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## **An investigation into the impact of soaking time on the nutritional content of forage sources for horses in the UK**

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**Introduction:** Soaking of hay has become a common feeding practice in the UK equine industry, particularly to reduce dust particles or reduce the levels of water-soluble carbohydrates (WSC) to assist weight loss in overweight or obese horses. Recent anecdotal evidence from industry suggests that horse owners are increasingly feeding soaked haylage, with haylage generally containing lower dust particles. Previous research has shown significant decreases in WSC levels in hay and haylage after soaking. As soaking practices in industry are variable, this study aimed to compare nutritional changes in hay and haylage during soaking

**Methods:** Using random selected haybales from Hartpury Equine and haylage bales from Eurobale, three haynets and three haylage nets were filled to a weight of 2.7kg each. All forage nets were soaked in cold water (4 °C) in individual buckets for 12 hours. Samples from each forage net were collected prior to soaking, and after 4 hours, 8 hours, and 12 hours. All samples were analysed by external laboratories for WSC, acid detergent fibre (ADF), neutral detergent fibre (NDF), crude protein (CP) and dry matter (DM). A Friedman's two-way ANOVA by ranks test was used to determine significant differences ( $P < 0.05$ ) between repeat samples, and a Mann-Whitney U test was used to determine significant differences ( $P < 0.05$ ) between forage sources.

**Results:** DM, ADF, NDF, CP and WSC content did not differ significantly ( $P > 0.05$ ) between hay and haylage prior to and during the soaking period. As expected, DM content across hay and haylage decreased significantly ( $P = 0.009$ ), until 8 hours of soaking with no further impact. The fibre components (NDF and ADF) in haylage increased significantly (both  $P = 0.029$ ) whilst soaking for up to 12 hours, yet no significant ( $P > 0.05$ ) differences were observed for hay. CP content remained consistent for both forage sources throughout. WSC content in hay decreased from  $158.6 \pm 49.2$  g/kg DM to  $80.1 \pm 18.2$  g/kg DM and  $158.2 \pm 6.8$  g/kg DM to  $46.5 \pm 13.5$  g/kg DM in haylage, however not significantly.

**Discussion and conclusion:** Although not significant in this study, the decrease in WSC for hay and haylage is comparable with previous research. The higher losses of WSC in haylage during soaking support its use as part of feeding management plans for overweight or obese horses. The significant increases for ADF and NDF could potentially add to this, as higher ADF and NDF levels have been linked with reduced forage digestibility, and increased chewing rate and digestion time. However, further research is suggested to investigate acceptance of soaked haylage and effects of soaking on hygienic quality and microbial growth.

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