

Research Article

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Response of onion (*Allium cepa* L.) to different levels of NPK and FYM under arid condition of Rajasthan

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Summary

A field experiment was conducted at Niche area of Excellence Farm, Swami Keshwanand Rajasthan Agricultural University, Bikaner during *Rabi* season, 2012-13. The experiment was laid out in split plot design with four replications consisted of four levels NPK fertilizers through drip irrigation (control, 75, 100 and 125% recommended dose of NPK fertilizer) in main plots and four levels of FYM (control, 10, 20 and 30 t ha⁻¹) in sub plots. The soil of experimental site was loamy sand in texture containing 78.85, 18.80 and 180.00 kg ha⁻¹ available N, P and K, respectively in 0-15 cm soil depth with pH 8.68, EC 0.28 dS m⁻¹ and OC 0.15 per cent. A significant increase of diameter of bulb at equatorial and polar was recorded with application of 100 per cent recommended dose of NPK fertilizer over control and 75 per cent recommended dose of NPK fertilizer through drip irrigation. Maximum diameter of bulb of onion at equatorial and polar was recorded with addition of 30 t FYM ha⁻¹ as compared to control, 10 and 20 t FYM ha⁻¹. Significant increase of 18.33 and 7.51 per cent in fruit weight of onion was recorded with the application of 100 per cent recommended dose as compared to control and 75 per cent recommended dose through drip irrigation, respectively. Incorporation of FYM 10, 20 and 30 t ha⁻¹ registered an increase in bulb weight of onion in order of 10.55, 18.73 and 26.06 per cent, respectively over no incorporation of FYM. A significant increase in the bulb and stover yield of onion with application of 100 per cent recommended dose of NPK fertilizer over control and 75 per cent recommended dose of NPK fertilizer through drip irrigation. Significant increase of 55.35 and 13.56 per cent in bulb yield of onion was recorded with the application of 100 per cent recommended dose as compared to control and 75 per cent recommended dose through drip irrigation. Bulb yield of onion increased significantly with addition of FYM 30 t ha⁻¹. Incorporation of FYM 10, 20 and 30 t ha⁻¹ registered an increase in bulb yield of onion in order of 26.71, 47.33 and 63.74 per cent, respectively over no incorporation of FYM. Combination of 100 per cent recommended dose of NPK fertilizer along with 30 t FYM ha⁻¹ also resulted in significantly increased bulb yield of onion over other combinations of fertilizer levels and FYM levels except 125 per cent recommended dose of NPK fertilizer along with 30 t FYM ha⁻¹.

Key words : Onion, FYM, NPK, Fertilization, Growth, Yield

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