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Cost return and profitability of okra in Thane district of Maharashtra

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ABSTRACT : The study was undertaken to know cost returns and profitability for the farmer who want to diversify from traditional crops grown in the area. The per hectare input use in okra cultivation was 304.58 man days human labour, 10.34 kg. seed, 3.68 tonn manures, 1654.48 kg. fertilizers and 26.08 lit. plant protection Okra found to be highly labour intensive crop and provided proportionately higher employment of 304 days to family members *i.e.* for male and female members. Per hectare overall total cost of cultivation of okra *i.e.* cost C was Rs. 199264 in which contribution of cost A and cost B were Rs. 78681 (39.49%) and Rs. 163095 (81.84%), respectively. It was observed from the table that, the per hectare total cost of cultivation at overall level was Rs. 199264 and per quintal cost was 1070 resulting in to a yield of okra to the tune of 186.22 quintals. Per hectare profitability of okra cultivation was worked out by deducting different cost *viz*., Cost 'A', Cost 'B' and Cost 'C' from the per hectare gross returns. The overall profit at Cost A, Cost B and Cost C was Rs. 409956, Rs. 333149 and Rs. 296977, respectively. The per quintal cost (Cost 'C') of okra cultivation was Rs. 1011, Rs. 1067 and Rs. 1131, respectively, with an overall average being Rs. 1070.

KEY WORDS : Input use, Cost, Returns, Profitability

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In India, it is cultivated almost in all states throughout the year and consumed by many of the people. Out of total production major okra growing states in India are Andhra Pradesh (20%), West Bengal (15%), Bihar (14%), Orissa (11%) and Maharashtra shared only 4 per cent. The global area and production of okra was about 1147.95 thousand ha and 7896.27 thousand MT, respectively. Productivity of okra in world was 6.9 MT/ha. It is one of the important vegetable crops grown in Maharashtra on an area about 19,000 ha with annual production of 224,000 metric tonnes and productivity was 11.8 MT/ha in 2010-11. In which Konkan region of Maharashtra contributes about 9433 ha and is very well suited for vegetable cultivation. Out of the total area in Konkan region, Thane district has 6047 ha area under vegetables, with Production and productivity were 53712 M.T. and 8.88 MT/ha, respectively. Out of total vegetable area, okra having maximum area 1170 ha in Thane district (Anonymous, 2011). In Thane district of Maharashtra state, okra is mostly grown for home consumption or for local sale. Very few farmers grow okra on large scale. The farmers dispose off their produce locally or to the nearest market. Okra being high value crop has got tremendous scope to increase the income of farmer. In view of this, the study was undertaken to know cost returns and profitability for the farmer who want to diversify from traditional crops grown in the area.

RESEARCH METHODS

The multistage purpose cum random sampling technique was used for the selection okra cultivator. At the first stage, the area under okra is concentrated in Shahapur, Murbad and Kalyan tahsils in Thane district were selected purposively. The second stage involved selection of three villages from each taluka having maximum area under okra crop. Lastly from each selected village five farmers each were selected randomly from small, medium and large size of holding Thus, the final sample consisted of 135 vegetable growers from nine villages. The data and information for the present study pertained to the agricultural year 2011-2012. Simple statistical and arithmetical tools such as averages, percentages, ratios were worked out using standard cost concepts.

RESEARCH FINDINGS AND DISCUSSION

The findings of the present study as well as relevant discussion have been presented under following heads :

Distribution of sample okra cultivators :

The selected okra growers were grouped according to their size of total holding of land. The cultivators were classified into three categories *viz*., I) Small farmers group: upto 2 ha, II) Medium farmer's group: 2.01 to 4.0 ha, III) Large farmer's group: 4.01 ha to above. The distribution of sample okra grower is given in Table 1.

The area under okra cultivation was 0.25 ha. in small, 0.37 ha. in medium and 0.80 in large category with an overall average area under okra cultivation was 0.47 ha.

Input utilization:

The per hectare physical quantities of different input and their values are given in Table 2.

Seed:

At an overall level, quantities of seed of okra used and expenditure incurred on seed were 10.31 kg and Rs. 8359, respectively. It could be seen form Table 2 that in case of small farmers seed utilized for okra was 10.81 kg and expenditure incurred was Rs. 8083. Whereas expenditure in incurred by the medium and large farmers on seed was Rs. 7889 and Rs. 9106, respectively. This indicated that expenditure incurred on seed item was highest by large size group of farmers followed by medium and small size group of farmer.

