

## **Influence of fertilizer type and plant spacing on morphological characteristics and forage yield of *Brachiaria* hybrid Mulato II in the Dry Zone Sri Lanka**

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This experiment was conducted to evaluate the influence of fertilizer type and plant spacing on morphological characteristics and forage yield of *Brachiaria* hybrid mulato II in Hambantota District, Sri Lanka under irrigated conditions. The experimental design used was a 3×2 factorial layout in a randomized complete block design with three replications which had a total of 24 plots, each measuring 2×2 m<sup>2</sup>. The experiment had a total of 6 treatments with a factorial combination of two levels of intra-row spacing/plant. Spacing between plants were 15 cm and 30 cm and fertilizer types were U625 (Control), commercial mixture (CM) CM1 and CM2. In all treatments, inter-row spacing was 50 cm. The spacing between the block and plots was 2 m and 1 m respectively. Morphological parameters such as plant height (PH), number of tillers per plant (NTPP), leaf to stem ratio (LSR) were evaluated. Data were subjected to GLM ANOVA (Analysis of Variance) following the procedures of SAS (Statistical Analysis System). The results showed that most of the morphological parameters were significantly ( $p < 0.05$ ) affected by fertilizer type and plant spacing. The tallest plants were observed under CM1 and CM2 (77.6 cm and 77.3 cm, respectively), compared to U625 (70.3 cm). Close spacing produced significantly greater plant height (77.7 cm) than wide spacing (72.5 cm). In contrast, wide spacing resulted in higher NTPP (25.1) compared to closespacing (21.1). Among fertilizer treatments, CM1 produced the highest tiller number (21.1), followed by CM2 (20.6) and U625 (16.0). LSR was significantly affected by both spacing and fertilizer, with the highest values recorded under CM1 (1.14) and at wider spacing (1.11). DMY was significantly influenced ( $p < 0.01$ ) by both fertilizer and plant spacing, with CM2 yielding the highest biomass (11.7 t/ha), while U625 recorded the lowest (9.6 t/ha). No significant differences were observed between CM1 and CM2 in terms of PH, LSR, NTPP, and DMY. These findings suggest that the use of low-cost commercial fertilizers (CM1 and CM2), particularly in combination with close spacing, can effectively enhance the yield potential of Mulato II grass, while wider spacing may favour individual plant development. This supports the viability of Mulato II as a productive forage option in the Dry Zone of Sri Lanka.

**Keywords:** *Brachiaria hybrid, Plant height, Tillering, Forage yield, Fertilizer response*