

DEVELOPMENT OF A FERTILIZER RECOMMENDATION FOR HYBRID BRINJAL *Solanum melongena* (L.) HORDI *Lenairi*

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A pot experiment was conducted in a greenhouse at Horticultural Crop Research and Development Institute (HORDI) in Gannoruwa to develop a recommendation on nitrogen and potassium for hybrid brinjal HORDI *Lenairi*. This experiment was laid out in a factorial completely randomized design comprising sixteen treatments with four replicates. Four different rates of N (0, 60, 120, and 180 kg ha⁻¹) and K (0, 60, 120, and 150 kg ha⁻¹) were tested. The growth, yield, fruit quality parameters and leaf N and K contents of brinjal were measured. Initial and residual soil analysis were carried out to evaluate soil nutrient levels. Data analysis was performed using analysis of variance (ANOVA), with mean separation achieved through Duncan's multiple range test at 5% confidence level. The results revealed that application of the highest dose of N had a positive significant influence on measured parameters. Fertilizer application significantly ($p < 0.05$) affected the number of fruits, root weight, and yield. However, different rates of nitrogen and potassium did not significantly ($p > 0.05$) influence the days to first flowering. Plant height, single fruit weight, fruit length, fruit volume, fruit width, number of flowers, shoot fresh weight, and shoot dry weight were significantly affected ($p < 0.05$) by different nitrogen rates. Root length and root dry weight varied significantly ($p < 0.05$) with different potassium rates. Exchangeable K, available P, organic matter, and soil pH were higher in the residual soil compared to the initial soil. The highest significant yield (355.92 ± 16.76 g plant⁻¹ and 251 ± 17.53 g plant⁻¹) and number of fruits (4.42 ± 0.18 and 3.42 ± 0.18) were achieved with 180 kg ha⁻¹ urea and 120 kg ha⁻¹ MOP, respectively. Thus, the combination of 180 kg ha⁻¹ nitrogen and 120 kg ha⁻¹ potassium rates yielded the best combination that had the greatest performance for hybrid brinjal.

Keywords: Growth and yield parameters, Hybrid brinjal, Nitrogen application, Potassium application