

What's in your bag?

The truth behind those mysterious feed tag ingredients.

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Horse feed tags usually have a long list of ingredients that often causes more confusion than clarity. Feed tags list the usual feed grains, like oats, corn and barley, and by-product ingredients such as wheat bran, beet pulp, soybean hulls, molasses, protein supplements and minerals. But in addition to the usual, are less familiar ingredients. Why are they included and is your horse benefiting from them? Let's look at the supplemental ingredients you may find on your feed tag and see why they are included.

## NUTRIENTS

### Vitamins

Vitamin A is included in most horse feeds because the horse needs a daily dose and mostly relies on  $\beta$ -carotene to provide for this need. Green grass and fresh hays have plenty of  $\beta$ -carotene, but hay that has been stored for some time starts to lose this valuable nutrient. Therefore, vitamin A is included in concentrates to ensure that the animal receives adequate amounts daily.

Vitamin D is included in most horse feeds because the horse has a daily need for it as well. Horses that are out of doors make their own vitamin D from exposure to sunlight, but stalled horses may not get enough sun to meet their needs. For this reason, Vitamin D is supplemented to the concentrate to ensure adequate doses.

A shiny coat is a sign of good health; Feeds containing ingredients such as soybean oil, stabilized rice bran and flax seed will improve overall coat condition and health.

Vitamin E is an important anti-oxidant. Not only is it included to control the oxidative by-products of metabolism, but it also helps to stabilize the fats in the diets. Vitamin E is particularly important in working horses.

Biotin is a B-complex vitamin. Most horses need about 3 mg of biotin daily to meet their requirements; however, a few need more biotin for good hoof development. Horses with shelly hoofs may have a biotin deficiency or a higher biotin demand than normal horses. These horses should be provided at least 30 mg of biotin daily for 180 days to determine whether

the hoof problem is due to inadequate biotin or another cause. The long supplementation period is necessary because the horse must grow a new hoof before you can determine whether or not it is responding to the supplementation. Most horses requiring extra biotin can be reduced to 15 to 20 mg/day after the initial 180-day period.

#### Chelated minerals

Salts of minerals such as ferrous sulfate, copper sulfate, zinc oxide and cobalt carbonate have been used to provide the trace mineral needs of the horse and other animals for many years. You will find that most horse feeds include some of these inorganic mineral salts.

Chelated minerals are mineral salts that have been reacted with organic compounds such as amino acids, peptides and proteins. They are beneficial to the animal because they are more efficiently absorbed than inorganic minerals. Ott and Johnson, 2001, demonstrated that chelated minerals improve hoof growth.

#### Amino acids

Amino acids are the building blocks of proteins. Our horses' primary source of amino acids is from protein. High-quality protein sources provide a mixture of amino acids. If you are feeding low levels of protein or feeding low-quality protein, you may need to supplement amino acids to provide adequate amounts for growth and proper body function.

Horses need sunlight to synthesize vitamin D. Show horses that are commonly kept in stalls, or those horses that are only turned out at night, may not be receiving adequate vitamin D. A horse feed with a guaranteed level of vitamin D will safeguard against a deficiency.

Lysine and Threonine are limiting amino acids, meaning they are needed for efficient digestion of dietary protein. Lysine and Threonine supplementation is especially important in growing horses. Methionine is an amino acid that is known to be essential for hoof and hair coat quality. These amino acids are typically included in feeds to ensure that the horse can effectively utilize its dietary proteins.

## NUTRICEUTICALS

Nutraceuticals are organic compounds that are not nutrients but do provide some metabolic or digestive advantage to the animal. These products are generally not well-researched, and they are usually recommended based on testimonies from someone that has used them successfully. Are the benefits real? Should they be added to horse feeding programs? Let's examine some of the most popular nutraceuticals and see where they

might be used.

#### Mannan oligosaccharide

Mannan oligosaccharide (MOS) is a chain of mannose molecules derived from the cell wall of yeast, and it appears to have two effects in animals. First, it increases the animal's immune response. For example, broodmares fed MOS during late gestation had higher colostrum IgG concentrations (Ott, et al., 2002), which resulted in reduced diarrhea in the mares' foals. Second, MOS appears to act as a binder for pathogenic organisms in the digestive tract, helping to shield the animal from harm.

