



Response of Jute Mallow (*Corchorus olitorius* L.) to organic manure and inorganic fertilizer on a ferruginous soil in North-eastern Benin

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ABSTRACT

Objective: The study aimed to evaluate the effects of three types of fertilizers (Municipal solids waste compost, cow dung and chemical fertilizer) on growth characters and leaf yield of *Corchorus olitorius* under irrigated conditions

Methodology and results: A field experiment was conducted in Parakou in the dry season using a randomized complete block design with three factors and twelve treatments: 1) Municipal solids waste Compost (MSWC) at 0, 10, 20 and 30 t.ha⁻¹; 2) Cow dung at 0, 10, 20 and 30 t.ha⁻¹; Urea fertilizer (46% N) at 0, 50, 100 and 200 kg.ha⁻¹. The plant height and stem diameter were significantly higher with Compost (20 t/ha) and lowest was recorded in control at all growth stages. The application of compost, cow dung and chemical fertilizer significantly increased the total number of branches at all growth stages. The highest number was recorded in MSWC 20 t.ha⁻¹ as compared to the other treatments. The highest marketable leaves yield was obtained with MSWC at 20 t.ha⁻¹ (8.1 t.ha⁻¹) followed by MSWC at 30 t.ha⁻¹ (6.6 t.ha⁻¹), cow dung at 30 t.ha⁻¹ (5.4 t.ha⁻¹) and urea at 100 kg.ha⁻¹ (5.4 t.ha⁻¹), while control recorded lower values. A significant quadratic response on fresh leaf yield was observed with MSWC leading to a maximum yield of 8.15 t.ha⁻¹ at 23.03 t.ha⁻¹.

Conclusion and application of results: The results indicated that the MSWC performs better when used at the optimal rate (23.03 t.ha⁻¹), and can be used as a promising fertilizer source in *Corchorus olitorius* production in Benin.

Key words: Leaf yield, waste compost, cow dung, *Corchorus olitorius*, Benin