

Many people are asking questions lately about feeding horses. Some of these questions are driven by concerns about this year's hay crop. Some are about setting up a diet for a newly acquired horse. Others are about an appropriate diet for a horse that is entering a different life stage, such as retirement, old age, or starting in competition. All the questions have something in common though, and that is the need to understand the basics of your horse's diet. We're going to revisit a small part of that today by discussing "feed math." When you're done reading this, you'll be better prepared to ask questions and understand the answers when you go to your feed store.

A few housekeeping details first: always consult with your veterinarian if you have concerns about your horse's health, or if you are dealing with metabolic issues, or if something doesn't seem right. If your veterinarian suggests a certain brand of feed, ask why and get the particulars about the feed's nutrients. If your feed store doesn't carry that brand, they will be able to match something to it if you know why your veterinarian suggested it.

Second, remember that each horse is an individual and should be fed as such. Make any changes slowly. Two weeks is good. Some horses, especially the old guys, may need longer than that. Always offer clean, fresh water, salt, and abundant forage as either pasture (if it is suitable for your horse) or quality hay. The horse's diet should be forage based. If he can't chew forage, ask your feed store about forage alternatives.

Third, this article isn't one-size-fits-all, nor is it intended to tell you what to do. My goal is to help you understand some of the basics of feeding horses. Maybe you are familiar with this saying: "Give a person a fish and you feed them for a day. Teach them how to fish and they can feed themselves for a lifetime." Ok, that's paraphrased, but my intent is to give you a fishing pole and teach you how to use it.

Let's start with a baseline. A 1000-lb horse who isn't doing much of anything needs, on average, 16,000 kcal per day. You may also see this written as 16 mcal per day, because one mcal equals 1000 kcal. If it's listed on your feed bag, it is likely called "digestible energy." On a hay analysis report it's likely listed as DE and reported in mcal/kg or kcal/lb. Use the latter; it's less math.

We also use the calculation that, on average, a horse needs to eat two percent of his body weight per day. AT LEAST one to one and a half percent of what he eats every day should be forage. The more forage that he eats though, the better, because of how his digestive system operates. Again, your horse may be different. Perhaps he can't chew forage, or perhaps he needs to eat more than two percent because he has a high metabolism or is high performance, or perhaps he lives on air or needs special care. We need a starting point though, and the above numbers fit the broadest spectrum of horses.

As I may have mentioned a time or two already, forage is the most important part of your horse's diet, as long as he can eat it. Older horses with dental issues may have trouble grinding up the fibers. Minis and ponies and certain individuals may need to have their pasture time limited. Forage may be pasture, it may be hay, it may be a combination of the two and it may change seasonally. You can have your pasture soil and your grass tested to get an idea of what your grass may offer nutritionally, but it is hard to get an accurate picture. Grass changes from season to season, from day to day, and even within the day, depending on the amount of daylight, rain, temperature, and other factors. Getting an accurate analysis of your pasture is like trying to hit a moving target. However, you can have your hay analyzed, and it provides a lot of useful information, such as protein content, carbs, and vitamins and minerals. Today I'm going to focus on the calorie count or DE.

For the sake of keeping the math simple, let's say your horse weighs 1000 pounds and he isn't very active because it's winter. Of course, if your horse weighs more or less than 1000 pounds, you'll have to do some multiplication or division to figure out how much he needs to eat. If he is active, you'll need to calculate his dietary needs based on his activity level. You can find that information on the feed tags or bags.

Two percent of 1000 pounds is 20 pounds. But how many calories are in 20 pounds of hay? Take a look at your hay analysis. Hopefully it's a respectable 800 kcal/lb. Multiplying 800 kcal/lb by 20 pounds will give you 16,000 kcal. But what if it's a poor field that hasn't been limed or fertilized, or it's a bad season and the hay is overly mature and low in calories? If the analysis indicates 700 kcal/lb and you're feeding him 20 pounds, then he is only getting 14,000 kcal per day from the hay. You may be in for a distressing surprise when he sheds his coat four months later and is skinny. What if the hay is 900 kcal/lb? Then he would be getting 18,000 kcal per day and will likely be overweight. Horses, like people, are prone to health concerns when they are overweight.

Based on the above paragraphs, you may think that it's ok to have your horse on a forage only diet. While that is would be ideal in a perfect world, our region is not that world. We know that our soil is deficient in certain minerals so the grass and hay will be deficient too. Also, there are vitamins that may be abundant in fresh grass but degrade once the hay is cured. Protein can be tricky in hay too. Last year's drought and this year's overabundance of rain both produced hay that was low in protein, at least in southern Maine. In our area, the horse's diet needs a bit of supplementing.

Cue the ration balancers! This is the first product I recommend to improve a forage diet. Ration balancers are not feed, they are supplements. They are meant to provide the protein, vitamins, and minerals that the horse isn't getting in his hay or pasture. They are also great if you are giving your horse a commercial feed but aren't giving him as much as the bag recommends. Ration balancers won't put weight on your horse and they don't provide energy in the form of calories. They are low carb, low fat, and low fiber. They are high in protein, vitamins, and minerals. Yes, it seems like an expensive bag to buy, BUT you are only feeding a pound or two per day. I feed a Mustang and a mini and a 50-pound bag lasts for 25 days. When you are comparing prices of horse feed, hay, supplements, or other items that your horse eats, you should calculate the cost per day to get a true picture.

