CHAPTER- VI
SUMMARY AND CONCLUSION

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 results presented and discussed in the preceding chapters are summarised as follows.

6.1 Effect of irrigation schedules

(i) Scheduling of irrigation based on IW/CPE ratios failed to exert their significant influence on plant population at initial and at harvest.

(ii) Effect of different irrigation schedules based on IW/CPE ratio on plant height at 30, 60DAS and at harvest was significant. Significantly taller plants were recorded when coriander crop was irrigated at 1.0 IW/CPE ratio (I₃) which remained at par with I₂ (0.8 IW/CPE ratio).

(iii) Treatment I₃ (1.0 IW/CPE ratio) remained at par with I₂ (0.8 IW/CPE ratio) and produced significantly more number of branches plant⁻¹ at 60DAS and at harvest.

(iv) Significantly higher dry matter accumulation at 30, 60DAS and at harvest was observed under irrigation treatment I₃ (1.0 IW/CPE ratio) followed by I₂ (0.8 IW/CPE ratio).

(v) Increase in frequency of irrigation significantly delayed days to 50% flowering and maturity whereas, treatment I₁ (0.6 IW/CPE ratio) noticed early flowering and maturity followed by treatment I₂ (0.8 IW/CPE ratio).

(vi) Irrigating the crop at an IW/CPE ratio of 0.8 (I₂) produced significantly more number of umbels plant⁻¹ and umbellates umbel⁻¹ and it remained at par with I₃ (1.0 IW/CPE ratio).

(vii) Significantly higher seed yield plot⁻¹ and seed yield ha⁻¹ were produced when coriander crop was irrigated at an IW/CPE ratio of 0.8 (I₂) and it was found on same bar with 1.0 IW/CPE ratio (I₃).

(viii) Coriander crop irrigated at 1.0 IW/CPE ratio (I₃) produced significantly higher stover yield plot⁻¹ and ha⁻¹.
Various irrigation schedules exerted significant impact on the achievement of 1000 seed weight. Significantly higher 1000 seed weight was recorded when coriander crop received irrigation at an IW/CPE ratio of 0.8 (I₂) which remained statistically at par with treatment I₃ (1.0 IW/CPE ratio).

Significantly higher harvest index was recorded when irrigations were scheduled at 0.8 IW/CPE ratio (I₂) while, lower harvest index was observed under treatment I₁ (0.6 IW/CPE ratio).

Scheduling of irrigations at an IW/CPE ratio of 1.0 (I₃) recorded significantly higher phosphorus content in seed followed by 0.8 IW/CPE ratio (I₂).

Scheduling of irrigations at an IW/CPE ratio of 0.8 (I₂) removed significantly more nitrogen and potassium by seed and it was at par with I₃ (1.0 IW/CPE ratio) while, significantly maximum phosphorus uptake by seed and stover as well as total NPK uptake were noted under I₃ (1.0 IW/CPE ratio) and it was on same bar with I₂ (0.8 IW/CPE ratio).

Application of higher quantity of irrigation water increased the consumptive use of water and reduced the water use efficiency markedly. Coriander crop irrigated at an IW/CPE ratio of 1.0 (I₃) increases CUW to an extent of 39.18% and reduced the WUE by 12.94 % over I₁ (0.6 IW/CPE ratio).

Highest net return of ₹ 37,663 ha⁻¹ and B: C ratio of 2.13 were achieved when coriander crop was irrigated with 0.8 IW/CPE ratio (I₂) which was closely followed by 1.0 IW/CPE ratio (I₃) with a net return of ₹ 33,776 ha⁻¹ and B: C ratio of 2.00.

### 6.2 Effect of organic manures

(i) Organic manures failed to exert their significant effect on plant population at initial and at harvest.

