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How to Soak Hay

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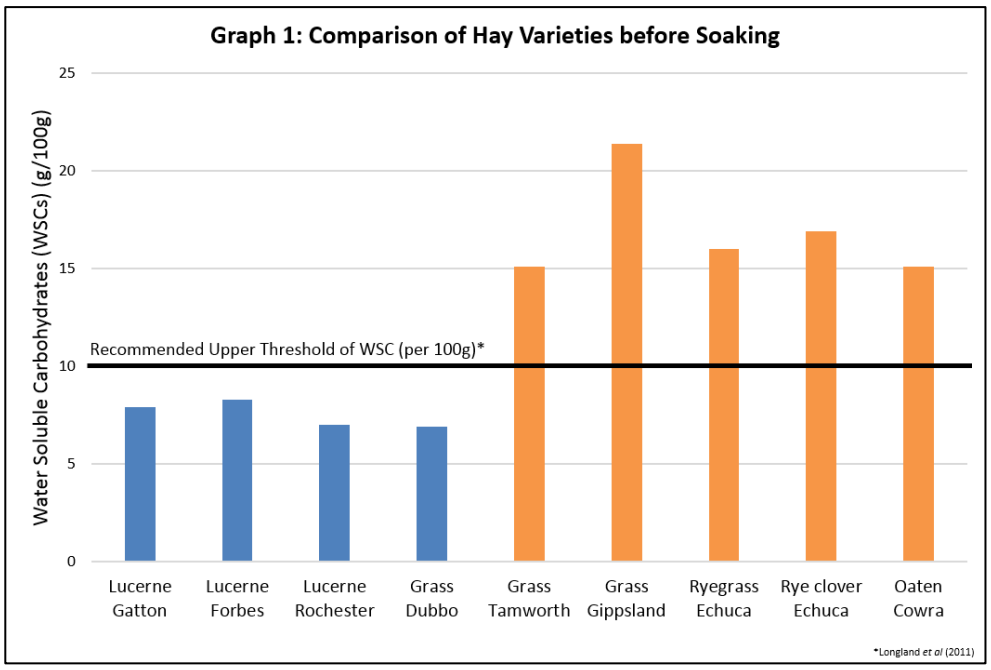
Soaking hay to remove soluble sugars is an important method to help reduce the risk of Equine Metabolic Syndrome (EMS), Insulin Resistance (IR) and laminitis in overweight horses and ponies. Until recently, there was limited knowledge regarding the causes of these conditions and how to prevent them. Hay soaking has been used for many decades for various reasons, such as to reduce dust and respiratory allergies for horses and humans, but lately it has been shown that soaking hay minimises sugar-induced laminitis and its effects (Menzies-Gow, 2012).

There are a variety of treatments available for EMS, laminitis and IR, but prevention however, is the best cure for these conditions. Preventative measures include limiting grazing time, avoiding grain or pellet based feeds and feeding only hay with low water soluble carbohydrate (WSC) and soluble sugar content. Although these measures seem simple, many types of hay can be excessively high in sugars and WSC, as displayed in Graph 1, making some common hay varieties dangerous to at-risk horses and ponies. Although strict nutritional guidelines on the safe level of WSC and simple sugars are yet to be determined, research by Longland *et al* (2011) has established that 10g/100g of WSC of forage can be considered as a safe, recommended upper threshold for laminitic animals, as indicated in Graph 1.

Nutrient Content of Hay

In a hay soaking trial conducted by John Kohnke Products, the WSC and simple sugar content of some hays were determined by nutrient analysis, as presented in Graph 1. Samples of lucerne, grass, ryegrass, rye clover and oaten hay were collected from hay growing areas and soaked with two different soaking times of 30 minutes and 60 minutes. Graph 1 illustrates that 5 out of the 9 hays tested may be dangerous for consumption, although one of the grass hays and all of the lucerne hays could be safe for consumption before soaking. Graph 1 shows the hays considered safe to feed to horses predisposed to such conditions as EMS, IR and laminitis before soaking, as well as the high variability between WSC content in hays of different species and within the hay of the same species. Soaking for 30 minutes reduced the WSC content of the oaten hay from Cowra and the grass hay from Tamworth to a safe level under the recommended upper threshold, however, the ryegrass species and the grass hay from Gippsland remained excessive.



