

## Effect of different levels of nitrogen and leaf cutting on leaf and seed yield of coriander (*Coriandrum sativum*)

S K Tehlan and K K Thakral

*Department of Vegetable Science*

*CCS Haryana Agricultural University, Hisar-125004, India*

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### Abstract

The effect of different levels of nitrogen (30, 60, 90 and 120 kg N/ha) and leaf cutting (no cutting, one cutting at 45 days after sowing) and two cuttings at 45 and 60 days after sowing of coriander (*Coriandrum sativum* L.) cv. DH-228 was studied during 2003-04 and 2004-05. Both green leaf yield and seed yield increased with the increase in N levels upto 90 kg /ha. Single leaf cutting at initial vegetative growth stage did not much affect the later vegetative and reproductive growth. Maximum seed yield was recorded with 90 kg N/ha (14.6 q/ha) without leaf cutting which was at par with 90 kg N/ha and one cut (14.2 q/ha). The green leaf yield was recorded highest with 90 kg N/ha and two cutting (186.4 q/ha).

**Key words:** *Coriandrum sativum*, nitrogen, leaf cutting, yield, coriander

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Coriander (*Coriandrum sativum* L.) is one of the major seed spices grown in India. Apart from seed, the tender stem, leaves with pleasant aromatic odour are used as vegetable. It is a rich source of vitamin A and C. Coriander plant has regenerative capacity and hence 2 to 3 cuttings can be undertaken very easily. Menon *et al.* (1997) suggested that leaf cutting of coriander seed crop at early stages can provide an extra income to the growers. Nitrogen is essential for the vegetative growth of the plant resulting in higher green leaf and seed yield. Information on leaf and seed yield of coriander as affected by nitrogen levels and cutting frequencies for Haryana conditions are meagre. Hence, the present experiment was undertaken to study the effect of different levels of nitrogen and leaf cutting on leaf and seed yield of coriander.

The experiment was carried out Hisar during the rabi season of 2003-04 and 2004-05. The

soil of experimental plot was sandy loam, average in organic matter, medium in phosphorus and rich in potash. The experiment was laid out in split plot design with three replications. The treatments consist of four levels of nitrogen (30, 60, 90 and 120 kg/ha) and three cutting frequencies (no cutting, one cutting at 45 days after sowing and two cuttings at 45 and 60 days after sowing). Nitrogen level was allotted to main plots whereas leaf cutting management was allotted to sub plots. The seed of cultivar DH-228 was used for experiment. Uniform application of 40 kg P<sub>2</sub>O<sub>5</sub>/ha was made before sowing, whereas N was applied in three equal splits at basal, 45 and 60 days after sowing. The green foliage was cut 15 cm above ground at the time of each cutting as per treatment. Irrigation and other intercultural practices were done as per general recommendation. The data for two years was averaged before statistically analyzing it.

The plant height increased significantly every increase in level of nitrogen upto 90 kg N/ha. Green leaves cutting (one or two cuttings) reduced the plant height significantly as compared to control (no cutting). This confirms the findings of Thakral *et al.* (1992). The number of branches and umbels per plant were also increased with increase in nitrogen level and maximum was recorded at 90 kg N/ha. Singh *et al.* (2000) also reported similar results. Among green leaves cutting, one cutting recorded highest number of branches and umbels per plant which was significantly superior over no cutting and two cutting treatments. This suggested that one cutting

improves the number of branches and umbels per plant.

Seed yield and green leaf yield increased with increase in the level of nitrogen from 30 to 90 kg/ha. There were no significant differences with one cutting for seed yield. Interaction effect of different levels of nitrogen and leaf cutting frequency showed that maximum seed yield was obtained with one cut treatment combination and it increased with increasing levels of nitrogen. Maximum seed yield was recorded with 90 kg N/ha (14.6 q/ha) without leaf cutting which was statistically at par with 90 kg N/ha and one cut (14.21 q/ha). Thakral *et al.* (1992) also

**Table 1:** Effect of nitrogen and green leaves cuttings on growth, green leaf and seed yield of coriander

Treatments	Plant Height (cm)	Branches/ plant	Umbels/ plant	Seed yield (q/ha)	Leaf yield (q/ha)
Nitrogen levels (kg/ha)					
30 (N <sub>1</sub> )	92.7	6.4	41.5	9.96	68.98
60 (N <sub>2</sub> )	104.0	7.2	43.9	11.73	106.75
90 (N <sub>3</sub> )	110.7	7.5	48.4	13.56	127.34
120 (N <sub>4</sub> )	108.5	7.6	45.0	11.69	113.24
C.D at 5%	2.7	0.35	3.4	0.60	-
Cutting levels					
C <sub>0</sub> (No cutting)	116.4	7.2	47.3	12.61	-
C <sub>1</sub> (one cutting at 45 DAS)	109.6	7.5	50.1	12.91	51.90
C <sub>2</sub> (Two cutting at 45 and 60 DAS)	85.3	6.8	38.8	9.68	156.25
CD at 5%	3.1	0.26	2.8	0.60	-
Treatments combinations					
N <sub>1</sub> C <sub>0</sub>	108.4	6.5	47.2	10.25	-
N <sub>1</sub> C <sub>1</sub>	97.3	6.7	43.7	11.40	34.70
N <sub>1</sub> C <sub>2</sub>	72.6	5.9	33.7	8.24	103.26
N <sub>2</sub> C <sub>0</sub>	116.7	7.1	45.8	12.70	-
N <sub>2</sub> C <sub>1</sub>	110.3	7.2	47.4	13.20	47.84
N <sub>2</sub> C <sub>2</sub>	90.2	6.9	38.7	9.30	165.65
N <sub>3</sub> C <sub>0</sub>	122.4	7.6	47.7	14.62	-
N <sub>3</sub> C <sub>1</sub>	114.1	7.6	51.7	14.21	68.29
N <sub>3</sub> C <sub>2</sub>	95.7	7.3	45.7	11.84	186.40
N <sub>4</sub> C <sub>0</sub>	118.1	7.5	46.9	12.92	-
N <sub>4</sub> C <sub>1</sub>	117.3	7.8	51.1	12.83	56.78
N <sub>4</sub> C <sub>2</sub>	90.1	7.4	36.9	9.33	169.70
CD at 5%	3.3	N.S.	3.1	1.00	-

recorded highest seed yield with one cutting. There was a significant reduction in the seed yield when two cuttings were taken.

Green leaf yield increased with the increasing level of nitrogen and cutting. Maximum leaf yield was observed with 90 kg N/ha and two leaf cuttings (186.4 q/ha). Two cutting frequencies at each level of nitrogen produced significantly higher leaf yield than one cutting. These findings also corroborates with the findings of Menon *et al.* (1997) and Datta *et al.* (2003).

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