

# The Feed Pyramid

## NUTRITION FOR THE GYPSY HORSE

**J**ust as the food pyramid in human nutrition helps guide us in our dietary choices, the horse's diet can also be viewed in pyramid form. What elements go into this pyramid? Is hay choice a simple matter? What kind of concentrates should you choose? Do supplements play a role? What special considerations should you keep in mind when feeding your Gypsy horses? Two experts in equine nutrition walk us through the ins and outs of the Gypsy horse diet.

### Forage: The Building Blocks

The most basic component of any horse's diet, regardless of breed, is forage, which includes both hay and grass. Horses are naturally grazing animals whose bodies are adapted for constant intake of roughage, so the horse's diet should reflect that by being forage-based.

"Horses should have access to forage 24/7 so they can graze in sync with the way their digestive systems are designed," explains Dr. Juliet Getty of Getty Equine Nutrition LLC, author of the comprehensive equine nutrition reference, *Feed Your Horse Like a Horse*.

"Horses' stomachs, unlike our own, produce acid all the time, whether the stomach is empty or not. The reason

they do that is because they are designed to graze on small amounts throughout the day. They need to chew to produce saliva, which is a natural antacid."

This continual access to forage is an important point, as gastric acid can damage the lining of an empty stomach, leading to ulcers. In addition, notes Getty, if gastric acid reaches the hindgut, it can kill the very necessary microbial population, which can cause colic and laminitis.

The best rule of thumb, advises Dr. Lydia Gray, Medical Director and Staff Veterinarian for SmartPak™ Equine, is to feed about 1-2% of the horse's body weight in high-quality hay per day, with the best case scenario leaning toward 2%. For a 1000-pound horse, that would be a hay ration of 10-20 lbs. of hay per day.

Ideally, the horse should have hay available at all times. Gray explains one of the best ways to provide constant access to hay is the small-hole hay net or hay bag. "This is one of my favorite 'new technologies,'" says Gray. The small-hole hay net, also often referred to as a slow feeder, is basically a hay bag with square mesh openings averaging about 1.5 square inches.





When feeding fresh pasture, be sure to monitor your horse. Green grass is high in sugar and starch, which may be detrimental to a Gypsy horse who is genetically at risk for insulin resistance.

A new take on the old hay net, this small mesh is ideal for keeping hay in front of horses all the time without the risk of overconsumption, as the horse has to work to get the hay out of the net.

Many owners report great success with this technique for providing constant forage, thus keeping the horse happy and healthy. In particular, horses that might need to be on a "diet" benefit from the small-hole net, as they have a continual supply of forage that cannot be consumed too quickly.

### Hot Topic: Insulin Resistance

Why is the slow feeder concept of particular importance to Gypsy horses? Gypsy horses tend to be easy-keepers, leaning toward the heavy end of the body condition scoring scale [see sidebar]. As such, care must be taken with this breed's diet. "Gypsies, with their pony/draft nature, have a genetic predisposition toward developing insulin resistance, also known as metabolic syndrome," explains Getty. Insulin resistance is a reduction in the horse's sensitivity to insulin; this makes it more difficult for the body to control blood sugar levels, resulting

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in high levels of circulating insulin and glucose. Some people compare this condition with Type II diabetes in humans.

"Therefore, special attention needs to be paid toward keeping their weight at a normal level. If they become overweight, the likelihood of insulin resistance increases. This doesn't mean that they will all become insulin resistant or develop metabolic syndrome, but they have a genetic tendency toward that, so special attention needs to be paid toward their diet, toward keeping their weight healthy, and toward making sure they get plenty of exercise. All these things will help prevent metabolic syndrome," notes Getty. "Also, don't forget exercise is so important. It burns calories and helps the horse maintain normal weight and build muscle mass, which helps increase the metabolic rate. This makes the horse more sensitive to insulin, rather than resistant."

### Hay: There's More Than Meets the Eye

When choosing hay, select this year's cutting of fresh, mold-free, dust-free hay. Our experts note, however, that hay can be tricky as there can be so much variability in cuttings of hay based on factors such as the particular field, weather, plant maturity, first versus second cutting and storage duration.

