Safe Grass – Fact or Fiction?

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Grass - Safe or not?

Isn’t grass the most natural food for horses? Why do we worry about pasture grazing?
Grass grows by using CO2, water and sunlight to make sugar and starch. Sugar and starch = nonstructural carbohydrates (NSC)
At night, the plant converts this sugar and starch to lignins, cellulose and hemicellulose (structural carbohydrates)

Grass literally grows overnight!
Cool season grasses such as timothy, orchard grass, bluegrass, and fescue produce the most sugars and grow the fastest, while warm season grasses such as brome, Bermuda and teff concentrate the least amount and grow more slowly. However, even warm season grasses can be high in NSC’s.

In this area, we have cool season grasses.
This is Bermuda grass.
When does the grass not grow overnight?

- Drought
- Cold temperatures at night
- Stress - cut very short

- The NSC are not converted to fiber because the plant is not growing. The grass remains high in sugar.
The highest levels of sugar are found at 4-5 pm on sunny days.
The lowest levels of NSC are found between 5 and 10 am on cloudy days.
What about wild horses – Don’t they have these problems?

They live on “unimproved pasture” which is a different type of grass – bunch grass or native grasses.

Our pasture mixes are designed for cattle. Higher sugar = higher growth rates for cattle, quicker time to slaughter.
What about just testing my pasture to see if it is safe?

- Testing is not reliable – NSC levels differ by the hour, the day, the season and the weather!
Only 10 - 20% of horses need special care with pasture.

Who are they?
At Risk

- Ponies, Morgans, Arabs and Paso Finos
- Previous laminitic episode
- Overweight
- Cushing’s disease
- Horses with metabolic syndrome (insulin resistant)
How do we handle these horses and pasture?

- Maybe no turnout at all.
- Dry lot
- Grazing muzzle
- Grazing only between 5 and 10 am
- Limited time in the spring, fall and when grass is stressed — even in early winter!
FEED HAY

Hay is cut at a certain point and the NSC values won’t change – have it analyzed and know the sugar content – each batch can very from the same field, farm, and cutting
How do all these NSC’s lead to laminitis?

Sugars and starches are digested in the small intestine. If there is too much at once it can lead to an overflow into the cecum.
This rapid influx can cause extreme fermentation, colic, and a change in the acidity of the cecum. Good bacteria die, and this causes release of endotoxin into the bloodstream. This causes laminitis.
The bone has rotated through the bottom of the foot.
Chronic high sugar levels lead to increased insulin production by the pancreas. The body becomes “resistant” to the effects, and sugar levels and insulin levels keep rising – eventually the body becomes insulin resistant.
• Chronically insulin resistant horses (IR or metabolic syndrome) are more prone to laminitis
Insulin has also been shown to change the permeability of capillaries in the foot and can directly lead to laminitis.
Prevention

- Horses with “carb” problems should be kept at a good weight.
- Kept exercised – exercise decreases insulin requirements.
- Fed lower carb hay.
- Have good pasture management.
- Be monitored for early signs of laminitis.
- Have appropriate testing for Cushing’s disease and insulin resistance in conjunction with your veterinarian’s advice.
Helpful websites

- www.equi-analytical.com
- www.safergrass.org
Any questions?

Thank you!