

EFFECT OF N-DOSE AND SEED RATE ON GROWTH, YIELD AND QUALITY OF LEAFY QUINOA (*Chenopodium quinoa* Willd.)

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Executive Summary

The project was carried out by setting an experiment at the research field of Sher-e-Bangla Agricultural University, Dhaka during the period from November 2022 to June, 2023 to find out the optimum nitrogen dose and seed rate of quinoa as vegetables and seed. The trial comprised of four nitrogen doses in the main plot viz. (i) 0 kg N ha⁻¹ -N₁; (ii) 50 kg N ha⁻¹ -N₂; (iii) 100 kg N ha⁻¹ -N₃ and (iv) 150 kg N ha⁻¹ -N₄ along with four seed rates in the sub-plot viz. (i) 5 kg ha⁻¹ -S₁; (ii) 10 kg ha⁻¹ -S₂; (iii) 15 kg ha⁻¹ -S₃ and (iv) 20 kg ha⁻¹ -S₄. The experiment was laid out in split-plot design with three replications assigning nitrogen doses in the main plot and seed rates in the sub-plot. Experimental results revealed that variation of nitrogen doses significantly influence on plant height at 75 days after sowing (DAS), leaves plant⁻¹ at 34 DAS, leaf breadth at 27 DAS, shoot dry weight at 20 DAS, fresh shoot weight at 27 DAS, root weight at 20 DAS, SPAD value at 35 and 45 DAS, fresh leafy vegetable yield, seed yield and harvest index. The highest fresh vegetable yield (6.58 t ha⁻¹) and seed yield (1.02 t ha⁻¹) was recorded in N₄ (150 kg N ha⁻¹). On the other hand, the parameters like plant height, fresh vegetable yield and population density showed their highest performance in higher seed rate (15-20 kg ha⁻¹) but higher number of leaves plant⁻¹, shoot dry weight, branches plant⁻¹ in lower seed rate. The interaction effect of two factors showed significant variations for all the studied parameters and the highest fresh vegetable yield (8.49 t ha⁻¹) given by N₄S₄ combination (150 kg N ha⁻¹ with 20 kg seeds ha⁻¹) and seed yield (1.16 t ha⁻¹) given by N₄S₃ combination (150 kg N ha⁻¹ with 10 kg seeds ha⁻¹). Thus it can be concluded that quinoa should be cultivated using 150 kg N with 20 kg seeds ha⁻¹ for leafy vegetable purpose and 150 kg N with 10-15 kg seeds ha⁻¹ for seed production.

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