"Analyzing hay is the only way to know for sure about the nutrition of the hay you are feeding," stresses Gray. A county extension agent, a university vet school, or a commercial lab can

perform a hay analysis.

When reading your hay's analysis report, explains Getty, the percent of nonstructural carbohydrates (NSC) should ideally be less than 10%, although hay averaging 12% NSC is still considered acceptable. You may need to calculate the NSC from the numbers listed on your report. Simply add the percent water soluble carbohydrates (WSC) plus the percent starch to calculate the percent NSC.

Why is analyzing hay so important? The answer lies in the Gypsy horses' easy-keeper nature. "Whenever you have a tendency toward insulin resistance, it's very good to know what's in the hay you are feeding," says Getty. "Hay, like grass, can vary significantly in its sugar and starch content. You cannot tell by looking at it or by smelling it whether or not it is high in sugar and starch. The conditions under which the hay is cut really have a significant influence on the sugar and starch levels. The only way to tell is to have it analyzed."

### Choosing Hay

Some facts about choice of hay may surprise you. For example, many horse owners shy away from alfalfa hay, earning this legume hay an undeserved bad reputation, but for many horses, it's actually a good choice.

"Alfalfa is a good way to boost the protein quality of the diet. It's not high in sugar and starch, so it's perfectly acceptable

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Photo: Cher Brock, Feathered Grace Farm

Grain-based feeding programs were once considered standard, now this practice is under scrutiny. Not all horses require grain to maintain a healthy body condition. Be sure to feed your horse as an individual, not automatically assuming that they must eat grain.

for the insulin-resistant horse," notes Getty. "It is high in calories, and should therefore be fed in moderation." A horse with an average body weight can receive a hay ration consisting of no more than 30% alfalfa, with an overweight horse consuming no more than 10% of alfalfa in the day's hay ration. Alfalfa is also a great choice for senior horses, which typically have trouble maintaining weight. Soaked alfalfa pellets and cubes are particularly useful for senior horses with poor dentition.

The key with alfalfa, however, is to know your horse. "I'm finding more and more that horses' reactions to alfalfa hay are very individual," says Gray. "Some horses seem to be reactive to alfalfa, such as horses that become 'hot' from alfalfa, or who develop a bout of laminitis. So, add this forage gradually to any horse's diet and watch carefully for issues."

Hay availability varies greatly by region as climate determines which hays can be grown. Getty explains that warm climates offer Bermuda grass, teff and tifton, which tend to be lower in sugar and starch than cool-weather grasses such as brome, timothy and orchard grass. Regardless of region, avoid grain hay such as oat hay, crested wheat grass and rye, says Getty. Grain hays tend to be high in sugar and starch, and could contain the seed heads, which are also high in starch.

### Be Consistent

The other big surprise about hay is that changing your horse's hay might be a bigger deal than you realize. "Changes

in hay are what are most likely to be causes of colic," cautions Gray. "Most people believe it's changing grain." In the cecum, large colon, and small colon, microbes digest the fibrous part of the horse's diet. Gray explains that these microorganisms are adapted to the horse's diet. Changes in diet disrupt the microbial population of the hindgut, which can cause a cascade of dangerous events in the horse.

"You want to avoid changing hay suddenly. If you can, stick with one batch," says Gray. "When you have to change, have something on board to make the hay transition easier for your horse." By this, Gray means a product designed to offer digestive support by buffering changes in the hindgut. This can include products containing a probiotic (*Bifidobacterium*, *Enterococcus Faecium* or various strains of *Lactobacillus*) and a prebiotic (Mannan Oligosaccharides [MOS] or Fructooligosaccharides [FOS]). Prebiotics and probiotics work together in the GI tract; probiotics are direct-fed microbials that supplement the beneficial bacteria in the hindgut, while prebiotics provide a critical food source which maintains the beneficial bacteria. In addition, active live yeast such as *Saccharomyces Cerevisiae* may also support a healthy hindgut.

### Pasture

Turnout plays a large role in the horse's health and well-being. While grass is essentially a super-food, it can also sometimes be too much of a good thing. "Grass is a more



nutritious food for horses than hay, because it contains a multitude of vitamins that are no longer found in hay," remarks Getty. "After hay has been dried and stored for a while, it no longer has vitamins C, E and D, beta-carotene and omega-3 fatty acids." In fact, pasture contains just the right balance of omega-3 to omega-6 fatty acids.