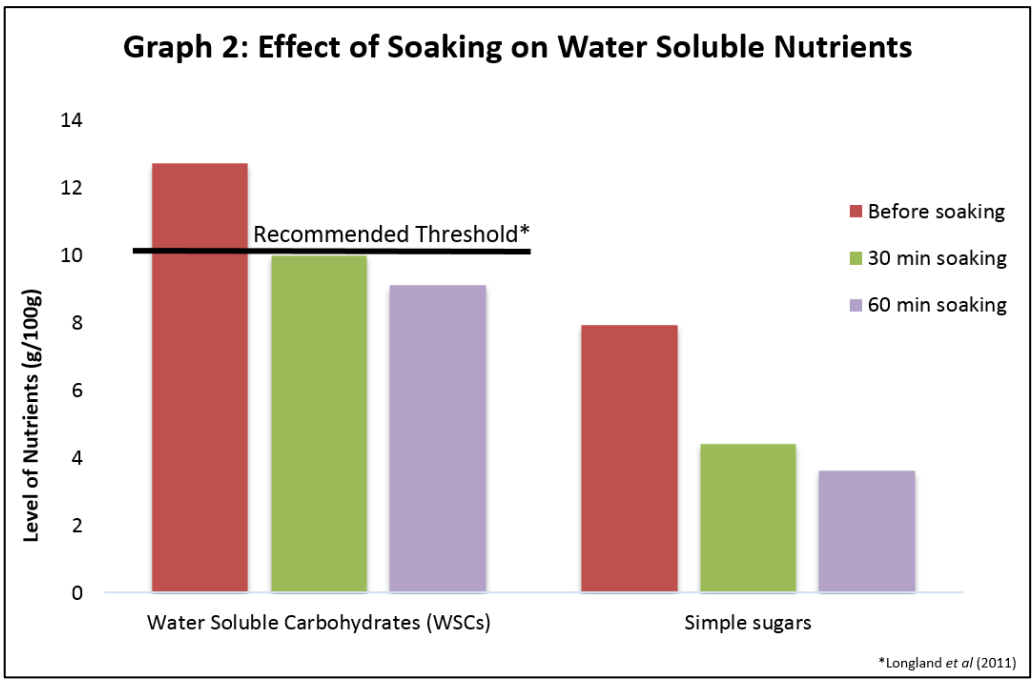
Soaking Times

As you can see in Graph 2, the soaking time of 60 minutes led to a higher loss of nutrients from the hay. However, most of the extraction occurred in the first 30 minutes of soaking, making this time interval more efficient. Graph 2 also illustrates that 30 minutes of soaking was able to extract enough of the risky WSC in hays to make them safe for consumption by laminitis and IR susceptible horses.

Recommendations

As a result of this study, we recommend that horse owners use this effective and efficient soaking technique to extract WSC and simple sugars from their hay. Lucerne hay is recommended as the best species to feed to horses to avoid IR and laminitis or assist laminitic horses during recovery due to its consistently low WSC and simple sugar content. Soaking the hay for 30 minutes was also found to be the most effective soaking time. Although lucerne hay is already considered safe for

consumption by laminitic, EMS and IR horses, soaking causes a further reduction that may be desired for horses particularly sensitive to WSCs and simple sugars. However, the soaking process leads to a loss of other essential macro- and micro-nutrients from the hay, such as chloride salts, phosphorus, sodium, potassium and sulphur. The extraction of these vital nutrients from the hay causes the macro- and micro-nutrient content to become inadequate to meet a horse's daily dietary requirements. As a result, adding supplements to prevent the horse from becoming deficient in such nutrients is recommended. In contrast, the reduction of potassium in soaked hay is beneficial for Quarter horses suffering from HyPP (Hyperkalaemic Periodic Paralysis), refer to Kohnke's Own® Factsheet C26 on HyPP for more details. A small amount of soluble protein was also lost from the hay during the soaking process. Due to the critical role proteins play in a horse's body, such loss is not considered ideal. As a consequence, supplying your horse with an alternative protein source is also recommended.



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Another goal of our hay soaking trial was to evaluate the most efficient way in which horse owners can soak hay. We found that it was most beneficial to soak hay for 30 minutes in luke-warm water, at twice the volume of the hay. In comparison to cold water, warmer water has been found to speed up the extraction process resulting in a more effective extraction of WSCs and simple sugars. Twice the volume of water is used to soak the hay to avoid reaching an equilibrium between the hay and the water. It can be calculated by measuring the biscuits and multiplying them to give a cubic volume measure in litres. Then, the volume of the hay is doubled to find the correct amount of water required. For example, a biscuit of hay with the dimensions 12cm thick x 38cm high x 44cm long in a standard square bale, has a volume of approximately 20L, which in this case, requires 40L of luke-warm water. The soaking process benefits from the occasional 'stir' of loose hay, or preferably submergence of the biscuit by placing a heavy object, such as a brick or stone, on the hay. Once the 30 minute time frame is up, remove the hay from the tub and drain the biscuit. To avoid contaminating the hay, drain it in an area away from soil or dust, as dirt may stick to the wet hay. Once drained and partly air dried, the hay can be fed to horses. It is not recommended to store hay that has been soaked for more than 24 hours as this can encourage mould growth in the hay which may increase the risk of colic when fed to a horse or pony.

Handy Hint: Soaking hay can help reduce the WSC and soluble sugar intake, but for initial management of IR-induced founder, a supplement such as **Kohnke's Own® Trim®** should also be given, especially if grass hay is the major roughage provided. **Trim®** will provide the nutrients to complement a low GI, weight and fat reducing diet in overweight, 'cresty' horses and ponies suffering from active and recurring laminitis. **Kohnke's Own® Cell-Provide®** is a ration balancer that is particularly useful to supplement the calcium, trace-minerals and vitamins in the ration of horses fed with soaked hay. Check our website www.kohnkesown.com for more detailed guidelines on supplementing with Trim® and Cell-Provide®.

References:

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LONGLAND, A.C., BARFOOT, C. AND HARRIS, P.A., 2011. *Veterinary Record*, 168(23), pp. 618.

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