(ii) Application of FYM @ 2.5 t ha⁻¹ + Vermicompost @ 1.0 t ha⁻¹ + Castor cake @ 0.5 t ha⁻¹ (M₄) recorded significantly higher plant height at 30, 60DAS and at harvest which was at par with M₂ (Vermicompost @ 2.0 t ha⁻¹) and M₃ (Castor cake @ 1.0 t ha⁻¹) for plant height at harvest.

(iii) Significantly maximum number of branches plant⁻¹ at 60DAS and at harvest was recorded with the application of FYM @ 2.5 t ha⁻¹ + Vermicompost @ 1.0
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t ha\(^{-1}\) + Castor cake @ 0.5 t ha\(^{-1}\) (M\(_4\)) and it was remained statistically at par with M\(_2\) (Vermicompost @ 2.0 t ha\(^{-1}\)) at 60DAS and harvest.

(iv) Dry matter accumulation at 30, 60DAS and at harvest was significantly influenced due to different organic manures. Significantly higher dry matter accumulation at 30, 60DAS and at harvest was noted when crop was fertilized with the FYM @ 2.5 t ha\(^{-1}\) + Vermicompost @ 1.0 t ha\(^{-1}\) + Castor cake @ 0.5 t ha\(^{-1}\) (M\(_4\)) which was at par with M\(_2\) (Vermicompost @ 2.0 t ha\(^{-1}\)) for dry matter accumulation at 30 and 60DAS and with M\(_3\) (Castor cake @ 1.0 t ha\(^{-1}\)) at harvest.

(v) Significantly minimum days to 50% flowering was observed when coriander crop was fertilized with FYM @ 5.0 t ha\(^{-1}\) (M\(_1\)) and which was remained on same bar with M\(_3\) (Vermicompost @ 2.0 t ha\(^{-1}\)). While, maximum days to 50% flowering was observed when crop was fertilized with FYM @ 2.5 t ha\(^{-1}\) + Vermicompost @ 1.0 t ha\(^{-1}\) + Castor cake @ 0.5 t ha\(^{-1}\) (M\(_4\)).

(vi) Significantly minimum days to maturity was taken by coriander crop when it was fertilized with FYM @ 5.0 t ha\(^{-1}\) (M\(_1\)). While, maximum days to maturity was taken by crop when coriander was fertilized with FYM @ 2.5 t ha\(^{-1}\) + Vermicompost @ 1.0 t ha\(^{-1}\) + Castor cake @ 0.5 t ha\(^{-1}\) (M\(_4\)).

(vii) Application of FYM @ 2.5 t ha\(^{-1}\) + Vermicompost @ 1.0 t ha\(^{-1}\) + Castor cake @ 0.5 t ha\(^{-1}\) (M\(_4\)) recorded significantly higher values of number of umbels plant\(^{-1}\) and number of umbellates umbel\(^{-1}\) and it was found at par with treatment M\(_2\) (Vermicompost @ 2.0 t ha\(^{-1}\)) and M\(_3\) (Castor cake @ 1.0 t ha\(^{-1}\)).

(viii) Maximum 1000 seed weight was recorded with the application of FYM @ 2.5 t ha\(^{-1}\) + Vermicompost @ 1.0 t ha\(^{-1}\) + Castor cake @ 0.5 t ha\(^{-1}\) (M\(_4\)).

(ix) Coriander crop fertilized with FYM @ 2.5 t ha\(^{-1}\) + Vermicompost @ 1.0 t ha\(^{-1}\) + Castor cake @ 0.5 t ha\(^{-1}\) (M\(_4\)) produced significantly higher seed yield plot\(^{-1}\) and ha\(^{-1}\).

(x) Significantly higher stover yield plot\(^{-1}\) and ha\(^{-1}\) were recorded when crop was fertilized with FYM @ 2.5 t ha\(^{-1}\) + Vermicompost @ 1.0 t ha\(^{-1}\) + Castor cake @ 0.5 t ha\(^{-1}\) (M\(_4\)) which was found statistically at par with vermicompost @ 2.0 t ha\(^{-1}\) (M\(_2\)) and Castor cake @ 1.0 t ha\(^{-1}\) (M\(_3\)). While, significantly lower stover yield plot\(^{-1}\) and ha\(^{-1}\) were produced under treatment M\(_1\) (FYM @ 5.0 t ha\(^{-1}\)).

