

# Looking In the Feed Bag

by Patti Woodbury-Kuvik

I'm frequently asked "what do you think of [fill in the blank] feed? Is it safe for my horse? Is it a good feed? Should I use it instead of [fill in the blank]. How does it compare to [fill in the blank]? Will it work with my hay?"

Unfortunately, few feed companies tell us everything or even very much about their feeds on their web sites. (A notable exception is [Triple Crown Feeds](#) which lists all the ingredients and minerals plus a chart showing [sugar and starch levels](#) for their feeds.) What you do find on many manufacturer's web sites are promises to be everything your horse needs, dumbed down excerpts and references to NRC and scientific literature, and buzz words such as Omega-3 fatty acids, amino acid profile, alternative energy sources...

One large feed manufacturer even resorts to fear based tactics on their website - *If eliminating obesity were merely a matter of cutting calories, you could simply cut a horse's rations in half and expect great results. But that's not the case. On the contrary, as any horse owner can tell you, watching a horse go hungry is heartbreaking. In addition, starving a horse can set off a chain of events that harm more than help, i.e., loss of muscle mass, nutrient deficiencies, etc.*

My personal preference is to use "straights" - hay and single forage or fiber products such as hay pellets, beet pulp, soy hulls, etc., add hard grains and protein supplements where needed and supplement minerals based on the results of forage analysis. But there are circumstances where pre-mixed bagged feeds are useful - not only for convenience but because a quality product can enhance the forage-based ration.

Hard keepers, pregnant or lactating mares, growing horses and some performance horses can benefit from the concentrated levels of energy, protein or major minerals found in these feeds. But in order to use a feed correctly you need to know:

- your horse's requirements based on age, work type and intensity, and reproductive status
- what is provided by your horse's forage, which should be the [foundation](#) of the ration
- the difference between the requirements and what is provided (deficiencies and excesses)
- what is in the feed you're considering and how it addresses the deficiencies and excesses

No matter what the label, web site or advertising says, pre-mixed bagged feed will rarely even come close to balancing your forage. Most pre-mixed feeds are "balanced to itself" - the minerals are in minimum amounts and ratios per NRC guidelines when fed as directed but, as there is no way of knowing the mineral content of your forage without testing, the feed might complement your forage or it may exaggerate an existing imbalance. This is especially true when looking at "hay balancers" that are designated for "alfalfa" or "grass" hay. As a rule, the calcium level in alfalfa hay is high, while many grass hays have lower levels of calcium. While the alfalfa hay generally requires added phosphorus to balance the high calcium, the grass hays

often have excellent calcium to phosphorus ratios (between 1.5 to 2:1). While the calcium level may be low compared to alfalfa, the grass hays often provide adequate calcium for most horses and adding more by using a "grass" balancer will now create a new imbalance.

## Convenience

Two primary reasons for using pre-mix feeds are convenience and lack of knowledge. I've succumbed to the convenience factor when job demands limit my time - when rushed I will substitute a pound or so of [TC 30%](#) (yummy but low sugar/low starch high protein) added to some Timothy pellets for the beet pulp/Timothy pellet/custom supplement mash I usually feed every day. Convenience is also a factor for many boarders, feeding a large number of horses or when the horse owner is away from home and wants to simplify feeding for the caretaker. Education can be an eye opener for people used to feeding out of a bag when they realize how much they've been paying for unnecessary nutrients and, possibly, still not covering deficiencies. With a little effort and knowledge, "straights" can often be used at considerable cost savings while providing a more complete "customized" ration for your horse.

## How Much to Feed

Feed labels have lots of information - some of it is important, some of it is irrelevant and much of it is confusing. The first part to consider is the feeding directions. Most feeds are formulated to be fed at specific rates - usually "pounds of feed" per "pounds of body weight". If you are relying on a feed to provide minerals and vitamins then you need to feed at the rate the label directs. One piece of information missing from US equine feed labels is DE - digestible energy, which is shown on our hay analyses as "Mcal".

### Guaranteed Analysis

Protein, min.....	12.00%	Copper, min.....	65.00 ppm
Fat, min.....	5.50%	Selenium, min.....	0.60 ppm
Fiber, max.....	23.00%	Selenium, max.....	0.61 ppm
Lysine, min.....	0.70%	Vitamin E, min.....	225.00 IU/lb
Calcium, min.....	0.80%	Vitamin A, min.....	3500.00 IU/lb
Calcium, max.....	1.00%	Biotin, min.....	3.6 mg/lb
Phosphorus, min.....	0.50%	Starch, max.....	7.0%
Magnesium, min.....	0.50%	Sugars, max.....	4.0%
Zinc, min.....	220.00 ppm		

### Ingredients

Alfalfa, Shredded Beet Pulp, Wheat Middlings, Ground Oat Hulls, Ground Soy Hulls, Ground Flaxseed, Soy Oil, Calcium Lignin Sulfonate, Calcium Carbonate, Mono-dicalcium Phosphate, Salt, Vitamin A, Natural Flavor, Vitamin C, Biotin, B12 Concentrate, Calcium Pantothenate, Choline Chloride, Natural Vitamin E, Tocopherols, Vitamin D, L-Lysine, Magnesium Oxide, DL-Methionine, Niacin, Riboflavin, Selenium, Thiamine, Cobalt Carbonate, Copper Sulfate, Ferrous Carbonate, Manganous Oxide, Calcium Iodate, Zinc Oxide.

A popular feed illustrating iron (Ferrous Carbonate) and manganese (Manganous Oxide) shown in Ingredients but not represented in the Guaranteed Analysis.

