Forage Research Updates

MINNESOTA - The Effect of Small-Square Feeder Design on Hay Waste, Herd Weight Change, and Economics During Outdoor Feeding of Adult Horses

A.M. Grev, E.C. Glunk, M. Hathaway, W. Lazarus, K.M. Martinson

Hay waste during feeding represents a costly expense for horse owners. Researchers have investigated hay waste associated with feeding round-bales and small-square bales in boxstalls, but none have investigated the waste of small square-bales fed outdoors. The objectives of this study were to determine hay waste, herd weight change, and economics of small square-bale feeders when used in outdoor feeding of adult horses. Feeder designs included a hayrack ($280), slat feeder ($349), basket feeder ($372), and a no-feeder control. Two feeders of each type were placed in four separate, outdoor, dirt paddocks. Twelve adult mares (BW 503 ± 36 kg) were divided into four similar groups each containing three mares. Groups were rotated through the four paddocks in a Latin Square design. Herds remained in each paddock for 7 days, including 2 days of acclimation and 5 days of data collection. Horses were weighed immediately before and after the 5 day data collection period; the difference was herd weight change. Horses were fed grass hay at 2.5% of the herd body weight split evenly at 0800 and 1600 h. Waste hay on the ground was collected daily before each feeding, was dried, and weighed. Any hay remaining inside the feeder was collected, dried, weighed, and subtracted from the amount fed. The daily amount of hay removed from the ground was considered waste. The number of months to repay the feeder cost (payback) was calculated using hay valued at $250/t, and improved efficiency over the control. Mean hay waste was 13, 5, 2, and 1%, for the control, hayrack, basket feeder, and slat feeder, respectively. All feeders resulted in less hay waste compared to the control ($P \leq 0.0001$), and a difference was measured between the hayrack and slat feeder ($P = 0.0175$). Herd weight change was different among all feeders ($P \leq 0.0074$). Herds gained 10 and 7 kg when feeding from the basket feeder and hayrack, and lost 3 and 11 kg when feeding from the slat feeder and control. The basket feeder, hayrack, and slat feeder paid for themselves in 11, 11, and 9 months, respectively, with the slat feeder resulting in a shorter payback ($P \leq 0.0140$). Use of a small square-bale feeder resulted in less hay waste compared to the control, and all feeders paid for themselves within 11 months. This information will aid horse owners when purchasing small square-bale feeders.