CHAPTER- VI
SUMMARY AND CONCLUSION

A field experiment was conducted at Instructional Farm, Department of Agronomy, Junagadh Agricultural University, Junagadh during rabi 2016-17 to study the “Effect of plant growth regulators on growth and yield of coriander (Coriandrum sativum L.)”. Total eleven treatments comprising of 2 levels of five plant growth regulators viz., GA3 (50 and 100 ppm), NAA (50 and 100 ppm) and Cycocel (500 and 1000 ppm), Triacontanol (100 and 150 ppm), Vermiwash (1 and 2 L ha⁻¹) foliar spray at 25 & 50 DAS and control (water spray) were tried under randomized block design with three replications.

The soil of the experimental plot was clayey in texture and slightly alkaline in reaction with pH 7.9 and EC 0.49 dS/m. The soil was medium in available nitrogen (242 kg/ha), available phosphorus (34 kg/ha) and available potash (269 kg/ha). The coriander cv. ‘GC 2’ was sown on 10th November 2016 and harvested on 20th February, 2017. The broad objectives of this study were as under.

1. To study the effect of foliar sprays of plant growth regulators on growth, yield and yield attributing characters of coriander.
2. To study the effect of foliar sprays of plant growth regulators on content and uptake of nutrient by coriander plant.
3. To examine the economic feasibility of different treatments on yield.

The weather conditions were favorable for crop growth and no severe attack of insect-pests and diseases during the course of investigation was observed.

Apart from the biometric observations related to growth, yield and yield attributes of coriander, studies were also made on plant, soil chemical analysis and economics.

The experimental findings in detail and their cause and effect relation description have been given in the previous IV and V chapters. The salient features of findings are summarized here.
Summary and Conclusion

6.1 INITIAL AND FINAL PLANT POPULATION

- Initial and final plant population were not affected significantly by different treatments indicated that plant growth regulators included in this investigation were found safe for coriander crop and variation in treatments were observed solely due to treatment effects.

6.2 GROWTH PARAMETERS

- Plant height of coriander at 30 DAS, 60 DAS and at harvest was affected significantly by the different plant growth regulators treatments. The maximum values of plant height at 30 DAS, 60 DAS and at harvest were recorded under treatment GA\(_3\) 100 ppm spray at 25 & 50 DAS but it was found statistically at par with treatments GA\(_3\) 50 ppm at 30 DAS, NAA (50 & 100 ppm), Cycocel (500 & 1000 ppm) at 60 DAS, and, GA\(_3\) 50 ppm, NAA 50 ppm, Triacontanol 100 ppm at harvest in descending order.

- Significantly the higher number of primary and secondary branches per plant at 60 DAS and at harvest was recorded under treatment GA\(_3\) 100 ppm spray at 25 & 50 DAS but it remained statistically at par with treatments GA\(_3\) 50 ppm, NAA 50 ppm and NAA100 ppm at 60 DAS. While, NAA 50 ppm, NAA 100 ppm and vermiwash 1 L/ha at harvest in case of primary branches. Likewise it remained at par with GA\(_3\) 50 ppm, Triacontanol 150 ppm and Triacontanol 100 ppm at harvest in case of secondary branches in descending order.

- The application of different plant growth regulators treatment did not exert their significant effect on days to 50 % flowering. However, minimum number of days to 50 per cent flowering was recorded with GA\(_3\) 100 ppm spray at 25 & 50 DAS.

6.3 YIELD AND YIELD ATTRIBUTES

- Significantly higher number of umbels per plant was recorded under treatment GA\(_3\) 100 ppm spray at 25 & 50 DAS but it remained statistically at par with treatments GA\(_3\) 50 ppm, Triacontanol 100 ppm and Triacontanol 150 ppm in descending order.

- Number of umbellates per umbel was recorded significantly higher under treatment GA\(_3\) 100 ppm spray at 25 & 50 DAS but it remained statistically at
Summary and Conclusion

par with treatments GA₃ 50 ppm, NAA 50 ppm, NAA 100 ppm and Triacontanol 150 ppm.

