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Cost, return and profitability of selected vegetables in Dapoli tahsil of Ratnagiri district

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Abstract
Vegetables play an important role both in the regional and national economy of the agricultural sector. The area selected for study was Dapoli tahsil. The factors like availability of quick and easy transport facilities, continuous demand for vegetables and input facilities have created a growing incentive among the farmers to follow vegetable cultivation. Keeping these points in the view the present investigation was proposed to be under taken. It is observed that at the overall level, total cost of cultivation (cost 'C') of okra, radish, math and brinjal were worked out to Rs.55186, Rs.36361, Rs.26760, Rs. 38243 respectively. The analysis of per hectare profitability indicated that the okra, math, radish and brinjal cultivation was profitable enterprise at all the levels of cost, resulting benefit-cost ratio of 2.3, 2.11, 2.07, 2.09 respectively.

Keywords: Cost, return, profitability etc.

Introduction
Vegetables play an important role both in the regional and national economy of the agricultural sector. In India, vegetable crops are generally grown in open field, therefore, the cost of cultivation is lower as compared to protected cultivation followed in the western countries. Among the cash crops, vegetables acquired significance over other crop due to qualities like short duration, low cost and greater returns. The area selected for study was Dapoli tahsil. The factors like availability of quick and easy transport facilities, continuous demand for vegetables and input facilities have created a growing incentive among the farmers to follow vegetable cultivation. Keeping these points in the view the present investigation was proposed to be under taken.

Methodology
The present investigation was carried out in Ratnagiri district. From the Ratnagiri district. Dapoli tahsil was selected for study. Four important vegetables viz., Brinjal, Okra, Radish and Math (Amaranthus tricolor) were selected for this study since these vegetable crops are mainly grown by the farmer in this tahsil. The list of farmers growing vegetables in the tahsil was obtained from the taluka agricultural officer and clusters of villages growing vegetables was identified. From the available clusters six clusters were selected randomly. From each cluster six cultivators each growing selected vegetables were selected randomly. Thus the final sample consist of six clusters of vegetables and 30 farmers of each selected vegetables. The data were collected by survey method with the help of specially designed schedules separately for vegetable cultivators. The data were analyzed by using simple statistical tools like arithmetic mean and percentage. For estimation of cost standard cost concept (cost A, B and C) are used.

Result and discussion
It is observed from Table 1 and 2 that, total cost of cultivation (cost 'C') of okra was worked out to Rs.54177, Rs.56987 and Rs.54316 in kharif, rabi and summer season respectively. At the overall level, it was worked out to Rs.55186. Per hectare gross returns in kharif season, rabi season and summer season were Rs.124708. Rs.131114 and Rs.125078 respectively while at overall level gross returns were Rs.127070. The profit at Cost-C was Rs.70531, Rs.74128 and Rs.70763 in case of kharif season, rabi season and summer season respectively, while it was Rs.71885 at overall level. The benefit cost ratio was 2.31 for kharif season, 2.30 for rabi

season and 2.30 for summer season, while it was 2.30 at overall level. It is found that, the okra was profitable at all levels of cost in all the groups.

The Table 3 and 4 revealed that, total cost of cultivation (cost 'C') of radish was worked out to Rs.35133, Rs.37064 and Rs.37191 in kharif, rabi and summer season respectively. At the overall level, it was worked out to Rs.36361. Per hectare gross returns in kharif season, rabi season and summer season was Rs.75554, Rs.78213 and Rs.77441 respectively while at overall level gross returns were Rs.76881. The profit at Cost-C were Rs.40420, Rs.41149 and Rs.40250 in case of kharif season, rabi season and summer season respectively, while it was Rs.40520 at overall level. The benefit cost ratio was 2.15 for kharif season, 2.11 for rabi season and 2.08 for summer season, while it was 2.11 at overall level.

It is observed from the Table 5 and 6 that, total cost of cultivation (cost 'C') of Math (Amaranthus tricolor) was worked out to Rs.25969, Rs.27045 and Rs.30792 in kharif, rabi and summer season respectively. At the overall level, it was worked out to Rs.26760. Per hectare gross returns in kharif season, rabi season and summer season were Rs.54058, Rs.55510 and Rs.61168 respectively overall level gross returns were Rs. 56960. The profit at Cost-C were Rs.28089, Rs. 28465 and Rs.30336 in case of kharif season, rabi season and summer season respectively, while it was Rs.30200 at overall level. The benefit cost ratio was 2.08 for kharif season, 2.05 for rabi season and 2.01 for summer season, while it was 2.07 at overall level.

