

## Pasture Management for At Risk Horses

### The Equine Clinic at OakenCroft

In this area we are mostly concerned with those pasture grasses that grow best in the northern climates (These are classified as “C3” grasses and include: Kentucky bluegrass, brome, timothy, orchard, canary, and fescue). Their peak growing season is in the cooler weather, as can be seen with our lush spring and fall pastures when compared to the paler, dry pastures of mid-summer. A few points need to be considered when managing our At-Risk horses on these pastures. **Please be aware that many of the “Old Wives Tales” about pasture are wrong, and that the poorest looking pasture may actually be the worst for your horses!!**

- ❖ Our C3 plants have the highest NSC (non-structural carbohydrates) when grown in climates with intense sunlight and cool nights. They store fructan throughout the plant and produce it as long as favorable conditions are present.
- ❖ In warmer southern areas of the USA, “C4” grasses are more prevalent (Bermuda, big bluestem, and native prairie grasses). These plants store starch in limited quantities in the organelles of the plant. When these organelles are full, starch production stops. This makes C4 plants more ideal for horses with insulin resistance and pituitary disease. Unfortunately, they do not grow well in New England!
- ❖ There are multiple factors which affect the amount of NSC in the plants including: fertilization status, drought stress, stage of growth, grazing intensity, light intensity, time of day, and environmental temperature.
  - **Fertilization status:** Nitrogen and phosphorus deficiency are well known triggers for increasing the NSC in forages. For this reason it may be better to keep AT-Risk horses on pastures that have been adequately fertilized. The key to fertilization is to take soil samples and calculate how much fertilizer to use. Don’t assume organic grasses will be better for your horse as these may be some of the most nutrient deficient plants.
  - **Drought Status:** Drought will raise the NSC in pasture grasses. While irrigation of pasture is not a common practice, in areas which are continually lacking in rainfall or those that are heavily grazed, this may be helpful in preventing drought stress and the significant NSC increases which follows.
  - **Stage of Growth:** In most plants, the new growth is low in sugar and increases gradually as leaves and flowers accumulate. The NSC will reach its peak with the flowering heads and gradually decline as it reaches maturity. This is a generalization and other factors can influence these levels, but as a rule, dryer, taller pastures have higher NSC than shorter green pastures.
  - **Grazing Intensity:** Overgrazed pasture often contain the highest NSC because the plant has been severely stressed. The carbohydrate storage is in the stem or stalk of the plant because that is all that is left. *Do not put laminitic horses out on grass that has been grazed to the dirt. Make sure the turnout is ONLY dirt.*

- **Amount and Intensity of Sunlight:** Bright, sunny days raise the NSC contents of pasture, while cloudy days will result in lower NSC levels and rainy days will reduce NSC levels even further.
  - **Time of Day:** Plants use sugar to grow at night. The sugar is turned into fiber for cell walls during the day. Because of this, the NSC will be lowest in the plant from 3AM to 10 AM and will peak in the afternoon.
  - **Environmental Temperature:** Night time temperatures of less than 40 degrees will cause sugar and fructans to increase significantly. If the freezing temperatures are accompanied by sunny days, the NSC content may double.
- ❖ To have your pasture evaluated, you must decide what the average grazing height is for your pasture. Grazing height means the height of the stubble left after grazing. For example, if your pasture was six inches tall and after grazing was three inches tall, your average grazing height is three inches. Therefore, when you sample the pasture, you only take the top three inches because this is what the animal is eating. Sample 12-20 sites and cut the strips of grass into 1 inch strips. Mix them thoroughly in a clean bucket. Put approximately 1 pound of the sample into a plastic bag and freeze immediately. Ship the samples overnight on ice.
  - ❖ A grazing system for the laminitic horse must be tailored to each individual horse. In general the safest time for grazing is early morning, on grass with no leaves or heads, no drought stress, and cloudy/overcast days. The most dangerous time to graze includes late afternoon or early evening on sunny days, flowering grass, anytime after freezing temperatures overnight while the grass is still green, drought stress, and on stubble left after mowing or overgrazing. Dead grass is safe for most laminitic horses after ALL the green has left the plant and rain or snow has leached the accumulated sugar from the plant. Any green that is left in the grass after freezing will be extremely high in NSC making it very easy for sensitive horses to overdose.
  - ❖ When you first allow your horse to start grazing you must begin with a short time interval. Fifteen minutes is generally regarded as a good starting point regardless of whether your pasture is dead grass or green spring grass. Gradually increase the time period by fifteen minutes every two to three days until you reach the maximum time your horse spends grazing on the grass without overgrazing. DO NOT allow the grass to be eaten down to the dirt. Try to develop a rotational system to allow parts of the pasture to rest. For a more comprehensive program, consult your veterinarian for advice.

