeding.

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consumed per day. Therefore, if you have a milking mare that is getting 25 pounds of dry matter (hay and grain) per day, her total requirement would be 34075 IU's of Vitamin A daily. Once again, if you are feeding a supplement along with your grain and hay, do the math and add up the total IU's per day to be sure you are not under or overfeeding Vitamin A.

Signs of a Vitamin A deficiency:

- Night blindness
- Poor growth
- Infections of the respiratory system
- Salivary gland abscesses
- Poor conception rates
- Seizures
- Weakness

Signs of Vitamin A excess:

- Bone weakness
- Depression
- Rough hair coats
- Poor muscle tone
- Plus some of the signs shown above as deficiencies

VITAMIN D - Maintenance horses and working horses need about 136 IU/lb of Vitamin D per pound of dry matter consumed per day. Pregnant and lactating mares require 272 IU/lb of Vitamin D per pound of dry matter consumed; growing horses need about 363 IU/lb of Vitamin D per pound of dry matter consumed per day. Calculate total daily needs by multiplying the total pounds of dry matter fed daily to each animal (as shown in the Vitamin A example).

The maximum tolerable level for Vitamin D is 2200 IU (1000 IU/lb) of dry matter consumed daily. Therefore, a horse eating 20 pounds of dry matter per day would have a maximum tolerable level of 20000 IU's per day (20 lbs. feed/hay X 1000 IU/lb = 20000 IU's per day). Vitamin D is normally included in commercial feeds and is also made in the skin when it is exposed to sunlight.

Signs of a Vitamin D deficiency: Abnormal bone growth, also known as Rickets

Signs of Vitamin D excess:

- Soreness & stiffness
- Lack of appetite
- Drink a lot of water and urinate frequently
- Loss of weight
- Calcification of the kidneys
- Death

More information about vitamins will be available in upcoming issues.

I am always available to answer any questions you may have regarding Equine Life Premium Horse Feed and Supplements. I can be reached on my cellular phone at 610-216-0364 or via E-mail at equinelife@emoyer.com.