It is observed from the Table 7 and 8 that, total cost of cultivation (cost 'C') of brinjal was worked out Rs.37163, Rs.38569 and Rs.38157 in kharif, rabi and summer season respectively. At the overall level, it was worked out to Rs.38243. Per hectare gross returns in kharif season, rabi season and summer season were Rs.75960, Rs.81220 and Rs. 82932 respectively while at overall level gross returns were Rs. 80084. The profit at Cost-C were Rs.38797 Rs.42651 and Rs.44775 in case of kharif season, rabi season and summer season respectively, while it was Rs.41841 at overall level. The benefit cost ratio was 2.04 for kharif season, 2.10 for rabi season and 2.17 for summer season. While it was 2.09 at overall level.

Table 1: Per hectare cost of cultivation of okra (Figure in Rs.)

Sr. No.	Particulars	Kharif (N=30)	Rabi (N=34)	Summer (N=32)	Overall (N=96)
		Value (Rs.)	Value (Rs.)	Value (Rs.)	Value (Rs.)
1	Hired human labour				
	a. Male days	1126 (2.07)	778 (1.36)	1010 (1.86)	964 (1.75)
	b. Female days	2090 (3.85)	1957 (3.43)	1561 (2.88)	1867 (3.38)
2	Seeds (kg)	8142 (15.02)	8250 (14.47)	7553 (13.89)	7968 (14.43)
3	Manuers (tonnes.)	2106 (3.88)	2160 (3.79)	2196 (13.94)	2142 (3.88)
4	Fertilizers	563 (1.03)	577 (1.01)	635 (4.05)	594 (1.07)
5	Irrigation charges	-	543 (0.95)	638 (1.17)	405 (0.73)
6	Plant protection charges	882 (1.62)	693 (1.21)	432 (0.79)	664 (1.20)
	Input	14909 (27.51)	14958 (26.24)	14026 (25.82)	14604 (26.46)
7	Int. on working capital @ 6 per cent for 6 month	447 (0.82)	449 (0.78)	421 (0.77)	438 (0.79)
8	Depreciation on farm implements	1618 (2.98)	1787 (2.87)	1787 (3.01)	1739 (2.96)
9	Land revenue and taxes	100 (0.18)	100 (0.17)	100 (0.18)	100 (0.18)
	Cost- "A"	17074 (31.15)	17294 (30.34)	16334 (30.07)	16881 (30.58)
10	Rental value of land (1/6 th of gross value-land revenue)	20684 (38.17)	21752 (38.27)	20746 (38.30)	21078 (38.26)
11	Int. on fix capital	7013 (12.94)	7013 (12.34)	7013 (12.94)	7013 (12.73)
	Cost -" B"	44771 (82.63)	46059 (80.82)	44093 (81.17)	44972 (81.49)
12	Family labour				
	a. Male	3554 (6.55)	4774 (8.40)	4506 (8.31)	4304 (7.81)
	b. Female	4361 (8.04)	4658 (8.19)	4312 (7.96)	4449 (8.07)
	Total	7915 (14.60)	9432 (16.59)	8818 (16.28)	8753 (15.89)
13	Supervision charges (10% 0f input cost)	1490 (2.75)	1495 (2.63)	1402 (2.58)	1460 (2.65)
	cost-"C"	54177 (100.00)	56987 (100.00)	54316 (100.00)	55186 (100.00)

(Figures in the parentheses indicate percentages to the total cost of cultivation)

Table 2: Per hectare profitability of okra cultivation

Sr. No.	Particulars	Kharif (N=30)	Rabi (N=34)	Summer (N=32)	Overall (N=96)
1	Yield/q	102.22	105.06	100.87	102.76
	Gross returns (Rs.)	124708	131115	125078	127070
2	Cost of cultivation(Rs.)				
	Cost-A	17074	17294	16334	16881
	Cost-B	44771	46059	44093	44972
	Cost-C	54177	56987	54316	55186
3	Net returns at				
	Cost -A	10634	113821	108745	110190
	Cost-B	79937	85056	80986	82099
	Cost-C	70531	74128	70763	71885
4	Per quintal cost (Rs.)	530	542	538	537
5	Benefit cost ratio	2.31	2.30	2.30	2.30

Table 3: Per hectare cost of cultivation of radish (Figures in Rs.)

