

SPLIT APPLICATION EFFECTS OF NITROGEN FERTILIZER ON GROWTH AND YIELD OF QUINOA (*Chenopodium quinoa* Willd.)

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Abstract

The project was carried out by setting an experiment at the research field of Sher-e-Bangla Agricultural University, Dhaka during the period of November to May, 2020-2021 to study the split application effects of nitrogen fertilizer on growth and yield of Quinoa (*Chenopodium quinoa* Willd.). The trial comprised seven split application methods of urea fertilizer viz. (i) 1/3rd urea top dress at 25 DAS + 1/3rd urea top dress at 45 DAS -T₁; (ii) 2/3rd urea top dress at 25 DAS - T₂; (iii) 2/3rd urea top dress at 45 DAS -T₃; (iv) 1/3rd urea top dress at 25 DAS + 1/3rd urea as foliar at 45 DAS -T₄; (v) 1/3rd urea as foliar at 25 DAS + 1/3rd urea top dress at 45 DAS - T₅; (vi) 2/3rd urea foliar at 45 DAS -T₆ and (vii) 1/3rd urea as foliar at 25 DAS + 1/3rd urea as foliar at 45 DAS - T₇. One third urea was applied as basal dose for all the treatments. The experiment was laid out in randomized complete block design with three replications. Plant height, number of leaves plant⁻¹, dry matter plant⁻¹, root length, shoot length, SPAD value, number of inflorescence plant⁻¹, 1000-seed weight, grain yield, straw yield, biological yield and harvest index were compared for different treatments. Results revealed that split application of 2/3rd urea in different method did not significantly influence most of the growth and yield parameters except plant height at 35 DAS, number of leaves plant⁻¹ at 50 and 65 DAS and harvest, dry weight plant⁻¹ in all studied durations, root and shoot length at 40 DAS and SPAD value at 50 DAS. Foliar application of 1/3rd urea at 25 DAS and rest 1/3rd top dress at 45 DAS showed lowest performance. Though the seed yield was not influenced by split application of urea fertilizer but T₆ (1/3rd urea as basal + 2/3rd urea foliar at 45 DAS) and T₂ (1/3rd urea as basal + 2/3rd urea top dress at 25 DAS) gave 1.37 t ha⁻¹ and 1.33 t ha⁻¹ yield that was 17.09% and 13.68% higher, respectively compared to the present practice of T₁ (1/3rd urea as basal + 1/3rd urea top dress at 25 DAS + 1/3rd urea top dress at 45 DAS) having yield of 1.17 t ha⁻¹.

Keywords: top dressing, foliar spray, urea, yield, quinoa.