#### Mycotoxin binders

Mycotoxin binders are products that tie up mycotoxins in the digestive system and keep them from being absorbed by the animal. Mycotoxins are products produced by molds and fungi during times of high heat and humidity and can have adverse effects on animals. Over 3,000 mycotoxins have been identified: aflatoxin, ochratoxin, zeralinone, T2, and vomitoxin are a few examples of mycotoxins that can exist on horse feeds. These molds and fungi will grow on feed ingredients, mixed feeds and forages, both pasture and hay, and the mycotoxins they produce can cause liver damage, digestive upset, neurological problems, poor feed intake and poor performance

To prevent such problems, quality ingredients that are devoid of mycotoxin content should be used in the manufacturing of horse feeds. Proper care of the feed after mixing and the inclusion of mold inhibitors also help keep the presence of mycotoxins low. However, molds and fungi are everywhere – even on forages, so protection may still be needed. Horse feeds containing mycotoxin binders will aid in protecting horses from these dangerous molds and fungi.

#### Live Yeast and Yeast Culture

Yeast culture is produced by fermenting yeast (*Saccharomyces cerevisiae*) in a controlled environment and then drying the entire culture media, including the yeast cells and the nutritional metabolites produced in the fermentation process. Yeast culture is a rich food for the digestive bacteria population in the horse's hindgut, which encourages the beneficial bacteria to multiply. Higher numbers of these bacteria improve the horse's ability to digest fibrous material, boosting digestive efficiency and increasing the phosphorus absorption (Glade and Biesik, 1986). It is thought that this benefit is due to the nutrients that the culture provides and not due to any live cells that may be included.

The value of live yeast cells is less clear. Although they have been demonstrated to benefit dairy cattle, it is not clear that they would benefit

horses because they would likely be digested prior to reaching the hindgut in the horse.

#### Yucca Schidigera

Yucca schidigera grows in the southwestern United States and in Mexico. The plant is marketed in two forms: powdered and yucca extract. Both products have high concentrations of saponins, which are reported to have anti-inflammatory properties and to increase hindgut fermentation and fiber digestion. They also tie up nitrogen in the hindgut, reducing urinary nitrogen excretion. This can be beneficial to animals on high protein diets such as those consuming large amounts of alfalfa hay.  
yucca plant

### FEED INGREDIENTS

#### Soybean hulls

Soybean hulls are an excellent source of highly digestible fiber and thus a good source of non-starch energy. The hulls are digested primarily in the hindgut, so they provide a slower energy release than grains and other high-starch ingredients. Soybean hulls are typically found as a primary ingredient in low-starch horse feeds.

#### Ground flax seed

Ground flax seed is a source of oil providing Omega 3 fatty acids and it is an excellent source of calories. Flax seed is known to improve hair coat appearance and will help provide the essential fatty acids required by the animal.

#### Stabilized rice bran

Stabilized Rice bran is an excellent source of fat for horses. It is primarily added as a source of Omega 6 fatty acids and to increase the caloric content of the feed. It is an excellent source of energy and will also improve hair coat appearance. Additionally, rice bran contains gamma oryzanol.

### IMPLICATIONS

Sorting through the long list of feed tag ingredients may seem a daunting task. However, it is important to understand which ingredients are beneficial to your horse and which are simply filler. If ever you have questions regarding an unfamiliar ingredient, contact a qualified equine nutritionist to untangle its mysteries. This way, you and your horse can reap the benefits of a sound nutritional program.

Growing horses need much higher levels of the limiting amino acids, Lysine and Threonine, than mature horses; without an adequate supply, a youngster's growth can be stunted.

#### Health Food for Horses

Seminole Feed includes optimal levels of vitamins and chelated minerals in all Seminole Horse Feeds. Additionally, beneficial nutraceuticals such as Yucca Schidigera, Mycotoxin binders, Mannan oligosaccharide and Yeast culture are included in SEMINOLE super premium horse feeds.

For more information visit [www.seminolefeed.com](http://www.seminolefeed.com)

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