Sr. No	Particulars	Kharif (N=33)	Rabi (N=43)	Summer (N=38)	Overall (N=114)
1	Hired labour	Value (Rs.)	Value (Rs.)	Value (Rs.)	Value (Rs.)
	a. Male days	286 (0.81)	564 (1.51)	514 (1.38)	466 (1.28)
	b. Female days	842 (2.39)	781 (2.10)	1157 (3.11)	923 (2.53)
2	Seeds (kg)	3732 (10.62)	3768 (10.16)	3780 (10.16)	3660 (10.06)
3	Manuers (qt)	2160 (6.14)	2376 (6.41)	2610 (7.01)	2376 (6.53)
4	Irrigation charges	-	425 (1.14)	515 (1.38)	332 (0.91)
5	Working capital	7020 (19.98)	7914 (21.35)	8576 (23.05)	7757 (21.33)
6	Int. on working capital @ 6 per cent for 6 month	211 (0.59)	237 (0.64)	257 (0.69)	233 (0.64)
7	Depreciation on farm implements	1618 (4.60)	1787 (4.82)	1787 (4.80)	1739 (4.78)
8	Land revenue and taxes	100 (0.28)	100 (0.26)	100 (0.26)	100 (0.27)
	Cost “A”	8949 (25.47)	10038 (27.08)	10721 (28.82)	9829 (27.02)
9	Rental value of land(1/6 th of gross value-land revenue)	12492 (35.55)	12938 (34.89)	12806 (34.43)	12713 (34.96)
10	Int. on fix capital	7013 (19.96)	7013 (18.92)	7013 (18.85)	7013 (19.28)
	Cost “ B”	28454 (80.98)	29986 (80.90)	30539 (82.11)	29555 (81.28)
11	Family labour				
	a. Male	3234 (9.20)	3240 (8.74)	3154 (8.47)	3208 (8.82)
	b. Female	2743 (7.80)	3047 (8.22)	2640 (7.09)	2822 (7.76)
	Total	5977 (17.01)	6287 (16.96)	5794 (15.57)	6030 (16.58)
12	supervision charges (10% 0f input cost)	702 (1.99)	791 (2.13)	858 (2.30)	776 (2.13)
	Cost-“C”	35133 (100.00)	37064 (100.00)	37191 (100.00)	36361 (100.00)

(Figures in the parentheses indicate percentages to the total cost of cultivation)

Table 4: Per hectare profitability of radish cultivation

Sr. No	Particulars	Kharif (N=33)	Rabi (N=43)	Summer (N=38)	Overall (N=114)
1	Yield (qtl.)	121.47	123.17	120.25	121.22
	Gross returns (Rs.)	75554	78213	77441	76881
2	Cost of cultivation (Rs)				
	Cost-A	8950	10038	10720	9829
	Cost-B	28455	29986	30539	29555
	Cost-C	35134	37064	37191	36361
3	Net returns at				
	Cost -A	66604	68175	66721	67052
	Cost-B	47090	48227	46902	47326
	Cost-C	40420	41149	40250	40520
4	Per quintal cost (Rs.)	289	301	309	299
5	Benefit-cost ratio	2.15	2.11	2.08	2.11

Table 5: Per hectare cost of cultivation of Math *(Amaranthus tricolor)* (Figures in Rs.)

Sr. No	Cost items	Kharif (N=30)	Rabi (N=41)	Summer (N=35)	Overall (N=106)
		Value (RS.)	Value (Rs.)	Value (Rs.)	Value (Rs.)
1	Hired human labour				
	a. Male days	290 (1.11)	276 (1.02)	364 (1.18)	308 (1.15)
2	b. Female days	1150 (4.42)	1168 (4.31)	997 (3.23)	1105 (4.12)
3	Seeds(kg)	1155 (4.44)	1188 (4.39)	1474 (4.78)	1182 (4.41)
4	Manuers (tonnes.)	2556 (9.84)	2466 (9.11)	3618 (11.74)	2664 (9.91)
5	Irrigation charges	-	450 (1.66)	540 (1.75)	352 (1.31)
	Input	5151 (19.83)	5548 (20.51)	6993 (22.71	5611 (20.96)
6	Int. on working capital @ 6 per cent for 6 month	154.53 (0.59)	166 (0.61)	210 (0.68)	168 (0.62)
7	Depreciation on farm implements	1618 (6.23)	1787 (6.60)	1787 (5.80)	1739 (6.49)
8	Land revenue and taxes	100 (0.38)	100 (0.36)	100 (0.32)	100 (0.37)
	Cost “A”	7023 (27.04)	7601 (28.10)	9090 (29.52)	7634 (28.52)
9	Rental value of land(1/6 th of gross value-land revenue)	8909 (34.30)	9151 (33.83)	10095 (32.78)	9393 (35.10)
10	Int. on fix capital	3905 (15.03)	3246 (12.00)	4485 (14.56)	2417 (9.03)
	Cost “ B”	19837 (76.38)	19998 (73.93)	23676 (76.87)	19981 (74.66)
11	Family labour				
	a. Male days	2832 (10.90)	3674 (13.58)	3722 (12.08)	3450 (12.89)
	b. Female days	2784 (10.72)	2818 (10.42)	2700 (8.76)	2717 (10.15)
	Total	5616 (21.62)	6492 (24.00)	6422 (20.85)	6218 (23.23)
12	Supervision charges (10% 0f input cost)	515 (1.98)	555 (2.05)	699 (2.27)	615 (2.29)
	Cost “C”	25969 (100.00)	27045 (100.00)	30792 (100.00)	26760 (100.00)