"While turnout and socialization are natural and healthy for horses, many Gypsy horses would benefit from a grazing muzzle, which limits grass intake while still keeping them out, moving and with the herd," recommends Gray. She notes that owners often feel bad about putting a grazing muzzle on the horse, but horses, in fact, quickly adapt to accept the grazing muzzle, which acts in the horse's best interest.

"Fresh pasture, though it is the most nutritious food, may not be appropriate for the Gypsy horse. In terms of diet, fresh pasture, especially spring grass, can be damaging to Gypsy horses simply because it tends to be very high in sugar and starch," cautions Getty. "Horses that have a genetic tendency toward insulin resistance really should be kept off fresh pasture unless the horse has a good, normal weight and is exercised adequately."

### Concentrates: The Pyramid's Center (Or Not?)

Traditional grain-based feeds have long been considered by many as an essential part of the horse's diet. That practice, however, is now coming into question. "More and more horse owners are coming to realize that horses don't necessarily need grain," notes Gray. "With over half of the American horse population overweight, we don't need to be giving them more calories. Some fortified grains are as high as 50% in sugars and starches." Still, paring the diet down to forage alone isn't the answer, either. "In most parts of the country, hay alone probably doesn't complete and balance the horse's diet," explains Gray.

Gray's solution to this conundrum is a ration balancer. "Ration balancers give a choice that fortified grains often don't – you feed at a much smaller rate, such as one to two pounds, whereas a fortified grain might require five pounds of feed, which is too much, as vitamin and mineral requirements are tied to the grain ration. A one- to two-pound serving of a ration balancer provides a full complement of vitamins, minerals and proteins for the day. Always feed as the bag tells you according to the horse's age, weight and workload."

Getty warns against many commonly fed grains. She explains that corn has no place in any horse's diet, as it is not well digested and can, therefore, end up in hindgut, where it can be fermented by the bacteria in the hindgut, leading to colic and laminitis. She also does not recommend oats for Gypsy horses, based on the tendency many Gypsy horses have toward metabolic syndrome.

If you choose to feed a commercially-fortified feed, Getty recommends selecting one without grain. Instead, choose a feed that contains beet pulp, soybean hulls, alfalfa meal or

timothy meal while steering clear of cereal grains such as oats, corn and barley. In addition, molasses found in many feeds adds unnecessary extra sugar. Look for low-starch feeds with a NSC of 13% or less. "The feed industry is becoming quite savvy and is coming up with appropriate feeds," notes Getty.

Don't feel, however, that you must purchase a "complete feed." Getty formulates her own feed with basic ingredients such as beet pulp and hay pellets. You can then choose your own vitamin and mineral supplements. "If the horse is not being worked and doesn't require the extra calories that a commercially-fortified feed would offer, there is no reason to feed it," says Getty. "A horse can be maintained in a very healthy manner by free-choice hay, pasture and proper supplementation."

### Supplements: The Tip of the Pyramid

For horses consuming high-quality pasture and hay forage, Gray recommends a simple multivitamin, mineral supplement. "Many supplements are in pellets now, so they are palatable. It's not necessary to add oats or sweet feed. When it comes to adding supplements, once you've bridged the gap between forage and nutrient needs, look at individual unique problems and address those individually."

Know your horse; keep the horse's diet as close as possible to its natural state and monitor your horse's body condition. Feed from the bottom up to keep your horse in tip-top shape!



### Body Condition Scoring

Henneke Body Condition Scoring rates the horse's body condition on a scale of 1-9 according to six key anatomical points. A rating of one on the Henneke scale denotes a severely emaciated horse, while an obese horse would score a nine. To determine the horse's score, body fat is visually and manually assessed at the neck, shoulder, withers, back and tail head.

Also, a weight calculator is an online tool, which combines heart girth and body length measurements with the horse's age to determine the horse's approximate weight. Both body condition scoring and weight calculation are great aids for owners to use to monitor their horse's weight. "Every owner needs to know how to body condition score their horse and do this on a regular basis," remarks Gray. She also notes that a weight tape alone is useful if used by the same person in that it gives a consistent measurement, so fluctuations in weight are evident.