

Effect of cutting management, nitrogen and phosphorus on growth and yield of coriander (*Coriandrum sativum*)

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ABSTRACT

An experiment was conducted during 1988–89 and 1989–90 to evaluate the performance of coriander (*Coriander sativum* L.) under different levels of nitrogen, phosphorus and cutting management. Application of 100 kg N/ha gave the maximum seed yield and net returns. A dose of 30 kg P_2O_5 /ha proved superior to 0 and 60 kg P_2O_5 /ha in respect of yield and net returns. Amongst the cutting treatments (no cut, 1 cut 30 at days after sowing and 2 cuts at 30 and 60 days), 1 cut at 30 days after sowing seed production proved economic giving maximum yield and net returns.

In spite of great utility of coriander (*Coriandrum sativum* L.), a little attention has been paid to evolve suitable package of practices for profitable cultivation. The foliage of the crop is cut arbitrarily by the farmers several times and is sold in the market. Thereafter the crop is left for seed production. For its economization number of cuttings needs to be worked out as both the under and over-cutting may lead to poor seed production and returns. Number of cuttings may also be affected by the input management, particularly of nitrogen and phosphorus. Application of N is essential for vegetative growth of the plants and thereby the green yield of coriander and that of P affects the maturity of the crop. Therefore the present investigation was carried out to evolve suitable agro-techniques, viz. cutting management and doses of N and P, for making its cultivation more remunerative.

MATERIALS AND METHODS

The field experiment was conducted

during the winter (*rabi*) seasons of 1988–89 and 1989–90 at Lakhaoti, Bulandshahr. The soil was sandy loam having low organic carbon (0.21%) and N (160 kg/ha) and medium available P (16 kg/ha) and K (240 kg/ha), with pH 7.3. Treatments comprising 3 cutting treatments (not cut, 1 cut at 30 days after sowing and 2 cuts at 30 and 60 days), 3 levels of P_2O_5 (0, 30 and 60 kg/ha) and 4 levels of N (0, 50, 100 and 150 kg/ha) were tested in split-plot design with 3 replications. Combinations of cutting management and P_2O_5 levels were kept in main plots and N levels in subplots. A uniform dose of 40 kg P_2O_5 /ha was applied at sowing, and one-third and full P were also applied at sowing as per the treatment. Remaining N was applied in 2 equal splits, at 30 and 60 days. The crop was raised for seed production after cuttings.

RESULTS AND DISCUSSION

Effect of cutting management

Cutting-management practice greatly in-

Table 1. Effect of cutting management, phosphorus and nitrogen on growth, yield and net return of coriander

Treatment	Plant height (cm)		Branches/plant		Umbels/plant		Seeds/umbel		Seed yield (q/ha)		Net return (Rs/ha)*
	A	B	A	B	A	B	A	B	A	B	
<i>Cutting management</i>											
No cut	127.8	136.6	11.7	12.8	26.9	31.7	38.0	40.0	17.8	25.9	18,680
1 cut at 30 days	117.9	118.8	18.1	19.0	42.2	48.1	46.6	45.9	35.2	42.0	30,888
2 cuts (at 30, 60 days)	97.7	98.9	13.0	14.9	36.8	41.1	46.2	46.0	21.0	32.6	21,440
CD (P = 0.05)	NS	1.0	NS	0.6	NS	0.8	NS	0.6	NS	NS	
<i>P₂O₅ (kg/ha)</i>											
0	114.4	117.2	14.0	15.0	23.5	27.6	36.2	37.5	25.0	31.0	22,416
30	115.1	119.4	15.1	16.2	39.1	44.3	44.0	46.2	28.8	38.6	26,968
60	115.0	121.3	16.1	16.0	32.6	38.0	41.1	43.9	28.6	36.4	26,000
CD (P = 0.05)	NS	1.0	NS	0.6	NS	0.8	NS	0.6	NS	NS	
<i>N (kg/ha)</i>											
0	112.3	115.0	13.6	14.5	24.9	28.0	32.4	34.5	22.0	31.5	22,120
50	114.1	117.6	14.5	15.4	33.0	39.0	41.8	42.5	24.8	36.7	26,240
100	115.4	119.2	15.2	16.9	42.2	44.0	45.3	47.0	32.5	41.2	29,480
150	116.2	121.7	15.7	16.2	40.8	43.2	45.1	46.0	30.6	38.2	27,528
CD (P = 0.05)	1.7	3.2	1.4	0.7	1.4	1.0	2.0	1.6	1.9	1.2	

A, 1988-89; B, 1989-90

*Pooled data

fluenced the yield and yield attributes (Table 1). The crop left for seed production after 1 cut at 30 days gave significantly higher seed yield than others in both the seasons. Net return was also highest (Rs 30,888/ha) under this treatment. The higher seed yield and net returns in this treatment might be attributed to more branching, leading to more number of umbels/plant. Singh and Singh (1984) and Jain and Yadav (1986) also reported similar findings.

Effect of phosphorus

Application of P though improved the yield performance of coriander in both the seasons, it was not marked as the experimental soil was medium in available P. Rao *et al.* (1983) and Ghosh *et al.* (1985) also observed similar response under similar conditions.

Effect of nitrogen

Increasing levels of N up to 100 kg/ha increased the seed yield markedly in both the

seasons. Further higher dose (150 kg N/ha) reduced the seed yield significantly. This behaviour of applied N might be attributed to higher N availability to crop which led to excess vegetative growth at the expense of development of reproductive organs. Similar results were also obtained by Rao *et al.* (1983). The highest net return of Rs 29,480/ha was obtained from the crop fertilized with 100 kg N/ha.

REFERENCES

- Ghosh, D., Maity, T. K., Som, M. G. and Bose, T. K. 1985. Effect of nitrogen and phosphorus on growth and yield of coriander. *Indian Cocoa, Arecanut and Spices Journal* 5 (2) : 44-46.
- Jain, P. C. and Yadav, C. P. S. 1986. Effect of date of sowing on the incidence of insect pest of coriander. *Indian Journal of Agricultural Sciences* 56 (1) : 56-59.
- Rao, E. V. S. P., Singh, M., Narayana, M. R. and Rao, G. 1983. Fertilizer studies in coriander (*Coriandrum sativum*). *Journal of Agricultural Sciences*, 100 : 251-252.
- Singh, B. R. N. and Singh, K. 1984. Coriander in Madhya Pradesh. *Indian Cocoa, Arecanut and Spices Journal* 8 (1) : 2.