Yield and water productivity of cumin as influenced by irrigation techniques and land configuration

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In order to evaluate the effect of irrigation techniques and land configuration on yield and yield components of cumin (*Cuminum cyminum* L.) under semi-arid conditions of Rajasthan in India, a factorial arrangement of a split plot design with four replications was conducted. Three irrigation techniques viz., flood, drip and micro sprinkler in main plot and three land configuration viz., flat bed, raised bed 75 cm (normal bed) and wider raised bed 150 cm in sub plots were applied. Among the irrigation techniques, maximum cumin seed yield (387.6 kg/ha) was recorded with drip followed by micro sprinkler (353.6 kg/ha) and surface irrigation (232.8 kg/ha). Among the land configuration, maximum cumin seed yield (428.7 kg/ha) was recorded with raised beds (75 cm) followed by wider raised beds (305.4 kg/ha) and flat bed (239.9 kg/ha), respectively. Results show that irrigation with drip irrigation not only enhanced the yield by 40.71 and 8.77 % but also improved the water productivity by 41.3 and 10.9 kg seed/ha cm water than surface and micro sprinkler irrigation methods and gave 387.6 kg/ha seed yield with water productivity of 51.3 kg seed/ha cm irrigation water.

The improvement in water productivity with drip irrigation was 58.08 and 27.88 kg seed/ha cm irrigation water than the surface and micro sprinkler irrigation. Among land configuration treatments, sowing of 3 rows of cumin on raised beds (75 cm) enhanced the grain yield by 47.60 and 25.21 % and water productivity by 30.39 and 20.68 kg seed/ha cm irrigation water than flat bed and wider raised beds (150 cm).

Keywords: Cumin, micro irrigation, drip irrigation, land configuration, raised bed.

Biography

Ravindra Singh obtained PhD degree from CCS, HAU, Hisar, Haryana in 1998. He has made significant contributions in the field of natural resource management, resource conserving technologies and precision nutrient and water management in field crops. Presently he is Senior Scientist (Agronomy) at NRC on Seed Spices, Taboji Ajmer, Rajasthan(India). He has published more than 25 papers in reputed journals, 6 books, 63 conference proceeding papers, popular articles, bulletins, short communications etc.

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