

Feeding starch/sugar sensitive horses

A better understanding of how the horse's digestion system works has revealed that balancing forage intake with concentrate intake is necessary when feeding horses, and even more critical when feeding starch/sugar sensitive horses that suffer from metabolic disease.

Concentrates are the portions of the diet we typically think of as "grain." A concentrate can consist of a plain grain, such as oats, or it can be a mixture of ingredients



referred to as textured feeds (sweet feed) or pellets. These feeds typically provide energy almost entirely from starch and sugar. The consumption of too much starch/sugar stresses the digestive tract

and can lead to colic and laminitis. Concentrates high in starch and sugar should be fed in limited amounts, especially to sensitive horses.

The fiber a horse consumes is the most important part of the daily diet. Significant fiber intake from good quality fresh pasture and dried grasses (hay or hay cubes) is imperative. Offer 1.5% to 2% of a horse's body weight in fiber each day. When hay or pasture doesn't provide enough energy, you can build a healthier feeding program for your starch/sugar sensitive horse by mixing additional fiber sources, such as beet pulp (molasses-free) and soybean hulls, into the concentrate portion of the diet. This helps limit the amount of starch and sugar in the diet.

Fiber reduces the risk of digestive upset.

The hindgut plays a significant role in a horse's health and well-being. The hindgut houses billions of microbes



that digest all the fiber a horse consumes. The sources of fiber a horse eats can alter the hindgut's microbial population, for better or worse. Inadequate amounts of fiber stress the hindgut, making it susceptible to a proliferation of pathogenic microbes, leading to digestive imbalances. Adding alternate fiber sources, such as beet pulp and soybean hulls, provides significant quantities of fiber

fractions that can change a horse's hindgut population for the better. These types of fibers can provide significant amounts of growth factors for beneficial bacteria that support a healthy gut. They also prevent the overgrowth of pathogenic bacteria in the hindgut that can cause problems such as colic, hind gut acidosis, and laminitis.

In addition to helping balance the hindgut, the inclusion of alternate fiber sources in the concentrate portion of the horse's diet also decreases the amount of easily digested starches supplied by grains. Multiple research trials have demonstrated that when a portion of the starchy grain is replaced with a high-quality fiber source, parameters such as glycemic response are lowered. Controlling spikes in blood sugar can help maintain a healthier horse. Horses suffering from metabolic disorders benefit significantly from a slower and lower spike in blood sugar.

Limit the starches and sugars.

Simple sugars and starches are digested in the foregut (mouth, esophagus, stomach, and small intestine). The



resulting glucose is absorbed in the small intestine and used as instant energy. Because of limited enzyme availability and acid production, it is important to note that

the foregut has a limited capacity for digesting sugars and starches. When large amounts are fed, the excess sugars and starches are passed into the hindgut (cecum and large intestine), where they can cause digestive imbalances that lead to laminitis. Carefully controlling the amount of simple sugars and starches fed to sensitive horses is a key management consideration.

Where are simple sugars and starches found?

Plants produce sugars and starch to meet their own energy requirements. Plants store excess sugars and starches in seeds and other plant tissues. Grains, which are seeds of plants, are high in these types of carbohydrates.

Grains are a good way to increase calories in the diet, and when they are fortified, can provide a source of vitamins and minerals to your horse. The key is not to overdo it by providing large amounts of grain at one time. You can limit the amount of sugar and starch your horse is eating by keeping grain meals small. Nutritionists recommend feeding no more than 4 lbs of grain per meal. If your horse requires grain to maintain body condition, consider splitting the grain ration into several small meals throughout the day. Much will depend on how sensitive your horse is: some can't tolerate any grain at all. An alternative source of low starch/sugar calories is fat. Fats are a very good source of energy for horses. They are easy to digest, don't cause glucose spikes, and reduce the risk of imbalances in the hindgut. Fats are also energy-dense, providing 2.25 times as much energy as the same amount of carbohydrates, so you can reduce your horse's meal size and lower the risk of grain overload.

Grass and hay also contain these simple carbohydrates, but not to the extent of plain grains and grain concentrates. The content of simple sugars and starches in grasses can vary, depending on growth stage and seasonal temperatures. Hay, once baled, contains about 4% to 5% less starch and sugar than fresh grass. Have hay tested for sugar content and choose hays with lower amounts of sugar. Soaking hay can leach out sugars, so just don't let a horse drink the water the hay was soaked in!

Tips to provide adequate nutrition for starch/sugar sensitive horses:

- Feed at least 1.5% to 2% of a horse's body weight in fiber each day (15 to 20 lbs for a 1,000 lb horse). When necessary, choose a hay with a low sugar content (10-12% nonstructural carbohydrates, NSC).
- Limit amounts of concentrates (sweet feed or pellets) that are high in starch/sugar. If necessary, cut them out completely.
- Offer multiple small meals a day to keep nutrients consistently flowing through the digestive tract.
- Provide **NutrientWise™** to fill in nutritional gaps when feeding no concentrates or less-than-recommended amounts.
- Replace starch/sugar-laden concentrates with fibers, such as hay, beet pulp, and soybean hulls.
- Restrict grazing on grasses rich in fructan (a type of sugar).
- Support a balanced hindgut by providing **ProbioticWise™**.
- Supplement with **Elevate®** if grazing on green grass is limited.
- When additional calories are needed, add **WeightGainWise™**.
- When giving treats, feed carrots instead of sugary hard candies.