(Figures in the parentheses indicate percentages to the total cost of cultivation)

Table 6: Per hectare profitability of Math (*Amarathus tricolor)* cultivation

Sr. No	Particulars	Kharif (N=30)	Rabi (N=41)	Summer (N=35)	Overall (N=106)
1	Yield (qtl.)	111.23	112.14	112.03	111.84
	Gross returns(Rs.)	54058	55510	61168	56960
2	Cost of cultivation (Rs.)				
	Cost-A	7023	7601	9090	7634
	Cost-B	19837	19998	23671	19981
	Cost-C	25969	27045	30792	26760
3	Net returns at				
	Cost –A	47035	47909	52078	49326
	Cost-B	34221	35512	37497	36979
	Cost-C	28089	28465	30376	30200
4	Per quintal cost	233	241	275	239
5	Benefit -cost ratio	2.08	2.05	2.01	2.07

Table 7: Per hectare cost of cultivation of brinjal (Figures in Rs.)

Sr. No.	Particulars	Group			
		Kharif (N=40)	Rabi (N=37)	Summer (N=41)	Overall (N=118)
		Value(Rs.)	Value(Rs.)	Value(Rs.)	Value(Rs.)
1	Hired human labour				
	a. Male days	740 (1.99)	606 (1.57)	690 (1.80)	680 (1.77)
	b. Female days	1735 (4.66)	1402 (3.63)	1553 (4.07)	1670 (4.36)
3	Seeds (kg)	1350 (3.63)	1200 (3.11)	1170 (3.06)	1065 (2.78)
4	Manuers (tonnes.)	2268 (6.10)	2322 (6.02)	2016 (5.28)	2466 (6.44)
5	Fertilizers(kg)	470 (1.26)	670 (1.73)	484 (1.26)	537 (1.40)
6	Irrigation charges	-	568 (1.47)	600 (1.57)	386 (1.01)
7	Plant protection charges	780 (2.09)	884 (2.29)	520 (1.36)	717 (1.87)
	Input cost	7343 (19.75)	7652 (19.83)	7033 (18.43)	7522 (19.66)
8	Int. on working capital @ 6 per cent for 6 month	220 (0.59)	229 (0.59)	211 (0.55)	225 (0.59)
9	Depreciation on farm implements	1618 (4.35)	1787 (4.63)	1787 (4.68)	1787 (4.67)
10	Land revenue and taxes	100 (0.26)	100 (0.25)	100 (0.26)	100 (0.26)
	Cost “A”	9281 (24.97)	9768 (25.32)	9131 (23.93)	9634 (25.19)
11	Rental value of land(1/6 th of gross value-land revenue)	12560 (33.79)	13436 (34.83)	13722 (35.96)	13247 (34.63)
12	Int. on fix capital	7013 (18.87)	7013 (18.18)	7013 (18.38)	7013 (18.33)
	Cost “ B”	28854 (77.64)	30218 (78.34)	29866 (78.27)	29894 (78.16)
13	Family labour				
	a. Male	3794 (10.20)	4250 (11.01)	4162 (10.90)	4064 (10.62)
	b. Female	3781 (10.17)	3335 (8.64)	3425 (8.97)	3533 (9.23)
	Total	7575 (20.38)	7585 (19.66)	7587 (19.88)	7597 (19.86)
14	supervision charges (10% of input cost)	734 (1.97)	765 (1.98)	703 (1.84)	752 (1.96)
	Cost- “C”	37163 (100.00)	38569 (100.00)	38157 (100.00)	38243 (100.00)

(Figures in the parentheses indicate percentages to the total cost of cultivation)

Table 8: Per hectare profitability of brinjal cultivation

Sr. No	Particulars	Group			
		Kharif (N=40)	Rabi (N=37)	Summer (N=41)	Overall (N=118)
1	Yield (qtl.)	120.00	122.32	121.78	121.34
2	Gross returns (Rs.)	75960	81220	82932	80084
3	Cost of cultivation (Rs)				
	Cost-A	9281	9768	9131	9634
	Cost-B	28854	30218	29866	29864
	Cost-C	37163	38569	38157	38243
4	Net returns at				
	Cost -A	66679	71452	73801	70450
	Cost-B	47106	51002	53066	50220
	Cost-C	38797	42651	44775	41841
5	Per quintal cost (Rs.)	310	315	313	315
6	Benefit -cost ratio	2.04	2.10	2.17	2.09

Conclusion

The analysis of per hectare profitability of vegetables indicated that okra, math, radish and brinjal cultivation was profitable enterprise at all the levels of cost, resulting benefit-cost ratio of 2.3, 2.11, 2.07, 2.09 respectively.

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