- Significantly higher number of seeds per umbel was recorded under treatment GA₃ 100 ppm spray at 25 & 50 DAS but it was statistically at par with treatments GA₃ 50 ppm and NAA 50 ppm in descending order.
- Number of seeds per plant was recorded significantly higher with treatment GA₃ 100 ppm spray at 25 & 50 DAS but it remained statistically at par with treatments GA₃ 50 ppm.
- Significantly higher seed index was recorded with treatment GA₃ 100 ppm spray at 25 & 50 DAS but it was statistically at par with treatments NAA 50 ppm, Cycocel 1000 ppm and Triacontanol 150 ppm in descending order.
- Significantly higher seed yield of coriander was recorded with treatment GA₃ 100 ppm spray at 25 & 50 DAS but it remained statistically at par with treatments GA₃ 50 ppm and NAA 50 ppm.
- Stover yield of coriander was recorded significantly higher with treatment GA₃ 100 ppm spray at 25 & 50 DAS but it remained statistically at par with treatment GA₃ 50 ppm and NAA 50 ppm in descending order.
- Harvest index was not affected significantly by the different plant growth regulators treatments.

6.4 NUTRIENTS CONTENT

- Significantly higher N content in seed and stover were recorded under treatment GA₃ 100 ppm spray at 25 & 50 DAS, but it was at par with GA₃ 50 ppm, NAA 50 ppm in case of N content in seed and GA₃ 50 ppm in case of N content in stover.
- P content was recorded significantly higher with treatment GA₃ 100 ppm spray at 25 & 50 DAS but it remained statistically at par with treatments GA₃ 50 ppm, NAA 50 ppm in respect of P content in seed and GA₃ 50 ppm in respect of P content in stover.
- K content was observed significantly higher with treatment GA₃ 100 ppm spray at 25 & 50 DAS but it remained statistically at par with treatments GA₃ 50 ppm, NAA 50 ppm in case of K content in seed and Cycocel 500 ppm in case of K content in stover.
6.5 NUTRIENTS UPTAKE

- Significantly higher N and P uptake by seed and stover were recorded under treatment GA$_3$ 100 ppm spray at 25 & 50 DAS and it was found at par with GA$_3$ 50 ppm.

- K uptake by seed and stover was showed significantly higher with treatment GA$_3$ 100 ppm spray at 25 & 50 DAS but it remained statistically at par with treatments GA$_3$ 50 ppm, NAA 50 ppm in respect of K uptake by seed.

6.6 AVAILABLE NUTRIENT IN SOIL AFTER HARVEST

- The application of different plant growth regulators treatment did not exert their significant effect on available status of N, P and K in soil after harvest.

6.7 ECONOMICS

- From the economics point of view, the maximum net return ₹ 63620 ha$^{-1}$ was obtained from GA$_3$ 100 ppm spray at 25 & 50 DAS followed by the treatments GA$_3$ 50 ppm. The higher value of B: C ratio 2.83 was obtained from GA$_3$ 50 ppm spray at 25 & 50 DAS, followed by the treatments GA$_3$ 100 ppm. Whereas, the control (water spray) recorded minimum ₹ 33146 ha$^{-1}$ net profit as well as 2.10 B: C ratio.

6.8 CONCLUSION

- On the basis of present one year experiment, it can be concluded that the foliar spray of GA$_3$ 50 ppm at 25 and 50 days after sowing was found effective for securing higher yield of coriander (GC-2) along with the maximum B: C ratio in medium black clayey soil under South Saurashtra Agro-climatic Zone of Gujarat.

FUTURE LINE OF WORK

- The present experiment should be repeated for two or three years to know the consistency of treatment effects.

- The study should be conducted under different agro-ecological situations of the zone to make valid recommendation for farmers.

- Effect on quality parameters may be studied.