Many Australian native grasses are lower in sugar and fructan. These include red grass, weeping grass, speargrass, Kangaroo grass and Wallaby grass.  

Because these native species have lower sugar content, they may be less palatable than sugary grasses or weeds. Creating paddocks that have good cover of the mix of native grasses will reduce the growth of more temperate or tropical grasses with high potential to accumulate NSC. Native grasses need to be managed carefully as they are more sensitive to overgrazing. There are also some commercial grass mixes for horses on the market. Review if the grass species mix is suitable for your environment/climate and that they are not dominated by grass species that have high potential risk of accumulating NSC.

Grasses not only produce more NSC during the growing season, when grasses are under stress (heat, drought, cool temperatures, overgrazing) they may also accumulate NSC to survive. Environmental conditions determine the concentration of nutrients in your grasses, and it is therefore impossible to protect your horses fully from those periods with high NSC accumulation. Horses at risk need proper management while grazing on pastures.

"Safer" grazing & management

Establishing and sowing new “safer” grass mixes is not possible for every horse owner or environment, who rely more on additional feeding and management. The nutrient composition and NSC concentration in grasses varies, depending on the environmental conditions. During the day and when sunlight is present grasses contain more NSC, then during night, in the shade or when the weather is overcasted. It is therefore “safer” to graze your horse in the early mornings and in the shade.

There are various management strategies to reduce the intake of grass and minimise the risk of pasture associated laminitis. You can limit the grazing time of your horse, by turning your horse out at certain times of the day. The rest of the day your horse can be kept in bare sacrifice areas with a shelter or shade.

Other options are muzzle grazing or strip grazing.

When you own a laminitis-prone horse, you have to make management sacrifices. Not everybody likes the idea of muzzle grazing, but it may help reducing the intake. Strip grazing can also help reduce the intake. By using portable electric fences you can move the fence to new areas. You should not overgraze the strips, as this stresses the grass and encourages NSC to accumulate for survival.

Rotational grazing is very important to give the grass some rest for regrowth. If possible split your pasture in a number of paddocks, so you can manage your grass by rotating between the paddocks. You would like to have your paddocks kept in vegetative stage of growth. The leaves of grasses are lower in NSC than the stems and heads. Therefore, with overgrazing as well as with too much short mowing you will select for plants that are high in NSC. By moving or slashing only the heads, you allow leafy regrowth and reducing seeds head to develop. 

Managing your pastures for reducing NSC concentrations requires some knowledge about grass morphology and pasture management. Below you find some more information about this topic.

Additional feeds & management

If you reduce your horse’s access to pasture, your horse needs to be offered additional feeds. When selecting a hay/chaff variety you should review the nutritive value. In particular the NSC of hay/chaff should be analysed to determine if it is suitable for horses with a disease such as Cushing’s disease, insulin resistance, obesity and laminitis. As mentioned above some variety of grasses under certain environmental condition can accumulate more NSC than others. Although hay from roughage values from literature can assist you with selecting your roughage, the actually concentrations may vary. Soaking hay in water may reduce some of the NSC, but shouldn’t be relied on because sugar concentrations may vary.

Other fibre (structural carbohydrates) feeds for laminitis-prone horses can be hulls, such as soybean and lupin hulls, and fibre foods such copra meal and beet pulp. They should not be used as a full replacement of traditional roughages but more to supplement the diet and increase fibre intake. In the August 2010 edition of H&P (Choosing roughage) you can find more information about selecting roughage and nutritive value of some roughage products.

In general you would like to feed your easy keeper or laminitis-prone horse a high fibre diet with reduced NSC concentrations. In addition you may need to supplement these horses with a vitamin and mineral premix, as they don’t receive enough fresh forage.

Many commercial feeds are based on cereal grains, which should not be avoided in the diet of laminitis-prone horses. Unfortunately not all commercial horse feeds state NSC or starch contents on their bags as this is not obligatory. Review the ingredients before choosing your feed and for more nutritional advice contact an equine nutritionist to help you out with your dietary management of your horse.

**Exercise**

Horses at risk, that tend to become obese and/or are IR, benefit from exercise reducing the intake of energy and increasing exercise, aids weight loss. You should gradually reduce/change the diet and start the exercise program. Try not to change the horse’s weight too fast, but aim for no more than 0.5% of the body weight per week.

Laminitis may be considered as a systemic disease, and the mechanisms that are involved in the onset of laminitis may be the result of a variety of pre-existing problems elsewhere in the body of the horse.

Excessive intake of non-structural carbohydrates (NSC), obesity, and insulin resistance appear to be related, and the most common cause of laminitis in ponies and horses that are kept on lush Spring pastures.  

Diet pasture?

Warmer temperatures and longer days trigger the growing season. Pastures become lush and store more sugars for growth. Between grass species there can be a difference in how much they tend to accumulate in optimal growth and paspalum and C4 grasses such as, kikuyu, couch grass, kangaroo grass and wallaby grass that are of the C3 type, generally form fructan as their storage carbohydrate, but there are some C3 grasses that evolved and store starch instead of fructan.  

Between grass species there can be a difference in how they absorb soluble sugars, non-structural carbohydrates (NSC), or starch during active growth periods, especially in horses that are kept on lush Spring pastures. You can limit the grazing time of your horse, by turning your horse out at certain times of the day. The rest of the day your horse can be kept in bare sacrifice areas with a shelter or shade.

Other options are muzzle grazing or strip grazing.

It is best to establish a weight loss program with your veterinarian, and/or equine nutritionist. It is important to have realistic goals and set a target weight. Monitor your horse’s weight at a regular basis during the weight loss program. Once your horse reaches the target weight, maintaining a proper diet and regularly exercise is essential to keep your horse fit and healthy.

For veterinary treatment of horses that have laminitis read the article by Dr Craig Simon in this feature. If horses recover, you can gradually introduce a “safer” diet and start with a walking program when there is no pain in the foot. Depending on the severity of the disease and recovery, the exercising program can be gradually increased. This needs to be monitored by your veterinarian. For more information about the subject see references and for practical pasture management and nutritional consultations contact MB equine nutrition consultancy.

References: