

IMPACT OF SOAKING COASTAL BERMUDAGRASS AND TIMOTHY HAY ON NUTRIENT REDUCTION AND SUBSEQUENT MOLD DEVELOPMENT

Alyxandra Swanhall, BS^{1}, Lori K. Warren, PhD², Shannon E. Livingston, MS¹, Heidi Bissell, PhD¹, and Kathleen E. Sullivan, PhD¹*

¹Disney's Animals, Science, and Environment, 1180 N Savannah Circle, Bay Lake, FL 32830, USA.

²Department of Animal Sciences, University of Florida, 2250 Shealy Dr, Gainesville, FL 32611, USA.

Abstract

Hay soaking is a common practice in equids thought to reduce sugar content and utilized to manage sugar-associated metabolic diseases, especially laminitis. After minor laminitis in some Shetland ponies, Disney's Tri-Circle D Ranch began soaking timothy hay and coastal bermudagrass hay in water prior to feeding to reduce the risk of laminitis. To test the efficacy of these soaking practices, we soaked hay for 30, 60, and 120 minutes and measured nutrient levels of the hay and the corresponding water compared to an unsoaked control. There was a decrease in water soluble carbohydrates (WSC) and ethanol soluble carbohydrates in bermudagrass ($P < 0.05$) and timothy hays ($P < 0.05$). This drop in carbohydrates occurred within the first 30 minutes ($P < 0.05$) with no significant changes thereafter up to 120 minutes. Levels of WSC in the water progressively increased during hay soaking ($P < 0.05$) but did not account for the majority of the nutrient loss found in the hay. Minerals such as P, K, Mg, Zn, Cu, Se, and Co also decreased in the hay with soaking time ($P < 0.05$). Mold production increased in both hays across time ($P < 0.05$), with mold levels after soaking higher than recommended livestock feeding limits (Earing *et al.*, 2013), especially for timothy. Timothy hay is higher in water soluble carbohydrates (16.1 %) than bermudagrass (5.7%); however, based on mold growth and mineral loss, soaking beyond 30 minutes may not be advisable for either hay.

Literature Cited

Earing JE, Hathaway MR, Sheaffer CC, Hetchler BP, Jacobson LD, Paulson JC and Martinson KL (2013) Effect of hay steaming on forage nutritive values and dry matter intake by horses. *J Anim Sci* 91(12):5813-5820.