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Benefit cost ratio of coriander germplasms in rabi season under open field conditions

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Abstract
Coriander is considered both as herb and spice. The experiment was carried out at Horticultural College and Research Institute, Venkataramannagudem during rabi under open field conditions in 2015-16 with 66 coriander accessions and four checks to select an ideal plant type for green leaf purpose with desirable traits which are significantly superior to checks sadhana, sudha, suguna, LCC – 234. Highest benefit cost ratio was recorded in rabi crop, the genotype LCC-175 recorded highest benefit cost ratio (4.36) followed by LCC-119 (4.10) compared to best check suguna (3.11).

Keywords: coriander, Rabi, benefit cost ratio

Introduction
Coriander, *Coriandrum sativum* (2n = 22) is an annual herb in the family Apiaceae. It is a tropical and subtropical crop. The word coriander derived from the Greek name for bug, 'korion' (Diederichsen, 1996) [5]. It is an important leafy vegetable used for flavouring curries and soups. It has a pleasant aroma and is mainly used for garnishing food preparations. (Anon, 2001 and Shivashankara *et al*., 2003) [1]. It is considered both as herb and spice. Its leaves are rich in vitamins A, C, K and minerals. Its seeds are used as spice and also for medicinal purposes. The essential oil is used in perfumes, soaps, candy, cocoa, chocolate, meat products and alcoholic beverages. Germplasm collection with good variability for the desirable characters is the basic requirement of any crop improvement programme (Singahania *et al., 2006*). The present investigation was taken up to observe the performances of coriander genotypes for foliage yield in rabi under open field conditions.

Materials and Methods
The experiment consisting of sixty six germplasm lines with four checks was laid out in Augmented Block Design with regular checks. In each block, six germplasm lines were evaluated along with four checks repeated randomly. Fertilizers were applied @ 80 kg N, 35 kg P, 60 kg K and 20 kg S and 10 ton cow dung per hectare (Anon., 2001) [1]. The entire amount of cowdung, phosphorus and potassium, with one-half of nitrogen from urea were applied during final land preparation. The rest of the nitrogen was top-dressed at 30 days after sowing. The seeds (fruits) were rubbed for separating the two mericarps (seeds) which were soaked in water for 24 hours to enhance germination. Seeds were also treated with Bavistin at 2 g per kg of seeds prior to sowing in raised seed bed at 10 cm apart rows continuously by hand @ 30 kg/ha. Seeds were mixed with some loose soil (about four to five times of weight of seeds) to allow uniform sowing in rows and were covered with good pulverized soil just after sowing with gently pressed by hands. Light watering was done to supply sufficient moisture needed for quick germination. Weeding and thinning was not done. For good germination, water was given to the plots two times per day with rose can till germination, later on one irrigation was applied. Harvesting of green foliage was done before bolting by cutting just beneath the soil with root intact after 40-45 days of sowing depending upon genotypes. Data was collected from the inner rows of each plot to avoid the border effect. The plot yield was converted to hectare yield. The collected data were properly analyzed statistically by Crop Stat Version7.2. The mean comparision was done at 5% level of probability.

Results and Discussion
Cost of cultivation, gross returns, net returns and Benefit Cost Ratio (BCR) were worked out to evaluate the economic viability of all the genotypes taking into consideration of the total costs incurred, the crop yield obtained per hectare and the average market price of coriander (Table 1).The gross returns from each germplasm were estimated with the prevailing prices of coriander. The net returns from each germplasm was computed by deducting the total costs incurred from the gross returns. Highest benefit cost ratio was recorded in *rabi* crop, the genotype LCC-175 recorded highest benefit cost ratio (4.36) followed by LCC-119 (4.10) compared to best check suguna (3.11). The higher BCRs for certain genotypes indicated that the selection of genotypes based on superior traits might improve the productivity of the crop thus benefitting the farmers. The genotype driven variation in the BCR was reported by Lal *et al*. (2012).

