RESPONSE OF CORIANDER (*Coriandrum sativum* L.) TO IRRIGATION SCHEDULE BASED ON IW/CPE RATIOS AND ORGANIC MANURES

**ABSTRACT**

**Key words:** IW/CPE ratio, Organic manures, Growth and Yield

A field experiment entitled “Response of coriander (*Coriandrum sativum* L.) to irrigation schedule based on IW/CPE ratios and organic manures” was carried out during *rabi* season of 2016-17 at the Instructional Farm, Department of Agronomy, College of Agriculture, Junagadh Agricultural University, Junagadh. The soil was medium black calcareous in texture, rich in organic carbon, medium in available nitrogen, P$_2$O$_5$ and K$_2$O with alkaline in reaction (pH of 7.9).

Total twelve treatment combinations, consisting of three irrigation schedule based on IW/CPE ratios (I$_1$- 0.6, I$_2$ - 0.8 and I$_3$ - 1.0) were assigned to main plot and four organic manures (M$_1$ - FYM @ 5.0 t ha$^{-1}$, M$_2$- Vermicompost @ 2.0 t ha$^{-1}$, M$_3$- Castor cake @ 1.0 t ha$^{-1}$ and M$_4$- FYM @ 2.5 t ha$^{-1}$ + Vermicompost @ 1.0 t ha$^{-1}$ + Castor cake @ 0.5 t ha$^{-1}$) were allotted to sub plots and tested in a split plot design with three replications.

The results indicated that scheduling of irrigation at an IW/CPE ratio of 1.0 recorded significantly higher values of plant height, number of branches plant$^{-1}$, dry matter accumulation and stover yield plot$^{-1}$ as well as ha$^{-1}$. Days to 50% flowering and maturity were delayed under this IW/CPE ratio. Whereas, scheduling of irrigation at an IW/CPE ratio of 0.8 produced significantly more umbels plant$^{-1}$, umbellates umbel$^{-1}$, seed yield plot$^{-1}$ as well as ha$^{-1}$, 1000 seed weight and harvest index over other IW/CPE ratios.
Abstract

Scheduling irrigation at 1.0 IW/CPE ratio (I₃) recorded significantly higher phosphorus content in seed. Application of irrigation at an IW/CPE ratio of 0.8 (I₂) recorded significantly higher uptake of nitrogen and potassium by seed while, higher phosphorus uptake by seed and stover as well as total NPK uptake by plant were significantly recorded higher in I₃ (1.0 IW/CPE ratio).

Consumptive use of water observed maximum under IW/CPE ratio of 1.0. Whereas, higher WUE was obtained when crop was irrigated at an IW/CPE ratio of 0.8.

Higher gross and net realization of ₹ 70,942 and ₹ 37,663 ha⁻¹ with B: C ratio of 2.13 was obtained when crop was irrigated with IW/CPE ratio of 0.8 followed by 1.0 IW/CPE ratio.

Almost all the growth characters, yield attributes, seed and stover yields of coriander crop were found significantly higher when crop was fertilized with FYM @ 2.5 t ha⁻¹ + Vermicompost @ 1.0 t ha⁻¹ + Castor cake @ 0.5 t ha⁻¹ (M₄) over FYM @ 5.0 t ha⁻¹ (M₁), Vermicompost @ 2.0 t ha⁻¹ (M₂) and Castor cake @ 1.0 t ha⁻¹ (M₃).

Significantly the maximum NPK content and uptake by seed and stover were recorded under treatment M₄ (FYM @ 2.5 t ha⁻¹ + Vermicompost @ 1.0 t ha⁻¹ + Castor cake @ 0.5 t ha⁻¹)  

Higher net return of ₹ 33,315 ha⁻¹ and B: C ratio of 2.06 were achieved when crop was fertilized with M₄ (FYM @ 2.5 t ha⁻¹ + Vermicompost @ 1.0 t ha⁻¹ + Castor cake @ 0.5 t ha⁻¹) and M₁ (FYM @ 5.0 t ha⁻¹), respectively.

Interaction effect between irrigation schedule and organic manures were also observed significant for 1000 seed weight, seed yield plot⁻¹ as well as ha⁻¹ and N and K uptake by seed under treatment combination I₂M₄.

Thus, from the present study, it could be concluded that coriander (Cv. GC 2) irrigated at an IW/CPE ratio of 0.8 and crop fertilized with combine application of FYM @ 2.5 t ha⁻¹ + Vermicompost @ 1.0 t ha⁻¹ + Castor cake @ 0.5 t ha⁻¹ gave higher yield, maximum net realization as well as B: C ratio under medium black calcareous soils of South Saurashtra Agro climatic conditions.