

Equine Q & A—Give Him His Daily Bread?

Although I feed KER-formulated feeds purchased from Saracen Feeds, many people feed bread to horses in the region of Italy where I live. I believe bread fattens horses and contains an inappropriate balance of calcium and phosphorus. Are there other concerns with feeding bread? Some horse owners feed only bread and hay, even to broodmares and foals, and I fear these horses aren't receiving all of the nutrients they need.

Assuming that the bread is made with wheat flour, yeast, salt, and water, there is nothing in it that is toxic to the horse, and it can contribute enormously to caloric intake if fed in large quantities. There is no harm in occasionally feeding bread, but it is not the most nutritious feedstuff when used as the sole concentrate. While bread is chock full of calories, it provides few nutrients.

When only bread is fed with hay, the major nutritional problem is an imbalance and/or deficiency of some minerals and vitamins. Wheat is deficient in vitamins A, D, and E, as well as trace minerals like zinc, copper, and selenium. All of these play important roles within the body. When horse owners purchase KER-formulated concentrates, there is no need to worry that sufficient essential nutrients are consumed as long as horses are fed recommended amounts. Conversely, when something is fed that is not specifically designed or formulated for horses, it might not supply all the nutrients needed by the horse and it might shift the nutrient balance of the total diet.

For example, if the calcium requirement for a horse is 32 grams per day and a given amount of grass hay supplies 20 grams, a fully fortified concentrate could easily deliver the remaining 12 grams of calcium. Because bread is not made to balance the forage-based diet of the horse, it probably does not have the calcium necessary to meet requirements. In fact, wheat is low in calcium, so the chances of the bread providing the 12 grams of calcium are slim. Wheat is not, on the other hand, low in phosphorus, so it will probably supply sufficient phosphorus. When there is more phosphorus than calcium in the diet, interference in calcium absorption occurs and further exacerbates the calcium deficiency. Without enough calcium in the diet, the horse's body will start pulling the mineral from its bones and weakening them, and severe calcium deficiency can cause secondary hypoparathyroidism (big head disease). The chance of this type of imbalance happening increases with the amount of bread fed. Lucerne (alfalfa) is abundant in calcium, so if bread were fed with this type of hay, calcium

deficiency would not be a concern. However, the same deficiency problems may occur because of insufficient intake of trace minerals. If bread is used as the sole source of extra calories, the addition of a complete vitamin and mineral supplement is necessary.

The protein content of bread flour (13-14%) is marginally adequate for a growing horse or pregnant/lactating mare as long as the hay or pasture available also has acceptable protein content. If the hay has a protein content below 6%, there would be reason to be concerned about inadequate protein intake. Some type of protein supplement would be necessary to support the proper growth of young horses, whether in utero or on the ground.

The high starch content of bread may be a potential problem if fed in large amounts. Diets rich in starch have been the focus of much research lately because of their possible connection to certain health problems such as rhabdomyolysis and developmental orthopedic disease. Another concern with a high-starch diet is the limited capacity of the small intestine to digest it, allowing large amounts to pass through to be fermented in the cecum and colon. Starch fermentation causes a buildup of lactic-acid-producing bacteria in the hindgut and a subsequent drop in pH. The results can range from inefficient feed conversion (weight loss) to colic.

It is not customary to feed wheat grain to horses because of the high gluten content. The problem with wheat gluten balling up in the stomach or intestinal tract and causing blockage (colic) is not a concern with feeding bread because the yeast and the heat of baking have altered the gluten starch.

In summary, feeding bread to horses may be cost effective and is not harmful in limited quantities, but it is not ideal nutritional management, especially for young horses or pregnant/lactating mares.

Is it possible to keep horses on small acreage? What are the drawbacks of not allowing horses to graze for several hours each day?

Encroaching urbanization has reduced the amount of available land for grazing, and horse owners have definitely felt the squeeze. The best way to manage horses that cannot be on pasture full-time is to mimic natural grazing conditions. In terms of nutrition management, horses should be allowed access to hay for the majority of the day. Carte-blanche access to hay has numerous advantages. First and foremost, it keeps the gastrointestinal tract in fine fet-

tle, working as it was designed to by continually processing long-stem forage. Horses with forage available to them at all times are less likely to colic than those on a strict meal schedule (feeding two or three times a day). Second, continuous consumption of forage stimulates saliva production. Saliva buffers stomach acid, so gastric ulcers are diagnosed less frequently in stalled horses that have access to hay than those that stand for long periods without something to eat.

Third, providing hay keeps horses busy. Researchers believe that some horses may crib, weave, chew wood, or stall walk out of sheer boredom. A horse with a pile of hay in front of it may be more inclined to devour the hay than engage in one of these vices.

Care must be taken to choose hay that is most appropriate for the horse. Young horses, broodmares in late gestation or early lactation, and performance horses in hard work might need the energy afforded by alfalfa or another legume, while grass hay might be more suitable for other classes of horses. For additional nutritional advice for your horse, see the equine specialist at your feed store.

Is there anything I can feed to help keep my middle-aged gelding warm this winter? Should I increase grain, add straight corn to his grain meal, or just give him more hay?

From a nutritional standpoint, feeding hay is one of the best ways to keep your gelding warm and comfortable during cold weather. The fiber in hay is digested in the cecum and large intestine, collectively called the hindgut, of the horse through a process known as bacterial fermentation. Because fermentation is not a completely efficient process, heat is released thus keeping the internal temperature of the horse elevated.

In contrast, the grains found in textured and pelleted concentrates are broken down in the small intestine, where digestion is primarily enzymatic and produces little heat. Most horses can maintain their body weight in even the coldest climates if offered all of the moderate- or good-quality hay they will eat. If horses are unable to maintain body condition on an all-forage diet, it will be necessary to feed a concentrate, but the majority of dietary energy, as with any horse, should be derived from forage.



Coupled with a winter coat, hindgut fermentation of forages provides sufficient heat to keep horses cozy outdoors in the winter. In extremely cold climates, horses may have to be blanketed or provided with shelter.

Your horse should also have a safe, readily available source of water (buckets, tank, or automatic waterer). By checking the water at least once, and preferably twice, a day, you can be sure he is drinking enough to keep his digestive system healthy. Horses often drink more in the winter because, when compared to green grass, there is little moisture in the forage they are consuming. If you feel as though your horse is not drinking sufficient quantities of water you can always add a little salt to the grain fed.

Other lines of defense that will keep your horse toasty during winter days include blanketing and offering shelter in the form of a run-in shed or stall. ☺☺

*Do you have a question you'd like answered by one of KER's nutritionists?
Send your question to Equine Question and Answer, c/o Kentucky Equine Research,
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