MINNESOTA-Twelve Perennial Cool-Season Grass Mixtures Under Horse Grazing

Krishona Martinson, M. Scott Wells, Craig Sheaffer, University of Minnesota

Cool-season grasses are rarely evaluated in mixtures under horse grazing. Research objectives were to evaluate horse preference, forage yield, and persistence of cool-season grass mixtures under grazing. Four experimental and 8 commercial perennial cool-season grass mixtures were planted in 2009 in a randomized complete block with 5 replicates and grazed by 4 adult horses from 2010-2012. All mixtures contained 4-6 cool-season perennial grass species. Specie density measurements were taken each spring and fall and yield was mechanically measured before each grazing. Post grazing, preference was determined by visually assessing percentage of forage removal on a scale of 0 (no grazing) to 100 (100% of vegetation removed). Data were analyzed using a mixed model analysis of variance and liner regression. Horses preferred mixtures containing tall fescue, perennial ryegrass, Kentucky bluegrass, and timothy ($P<0.001$). Horses had less preference for mixtures containing ≥30% orchardgrass ($P<0.001$). Mixtures had similar ($P=0.11$) yields ranging 6,100-7,082 kg ha^{-1}. After 2 years of grazing, orchardgrass and tall fescue increased while Kentucky bluegrass remained stable in mixtures. Orchardgrass became the dominant species, regardless of initial percentage in the mixture. Festolium, meadow fescue, and perennial ryegrass had the greatest rate of decline after 2 years of grazing. Mixtures containing tall fescue, perennial ryegrass, Kentucky bluegrass, and timothy should be planted in Midwestern U.S. horse pastures; however, mixtures will likely transition to tall fescue and Kentucky bluegrass dominated pastures.