Table 1: Benefit cost ratio of coriander germplasms in Rabi season

S.No	Genotype	Yield (Kg/ha)	Gross returns (Rs.)	Net Returns (Rs.)	B: C ratio
1.	LCC - 1	8344	250320	185320	3.85
2.	LCC - 3	7734	232020	167020	3.57
3.	LCC - 6	7274	218220	153220	3.36
4.	LCC - 7	7804	234120	169120	3.60
5.	LCC - 9	7174	215220	150220	3.31
6.	LCC - 11	6774	203220	138220	3.13
7.	LCC - 13	5014	150420	85420	2.31
8.	LCC - 17	5404	162120	97120	2.49
9.	LCC - 19	4724	141720	76720	2.18
10.	LCC - 24	5254	157620	92620	2.42
11.	LCC - 30	5204	156120	91120	2.40
12.	LCC - 31	5204	156120	91120	2.40
13.	LCC - 32	6862	205860	140860	3.17
14.	LCC - 36	6662	199860	134860	3.07
15.	LCC - 37	6782	203460	138460	3.13
16.	LCC - 38	5592	167760	102760	2.58
17.	LCC - 43	6482	194460	129460	2.99
18.	LCC - 44	6222	186660	121660	2.87
19.	LCC - 47	8194	245820	180820	3.78
20.	LCC - 49	6244	187320	122320	2.88
21.	LCC - 50	8084	242520	177520	3.73
22.	LCC - 53	7224	216720	151720	3.33
23.	LCC - 56	8014	240420	175420	3.70
24.	LCC - 59	7324	219720	154720	3.38
25.	LCC - 60	8292	248760	183760	3.83
26.	LCC - 67	7132	213960	148960	3.29
27.	LCC - 69	8152	244560	179560	3.76
28.	LCC - 70	6322	189660	124660	2.92
29.	LCC - 79	6282	188460	123460	2.90
30.	LCC - 80	6122	183660	118660	2.83
31.	LCC - 81	5512	165360	100360	2.54
32.	LCC - 86	6042	181260	116260	2.79
33.	LCC - 90	5112	153360	88360	2.36
34.	LCC - 91	4582	137460	72460	2.11
35.	LCC - 112	5032	150960	85960	2.32
36.	LCC - 117	5902	177060	112060	2.72
37.	LCC - 119	8894	266820	201820	4.10
38.	LCC - 134	7554	226620	161620	3.49
39.	LCC - 137	6804	204120	139120	3.14
40.	LCC - 154	6904	207120	142120	3.19
41.	LCC - 156	6544	196320	131320	3.02
42.	LCC - 169	5904	177120	112120	2.72
43.	LCC - 171	8459	253770	188770	3.90
44.	LCC - 172	8639	259170	194170	3.99
45.	LCC - 175	9449	283470	218470	4.36
46.	LCC - 176	7189	215670	150670	3.32
47.	LCC - 182	6349	190470	125470	2.93
48.	LCC - 183	5879	176370	111370	2.71
49.	LCC - 185	5654	169620	104620	2.61
50.	LCC - 188	6834	205020	140020	3.15
51.	LCC - 189	6754	202620	137620	3.12
52.	LCC - 190	6694	200820	135820	3.09
53.	LCC -194	6964	208920	143920	3.21
54.	LCC - 204	6524	195720	130720	3.01
55.	LCC - 209	5707	171210	106210	2.63
56.	LCC - 211	6287	188610	123610	2.90
57.	LCC - 218	5387	161610	96610	2.49
58.	LCC - 220	5867	176010	111010	2.71
59.	LCC - 221	5527	165810	100810	2.55
60.	LCC - 228	5367	161010	96010	2.48
61.	LCC - 237	5957	178710	113710	2.75

62.	LCC - 238	6477	194310	129310	2.99
63.	LCC - 277	6117	183510	118510	2.82
64.	LCC - 298	5897	176910	111910	2.72
65.	AD - 1	5427	162810	97810	2.50
66.	Swathi	5997	179910	114910	2.77
67.	Sadhana(C)	6660	199800	134800	3.07
68.	Sudha(C)	6177	185310	120310	2.85
69.	Suguna(C)	6745	202350	137350	3.11
70.	LCC -234(C)	6385	191550	126550	2.95

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