

The Effect of Hay Net Design on Rate and Amount of Forage Consumed by Adult Horses

Emily C. Glunk¹, Wanda J. Weber², and Krishona L. Martinson³

¹Graduate Research Assistant, Department of Animal Science, University of Minnesota

²Research Fellow, Department of Animal Science, University of Minnesota

³Associate Professor, Department of Animal Science, University of Minnesota

Horses have evolved to consume several small forage-based meals throughout the day, often spending ≥ 16 hours grazing each day. Modern horse management systems alter this behavior by limiting the amount of time horses spend foraging. The objectives of this study were to investigate the effect of hay net design on the rate and amount of forage consumed by adult horses. Eight adult horses in light work, with an average body weight of 513 kg (SD \pm 47 kg) were fed in individual boxstalls in a replicated Latin Square design, with two horses per treatment. Horses were fed hay off the boxstall floor (control), or from one of three hay nets: large net (LN, 15.2 cm openings), medium net (MN, 4.4 cm openings) and small net (SN, 3.2 cm openings). Horses were acclimated to their assigned treatment for 2 days, followed by 3 days of data collection, and a wash-out period of 2 days. Horses were then re-assigned to different treatments; this schedule was repeated for 8 weeks. During the acclimation and data collection periods, horses had access to hay inside the nets for two 4 hour periods: 0700 to 1100 and 1600 to 2000 each day. During the wash-out period, horses were group-fed in an outdoor paddock. Throughout the trial, grass hay was fed at 1% BW twice each day. Horses had *ad libitum* access to water. To determine forage consumption rate, stopwatches were started once horses began eating, and stopped once horses either finished all offered hay, were no longer interested in eating, or the 4 hour time period had expired. All refuse hay was collected and weighed. Total forage consumed was calculated by subtracting amount of refuse from hay offered. Data were analyzed by using the PROC MIXED procedure of SAS with statistical significance set at $P \leq 0.05$. There was no difference in percent consumed ($P = 0.1139$) or consumption rate ($P = 0.6617$) between morning and afternoon periods; data were combined. Mean consumption rates were 1.49, 1.33, 1.11 and 0.88 kg/h (SE \pm 0.025) for the control, LN, MN and SM, respectively, with all treatments being different from one another ($P < .0001$). Horses were able to consume all hay from the control and LN during the 4 hour feeding period, but not all horses finished the hay meal when fed from the MN and SN. Mean percentage of offered hay consumed was 95, 95, 89 and 72% (SE \pm 1.63) for the control, LN, MN and SN, respectively. There was no difference between ($P = 0.94$) the control and LN; however, these treatments were different from the MN and SN, which were also different from one another ($P < 0.001$). These results demonstrate that the MN and SN were effective in decreasing both rate and amount of forage consumed by adult horses.