(xi) Significantly maximum NPK content in seed and stover were observed under treatment M\(_4\) (FYM @ 2.5 t ha\(^{-1}\) + Vermicompost @ 1.0 t ha\(^{-1}\) + Castor cake
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@ 0.5 t ha\(^{-1}\)) which remained at par with treatments M\(_2\) (Vermicompost @ 2.0 t ha\(^{-1}\)) with respect to N content in stover, P and K content in seed. While, P content in stover at par with M\(_2\) (Vermicompost @ 2.0 t ha\(^{-1}\)) and M\(_3\) (Castor cake @ 1.0 t ha\(^{-1}\)).

(xii) Maximum NPK uptake by seed, stover and total were observed when coriander crop was fertilized with FYM @ 2.5 t ha\(^{-1}\) + Vermicompost @ 1.0 t ha\(^{-1}\) + Castor cake @ 0.5 t ha\(^{-1}\) (M\(_4\)) and it was found statistically at par with treatments M\(_2\) (vermicompost @ 2.0 t ha\(^{-1}\)) in case of N uptake by stover.

(xiii) Application of FYM @ 2.5 t ha\(^{-1}\) + Vermicompost @ 1.0 t ha\(^{-1}\) + Castor cake @ 0.5 t ha\(^{-1}\) (M\(_4\)) noted numerically higher available NPK in soil after harvest of coriander.

(xiv) Organic manures were failed to show marked variation in CUW whereas, higher WUE was observed under M\(_4\) (FYM @ 2.5 t ha\(^{-1}\) + Vermicompost @ 1.0 t ha\(^{-1}\) + Castor cake @ 0.5 t ha\(^{-1}\)).

(xv) Highest net return of ₹ 33,315 ha\(^{-1}\) and B: C ratio of 2.06 were achieved when crop was fertilized with M\(_4\) (FYM @ 2.5 t ha\(^{-1}\) + Vermicompost @ 1.0 t ha\(^{-1}\) + Castor cake @ 0.5 t ha\(^{-1}\)) and M\(_1\) (FYM @ 5.0 t ha\(^{-1}\)), respectively.

6.3 Interaction effect

(i) Interaction effect between irrigation schedules and organic manures found significant for seed yield plot\(^{-1}\) and seed yield ha\(^{-1}\). Treatment combination I\(_2\)M\(_4\) recorded maximum seed yield plot\(^{-1}\) and seed yield ha\(^{-1}\).

(ii) Interaction effect between irrigation schedule based on IW/CPE ratios and organic manures found significant for 1000 seed weight. Treatment combination I\(_2\)M\(_4\) recorded significantly maximum 1000 seed weight.

(iii) Treatment combination I\(_2\)M\(_4\) recorded significantly higher nitrogen and potassium uptake by seed.

(iv) Maximum net realization of ₹ 45,610 ha\(^{-1}\) and B: C ratio of 2.26 were obtained under treatment combination I\(_2\)M\(_4\).
6.4 Conclusion

On the basis of one year field experimentation, it seems quite logical to conclude that under medium black calcareous soil of South Saurashtra Agro-climatic zone for getting higher yield and net realization, coriander (Cv. GC-2) crop should be irrigated seven times at an IW/CPE ratio of 0.8 including two common irrigations (i.e. first irrigation immediately after sowing, second at 5-6 days after sowing) and rest of the irrigations should be given at 23-25, 35-40, 50-55, 70-75 and 80-85 days after sowing along with the application of FYM @ 2.5 t ha\(^{-1}\) + Vermicompost @ 1.0 t ha\(^{-1}\) + Castor cake @ 0.5 t ha\(^{-1}\).