If you feed less than the rate shown in the directions, your horse will not get the expected level of nutrients. I use copper as a quick check for feeding rates - most "average" sized horses need a minimum of 90-125 mg of copper per day. As most hay and other forage contains low levels of copper, I rely on supplemental copper to provide at least the minimum requirement.

The label usually shows copper as "ppm" - that is "mg of copper per kg of feed". To see how much copper is in a pound of feed, divide the ppm by 2.2. If the feed label shows "copper 65ppm", then it contains 29.5mg per pound, or 118mg in four pounds of feed. This will likely be close to the feed rate shown in the directions.

If you feed more than the "feed as directed" rate, your horse may receive levels of some nutrients that are too high. Selenium is often cited as a potential problem but is usually not a concern unless you are providing selenium from multiple sources. Vitamin A is likely to be excessive if a feed contains high levels to begin with and iron, which may be shown in the ingredients but not in the "guaranteed analysis" can reach levels which begin to outweigh other trace minerals. Excessive calcium in the diet can result in the horse being unable to mobilize calcium from body stores when needed. (See Susan Evans-Garlinghouse, DVM's article on [Alfalfa for Distance Horses](#).)

But feeding at the "as directed" levels can also have problems. Some labels will say something to the effect of "feed as directed in the table below and adjust to maintain condition". While this may work for an experienced horse person who has a good eye for what constitutes "condition", this can baffle the inexperienced owner who has no idea what an endurance-fit Arab might look like compared to a show ready Warm Blood or a working Quarter Horse, or if a horse is showing signs of a specific nutritional deficiency. Cutting back the amount fed can result in inadequate nutrition (yes, a fat horse can be "mal-nourished") while feeding more to encourage weight gain can result in giving excess minerals and vitamins. To keep within the correct feeding range, you can reduce the amount of forage or pasture but need to make sure the horse is still receiving adequate fiber - at least 1.5% of its body weight in hay or (the dry weight of) pasture.

Ideally, we should feed based on the DE (energy in Mcal) of the feed. If you have the feed analyzed the report will contain this information; a few manufacturers will provide DE when requested. (When the DE is known, I will be adding it to future feed comparison tables.) If the DE was readily available, it would help you to easily choose feeds that fit your requirements.

### **Fortified, Supplemental and Complete Feeds**

Switching to a highly fortified feed which is fed in small amounts may help when more protein and major minerals are needed in a smaller energy base. These are concentrated feeds, often high protein, which are usually fed at a rate of 1-3 pounds per day - more than a "supplement" but less than a "feed". Some comparisons are shown [here](#).

Supplemental feeds are meant to be fed along with hay and have lower protein levels than the highly fortified feeds. They may be grain based for performance horses or high fiber for "special needs" horses and may contain fairly high levels of fat for "alternative energy sources". Feeding rates may range from five to ten or more pounds/day. The fad for high fat feeds seems to be waning but there is still a lot of emphasis on adding fats for "cool" calories. Some supplemental feeds contain enough fiber to bridge into the "complete" feed category.

Complete feeds are formulated with higher levels of fiber and can replace all or most of the ration. Fiber sources range from beet pulp to hay to soy hulls and other by products. Fat levels can vary from "normal" (around 3%) to high (6% or more). They are meant to be easy to digest - an advantage for aged horses; many "senior" feeds are complete feeds. These are fed at fairly high rates beginning at about ten pounds per day for an "average" sized horse depending on how much, if any hay is included in the diet.

Forage feeds fit in a new category emerging that combines the simplicity and nutrition of "straights" along with the convenience of bagged feeds. Plain [grass hay pellets](#) and [bagged cubes](#) are gaining popularity as both the main forage foundation or to provide variety from the primary hay fed. Many horses do well on a diet of 100% plain hay pellets coupled with a flax-based supplement and some salt. Minerals are added to [hay chop](#) or [cubes](#) to provide a complete bagged forage that can be used as the total diet. These forages are also useful to round out a marginal hay. Forage feeds can provide consistency when traveling and feeding local hays.

### **Covering the Basics**

If you choose to use a pre-mix bagged feed, whether for convenience or you're not yet confident enough to build your horse's ration from bottom up, make sure you've covered the basics.

- Have a good idea of why you're feeding the pre-mixed feed and specifically what gaps you want to fill in. For example "growth" is not a good criterion but "my local hay has been tested by the extension office and is consistently low in protein and calcium" is a good basis for looking for a feed with added protein and calcium for your weanlings.
- If you need a low sugar/low starch feed, don't rely on the name - "Safe" often isn't. Look for sugar plus starch guaranteed at less than 10% for an actively laminitic or symptomatic Insulin Resistant horse.
- Compare labels - some "specialty" feeds are merely new labels.
- Quality control costs money - a product that is tested before, during and after manufacture will cost more.
- Few feeds provide adequate levels of salt. Make sure your horse is receiving at least one ounce per day and have additional plain salt available at all times.
- Monitor your horse's water intake. If you use automatic waterers, know how to check your horse for dehydration.
- Understand what's fat, thin and "fit". A race-fit Thoroughbred or Arab will look emaciated by halter horse standards while a "rounded" dressage horse or eventer may appear fat to an endurance rider's eyes. Use a weight tape and learn to visualize the

difference between fat and muscle, a normal reserve of fat and the excessive fat pads of the obese horse.

We're all responsible for what goes into our horses, whether we carry the feed bucket or someone does it for us but you don't need to become an equine nutrition "expert" to understand the importance of what and how we feed our horses and to become a knowledgeable advocate for your horse.