Nearly every major feed company now offers some form of a ration balancer. Please don't assume that they are all the same, because they aren't. Some may be 30% protein; some are 24% protein. (You may remember from previous articles that this means the percentage of protein in the bag, NOT in your horse's overall diet. That calculation takes a little more effort!) The amounts of vitamins and minerals may vary too. Ask your feed store to help you compare.

Suppose though that your horse is more active and needs more calories to help maintain his weight. You could increase the amount of hay that he eats, or you could consider adding calories in a concentrated form. Most of us do that by using a commercial feed. (I'm not calling it grain because it isn't. Grains are seed heads on crops such as corn, oats, and barley. Grains are ingredients in feed. Using the term grain when you are talking about feed is like using the term flour when you are talking about bread. Yeah, I'm kind of picky like that.)

Feeds come in many shapes (pelleted, wet pellet, textured, extruded) and many formulas. They vary by the amount of protein, fat, fiber, calories, vits and mins, ingredients...you get the picture. It would take all day and many pages to describe in detail. This is where your feed store can help you. Without taking you on a tour of the warehouse, let's leave it at this: there is a feed to fit your horse's needs, even if he has allergies to common ingredients. Your feedstore can help you find that best fit.

I'm more concerned about the amount of feed that you give your horse. That means the weight of the feed, not the volume. If I ask you how much feed you are giving to your horse per meal and you answer that you are feeding a scoop, that doesn't give much information. How much is a scoop? Are you using a pint-sized scoop? A quart scoop? A two-quart scoop? Is it open or enclosed? Are you leveling it or giving a heaping amount? Or maybe you are using a coffee can. Does it hold eight ounces of coffee, or is it a 12-ounce can that used to be 13 ounces? Does it matter? Yes, it does, because different feeds have different densities. A 12-ounce coffee can holds 12 ounces of coffee, but that doesn't mean that it holds 12 ounces of horse feed. And maybe you use a one-quart scoop to measure your feed, but one quart of alfalfa pellets weighs more than one quart of pelleted feed, which in turn weighs more than one quart of textured feed. Add in beet pulp, and it gets even muddier. It's all about the density of the feed product.

Why does the weight even matter? Suppose you are trying to fine-tune your horse's diet to help him lose (or gain) weight, or increase (or decrease) his energy, or you have a pregnant mare. If you ask me for feeding advice, we need to start at the same point, using language that has the same meaning for both of us.

Let's look at an example. You may tell me that your horse is too fat and you've cut back. I'm going to ask you how much you are feeding him. Your answer is that you were feeding him one scoop morning and night, but now you've cut back to a half-scoop in the morning and a half-scoop at night. I'm going to ask how many pounds that would be. If you don't know, then I'm going to ask you how big your scoop is. Maybe you aren't sure, so we walk over to the shelf and look at the several sizes and shapes that are available. You're pretty sure that you've been using the two-quart scoop. After asking more questions about his age, size, breed, activity level, and overall health, I'm going to give my best guess that you're currently feeding maybe two pounds of this feed, and previously you were feeding four pounds per day. Could be more, I don't know without weighing it. The bag recommends four to five pounds for a 1000 horse doing light work. If you are now giving him half of the recommended amount, you've just halved the amount of nutrients (protein, vitamins, and minerals) that he was getting before. I'm going to suggest that you either change to a lower calorie feed or add a ration balancer to make sure that he gets the nutrients that he needs.

Let's look at another example. Perhaps your horse is too skinny. You're feeding him a couple cups morning and night. Again, there will be many questions, ending with "how much are you feeding him in pounds?" This time it's harder because I have no idea what you are using for a cup. Is it a one-cup measure that you use for baking in the kitchen? Is it a measuring cup that some feed companies give out? Is it something in the barn that you've always used? We'll dance back and forth for a few minutes until we can find common ground. Maybe we'll arrive at the conclusion that he's only getting a half-pound morning and night, for a total of a pound per day. Again, we don't know for sure unless we weigh one of his meals. The bag recommends that a horse of his size and activity level should be getting four to five pounds per day though. So he isn't just missing out on nutrients, he's missing calories too. There will be more questions regarding his forage intake. The recommendation would be to increase the number of calories that he is getting. There are several ways to do that, and the best choice is based on your horse's needs and your resources.

By using the term resources above, I mean your access to hay, the amount of money that you are willing to spend, and the amount of time that you have. Feeding horses could be very challenging this winter because of the poor hay crop. You may need to reconsider your feeding routine. Before you do, have a conversation with your feed store and your vet. Any time you are not feeding the amount recommended on the bag, you should ask yourself if there is a better alternative. And please...PLEASE...don't dilute the feed by adding grains. If you think you can save money by substituting a pound of oats for a pound of pellets...nope. It doesn't work that way. You've just cut the amount of protein, vitamins, and minerals that your horse is eating, while increasing

the amount of starches and sugars. Essentially, you've "unbalanced" a diet that was formulated to provide a certain level of nutrition.

Obviously, there are many more examples that we could explore. Our focus today was quite narrow. The takeaway is this: get your hay analyzed. Pull handfuls from several different bales and take them to your feed store. They can send it out for analysis. Feed by weight, not by volume. Take a typical meal to the feed store and ask them to weigh it for you. Have a conversation with your feed store if you need to make changes. Consult with your vet if you have concerns about your horse's health. And remember that the most important nutrient of all is water. Make sure your horse has access to clean water in all weather conditions.