

## EFFECT OF DIFFERENT ORGANIC MANURES ON THE GROWTH OF *HEEN PENGIRI* (*Cymbopogon nardus* L.)

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Effective nutrient management is crucial for sustainable agriculture, especially for high-value crops like *heen pengiri*, a key essential oil source. This study examined the impact of organic manures on *heen pengiri* growth, filling a research gap in organic fertilization practices. A randomized complete block design (RCBD) was used with five treatments: cattle manure (4.6 t ha<sup>-1</sup>), poultry manure (3.3 t ha<sup>-1</sup>), goat manure (2.5 t ha<sup>-1</sup>), *Gliricidia* manure (2.4 t ha<sup>-1</sup>), and the Department of Agriculture (DoA) recommended fertilizer mixture (RFM), supplying 128 kg N, 83 kg P<sub>2</sub>O<sub>5</sub>, and 128 kg K<sub>2</sub>O ha<sup>-1</sup>. Organic manure rates were adjusted to match the nitrogen level of RFM. Each treatment had three replications. Growth parameters, including plant height, leaf count, tiller number, and biomass were recorded monthly over four months. The results revealed significant differences in leaf count and plant height ( $p < 0.05$ ). Goat manure resulted in the highest leaf count (324±22), while poultry manure had the lowest (228±18). The tallest plants were observed with RFM (171.1±20 cm), whereas the shortest was recorded with *Gliricidia* manure (113.0±3.6 cm). Tiller numbers showed no significant variation ( $p > 0.05$ ) among treatments. Biomass analysis showed that goat manure yielded the highest root fresh weight (30.55±3.2 g plant<sup>-1</sup>), and root dry weight (13.90±0.80 g plant<sup>-1</sup>). Poultry manure resulted in significantly higher ( $p > 0.05$ ) shoot biomass with shoot dry weight of (81.61±18.3 g plant<sup>-1</sup>) and shoot fresh weight of (219.22±57 g plant<sup>-1</sup>). In conclusion, the study highlighted the potential of organic manures, particularly goat and poultry manures, to enhance *heen pengiri* growth. Future studies should assess the long-term effects of organic manures on the yield and quality of essential oil.

**Keywords:** Biomass accumulation, Cattle manure, Goat manure, Poultry manure, Plant height