



RESEARCH PAPER

Response of genotypes, crop geometry and fertilizer application on growth, yield and yield attributes in ajwain (*Trachyspermum ammi* L.)

R.C. Aswani*, G. S. Gathiye¹, N. Kumawat², Lal Singh¹, D. K. Jain¹, S. K. Tyagi¹ and Rakesh Yadav³
Directorate of Extension Services, Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior (M.P.) India
(Email: rameshaswani69@gmail.com)

Abstract : The present study was conducted at experimental farm of KVK, Mandasaur (M.P.), India, to study the “Response of genotypes, crop geometry and fertilizer application on growth, yield and yield attributes in ajwain (*Trachyspermum ammi* L.)”. The treatments comprised of three crop geometry spacing viz., 30 cm x 30 cm (S₁), 40 cm x 30 cm (S₂) and 45 cm x 30 cm (S₃) two fertilizer levels viz., F₁ - 75:45:45 kg NPK ha⁻¹, F₂-100:60:60 kg NPK ha⁻¹ and three genotypes viz., – Ajmer Ajwain⁻¹ (V₁), Ajmer Ajwain-93 (V₂) and Mandasaur local (V₃). The experiment was laid out in Randomized Block Design with factorial concept in three replications. Results revealed that significantly higher seed yield (1067.83 kg ha⁻¹), straw yield (1955.79 kg ha⁻¹) and biological yield (3023.62 kg ha⁻¹) and harvest index (35.32%) were recorded at a spacing of 30 cm x 30 cm (S₁) as compared to 40 cm x 30 cm (S₂) and 45 cm x 30 cm (S₃) spacing. Whereas, the numbers of umbels/plant (289.27), test weight (1.18 g) were higher in 45 cm x 30 cm (S₃) spacing and harvest index (35.32) was higher in 30 cm x 30 cm (S₁). Irrespective of spacing and genotypes, the fertilizer levels of NPK 100:60:60 kg (F₂) recorded significantly more umbels (197.18) plant⁻¹, seeds (293.20) umbel⁻¹, seed yield (1067.82 kg ha⁻¹), straw yield (2219.57 kg ha⁻¹), biological yield (3287.39 kg ha⁻¹), 1000 seed weight (1.23 g) and harvest index (34.61) as compared to F₁ fertilizer level. Significantly higher number of umbels (190.82 plant⁻¹), number of umbellate (20.15 plant⁻¹), seed (353.45 umbel⁻¹), seed yield (1148.25 kg ha⁻¹), straw yield (2192.53 kg ha⁻¹) and biological yield (3340.78 kg ha⁻¹) were recorded in AA-1 (V₁) as compared to AA-93 (V₂) & MDS-1 (V₃) genotypes. The results obtained from the study clearly revealed that genotype AA-1 (V₁) sown at narrow spacing of 30x30 cm with application of RDF NPK: 100:60:60 is found better for realizing higher yield, net return and benefit cost ratio followed by genotype AA-93(V₂) sown at narrowing spacing with application of RDF NPK: 100:60:60.

Key Words : Ajwain, Genotypes, Umbel, B:C ratio, Crop geometry, Biological yield

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***Author for correspondence :**

¹Krishi Vigyan Kendra (RVSKVV), Dhar, Rajgarh, Badwani and Khargone (M.P.) India

²College of Agriculture (RVSKVV), Indore, (M.P.) India

³College of Agriculture, Agricultural University, Kota (Rajasthan) India