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Effects of Cutting Interval and Cutting Height on Dry Matter Yield and Overwintering Ability at the Established Year in *Pennisetum* Species

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Abstract: The effects of cutting interval and cutting height on dry matter productivity and overwintering ability were compared among 4 *Pennisetum* species, napiergrass, kinggrass, hybrid napiergrass and pearl millet in the established year to examine the suitable cutting practice for the productivity and persistence. The cutting intervals were 60 and 90 days, and the cutting heights were 0 and 30 cm above the ground. Annual herbage dry matter yield (HDMY) was the highest in kinggrass, followed by hybrid napiergrass, napiergrass and pearl millet, and was higher in the plants at a 90-day interval and 0-cm height than at a 60-day interval and 30-cm height, respectively. The percentage of dry matter to fresh matter did not correlate with the annual HDMY or cutting height. The plants cut at a 90-day interval at a 0-cm height had the highest in mean tiller weight, crop growth rate, net assimilation rate and HDMY, but the lowest tiller number and percentage leaf blade to the whole harvested plant. Thus, the correlation coefficients between HDMY and plant characters were positive for plant height, mean tiller weight, leaf area index and crop growth rate in all 4 species and were negative for tiller number and percentage leaf blade except for pearl millet. Both percentage overwintered plants and regrown tiller number were the highest in kinggrass followed by napiergrass and hybrid napiergrass; these were nil in pearl millet under all cutting practices, and were higher in the plants cut at a 30-cm height than at a 0-cm height. This tended to be associated with higher tiller bud number and higher total nonstructural carbohydrate concentration in the stubble after cutting at a 30-cm height. Regrown tiller number was higher in the plants cut at a 60-day interval than at a 90-day interval in all species except for pearl millet, but the percentage overwintered plants was not affected by the cutting interval. Thus, the combination of highest annual HDMY and highest

overwintering ability was attained by cutting at a 90-day interval at a 30-cm height in kinggrass.

Keywords: Cutting interval and height, Dry matter yield, Overwintering, *Pennisetum*

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