Nutrition - General Knowledge Study Guide

Nutrition and Classes of Nutrients

There are six main classes of nutrients for horses. Included in these are: water, carbohydrates, fat, protein, minerals, and vitamins. Each class has specific requirements that vary based upon the exact conditions of the horse you want to feed. Another minor class of nutrients that we will not discuss in detail is supplements but you will be made aware of their use.

Water

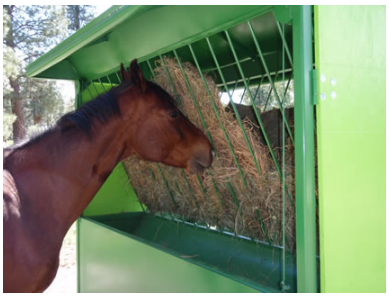
The most basic and important nutrient in any animal's diet is water. A horse's water can come from 3 sources. Most is from the water he drinks but some also comes in his feed and a very small bit is produced during digestion. A horse's water needs greatly depend on the amount of work he is doing. On average he will need to consume 10% of his body weight in gallons of water each day. That means for a 1,000 lb horse he will need about 10 gallons of water. The reason water is so important is because it makes up between 65- 80% of the horse's body weight. All that water performs some very important functions such as: regulating body temperature and transporting nutrients to the cells.

Carbohydrates & Fat

Energy is supplied by two classes: carbohydrates and fats. The energy a horse gains from these sources is what they use for work and biological processes. Fats contain more than twice the energy of carbohydrates. Some sources of carbohydrates are: molasses, grains, and pasture. Fats include: oils such as fish oil or corn meal oil.

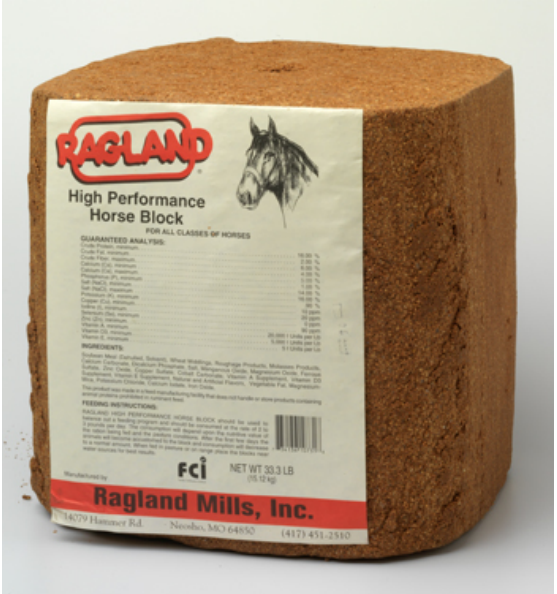
Protein

Proteins are important because they are composed of amino acids. Amino acids are the building blocks of life. When a horse ingests proteins they are broken down into amino acids, which are used throughout the body. For these reasons a good source of protein in your horse's diet is important. Feeding a horse too much protein will not help because the excess will just be excreted in the urine. Soybean meal, cottonseed meal, and legume hays are all high protein sources.



Minerals

Minerals can be divided into two groups: macro and micro. Both are essential for the horse's life but in different quantities. Macro minerals not only appear in larger amounts in nature but they are also required in larger amounts by the horse. Examples of macro minerals include: calcium and phosphorous which both aid in bone formation and growth. Micro minerals, also known as trace minerals are found in small amounts in nature and therefore are needed in smaller amounts by the horse. These include: iron, copper, and zinc. All of these minerals compose a portion of the horse's feed because they are naturally occurring. It is important to know the horse's requirements of these minerals because too little (deficiency) or too much (toxicity) can cause serious health problems.



Vitamins

The last class of nutrients is vitamins. Like minerals, vitamins are also divided into two groups: fat-soluble and water-soluble. Vitamins are classified based on how they are absorbed. In the horse vitamins A, D, E, and K are fat-soluble, while B and C's are water- soluble. All these vitamins are needed by the horse but A and E are essential because the horse cannot produce them within their body. Some examples of vitamin sources include: vitamin A found in hay which is required for good eyesight. Also, vitamin C which the horse can produce in its kidneys or liver aids in collagen and hormone synthesis, as well as vitamin E regeneration.

Feed Guidelines

The types of feed and amounts to feed will vary greatly based on the horse's needs. In order to determine his needs there are many factors to consider. First would be the age and weight of the horse. A young horse's diet would be different than that of a senior. External factors such as the season and temperature also make a difference. Lastly the level of work, also known as physiological state, will help determine how much feed is appropriate.

Physiological State (Level of Work)

A horse's physiological state will impact the amount of feed it requires for daily nutrition. Horses doing more work will need a greater intake of food than one that is not working. Another instance when nutritional needs increase is during gestation, specifically during the last two months and into lactation. Foals have the highest nutritional needs when they are born and as they mature needs decrease to the level of a maintenance horse. Lastly an aged horse needs slightly more nutrition than maintenance but less than that of a working horse.

Supplements

Supplements are a minor class of nutrients with controversial usage. Some horse owners include supplements as a regular part of their horse's diet. Other people do not believe horses need supplements. The point of a supplement is to enhance a horse's performance in some aspect whether it's improving digestion or creating a shinier coat.

Please go here to play some nutrition related games for practice: http://www.classtools.net/mob/quiz_62/Equine_Nutrition__hdqER.htm

Sources

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2. Lewis, Lon D. "Feeding Idle and Working Horses." Feeding and Care of the Horse. New York: Lippincott Williams and Wilkins, 1996. 186-187.
3. Wood, Craig H., Ashley Griffin, and Amy Parker. "What's for Dinner?" Youth Leader's Manual. Pueblo West: American Youth Horse Council Inc., 1998. 102-1- 102-4.