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# Nutritional Minute



## The trouble with fructans

### What is a fructan?

Fructan is a type of sugar found in cool-season grasses. Instead of being digested in the foregut, fructan passes into the horse's hindgut, where it ferments and causes the production of lactic acid. If too many fructans are consumed at one time, high levels of lactic acid can accumulate and cause the pH of the hindgut to drop. Even small changes in pH can negatively affect the delicate microflora that live in the hindgut and aid in digestion. Disruptions to these microflora can lead to colic and laminitis.

### Temperature and sunlight affect fructans.

In plants, a process known as photosynthesis produces fructan. Photosynthesis occurs only during daylight hours. The sunnier the day, the more fructan is produced in a plant. At night fructan is available to the plant as an energy source. Temperature dictates how plants utilize fructan during the nighttime hours. If the temperatures stay warm (40° F or higher), plants use fructan to fuel growth in leaves and stems. Unused fructan is then stored in the lower two inches of the stem just above the soil line. However, if the nighttime temperature drops below 40° F, the plant will not grow and fructan remains in the leaves in high concentrations.

### Spring grass and mature grass can both cause problems.

The lifecycle stage of a cool-season grass affects its fructan levels. New growth grass, the first 3 to 6 inches of growth, is low in fructan and indigestible fiber. This makes spring grass extra tasty and horses can easily consume high levels of fructan by simply eating too much grass.



On the other hand, mature grasses, 8 to 10 inches in height and going to seed, are high in both fructan and indigestible fiber. The indigestible fiber makes the grass less appealing so horses tend to eat less of it, but the fructan levels are higher so it takes less grass to cause fructan overload.

### **What horses are at risk for fructan overload?**

Healthy horses have little problem adjusting to changing fructan levels. The individuals most at risk are cresty-necked easy-keepers suffering from metabolic syndrome or those at risk for laminitis from other health issues.

### **Grazing management is the key to avoiding problems.**

It is best to limit grazing time or stop it completely when daytime temperatures are warm and nights are below 40° F. When days are sunny and nights are warm, it is safest to allow grazing in the early morning when fructan levels are still low. Grazing in the late afternoon or evening on a sunny day is risky.

### **Pasture management can reduce risk.**

Pasture management is important and can minimize fructan levels. Clip your pasture between four and eight inches in height. Don't allow pastures to become overgrazed since stress can increase fructan levels in grasses. If possible, rest each pasture every two months.

If your climate allows, consider seeding with warm-season grasses that are lower in fructan, such as Bermuda grass, bluestem, or switchgrass. Contact your local cooperative extension office for help in determining which types of grasses are suitable for your area and how to incorporate them into your pasture.



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