Manures:

It was observed from table that at overall level, manure used was 3.68 ton and expenditure incurred was Rs. 8359. The expenditure incurred on manure was highest in case of large farmers followed by medium and small size group of farmer. The manures used in large size farmers was 5.12 ton and expenditure incurred on them were Rs. 6113. In case of small and medium farmers, expenditure incurred on manure was Rs. 2063 and Rs. 5051, respectively.

Table 1 : Distribution of sample okra cultivators

Category	Holding size (ha)	No. of cultivators	Per farm area under okra
Small	Up to 2	45	0.25
Medium	2.01 to 4.0	45	0.37
Large	4.01 to above	45	0.80
Total		135	0.47

Table 2 : Per hectare input used for okra cultivation

Sr. No.	Inputs used	Group						Overall (n=135)	
		Small (n=45)		Medium (n=45)		Large (n=45)			
		Qty.	Value (Rs.)	Qty.	Value (Rs.)	Qty.	Value (Rs.)	Qty.	Value (Rs.)
1.	Seed (kg)	10.81	8083	10.31	7889	9.90	9106	10.34	8360
2.	Manures (ton)	1.72	2063	4.21	5051	5.12	6113	3.68	4409
3.	Fertilizers (kg.)	1874.58	25763	1570.11	29516	1518.75	29004	1654.48	28095
4.	Plant protection								
	Insecticides (lit.)	6.52	7215	9.28	7448	6.72	7176	7.51	5720
	Fungicides (lit)	11.54	4243	8.81	4767	8.58	9162	9.64	7348
	Weedicides (lit.)	8.96	5146	8.45	4442	9.39	10019	8.93	6805

Figures in the parentheses indicate percentages to the total

Fertilizer:

Regarding fertilizer use it was observed that average use small size land holding group was 1874.58 kg fertilizer and expenditure incurred on this was Rs. 25763 per hectare. Whereas, quantities of fertilizers used by the medium size of the farmers were 1570.11 kg and expenditure incurred on these fertilizer was Rs. 29516 per hectare. In case of large size farmers, 1518.75 kg fertilizers were used and expenditure incurred on these fertilizers was Rs. 29004 per hectare.

Plant protection:

At overall level, quantity used for insecticide, fungicide and weedicide used for okra was 7.51 lit., 9.64 lit. and 8.93 lit., respectively and expenditure on it Rs. 5720, Rs. 7348 and Rs. 6805, respectively. In study area, insecticide, fungicide and weedicides were commonly used as plant protection measures. Medium size group of farmers used highest quantity of insecticide (9.28 lit.) followed by large (6.72 lit.) and small size group (6.52 lit.) of farmers expenditure incurred on it was Rs. 7448, Rs. 7176 and Rs. 7215 respectively. In case of fungicide medium size group of farmers used highest quantity of fungicides (11.54 lit.) followed by medium (8.81 lit.) and large size group (8.58 lit) of farmers. The expenditure incurred was Rs. 4243, Rs. 4767 and Rs. 9162, respectively. In case of weedicides, large size group of farmers used highest (9.39 lit.) quantity than other *i.e.* small (8.96 lit.) and medium (8.45 lit.) and expenditure incurred was Rs. 10019, Rs. 5146 and Rs. 4442, respectively.

Cost of cultivation :

Per hectare cost of cultivation of okra of different size of group is presented in Table 3.

It was observed from the table that, the per hectare

Table 3 : Per hectare cost of cultivation of okra

Sr. No.	Particulars	Group			
		Small (n=45)	Medium (n=45)	Large (n=45)	Overall (n=135)
		Value (Rs.)	Value (Rs.)	Value (Rs.)	Value (Rs.)
1	2	3	4	5	6
1.	Hired human labour				
	Male days	652 (0.35)	90 (0.05)	361 (0.17)	368 (0.18)
	Female days	6724 (3.63)	9381 (4.72)	7558 (3.53)	7888 (3.96)
	Total	7376 (3.99)	9471 (4.77)	7920 (3.70)	8255 (4.14)
	Bullock pair days	1018 (0.55)	667 (0.34)	416 (0.19)	701 (0.35)
	Machinery (h./Rs.)	3643 (1.97)	3037 (1.53)	4473 (2.09)	3717 (1.87)
2.	Seed	8083 (4.37)	7889 (3.97)	9106 (4.25)	8360 (4.20)
3.	F.Y.M. (CL)	2063 (1.12)	5051 (2.54)	6113 (3.86)	4409 (2.21)
4.	Fertilizer	25763 (13.92)	29516 (14.85)	29004 (13.55)	28095 (14.10)
5.	Plant protection chemicals	16604 (8.97)	16657 (8.38)	26357 (12.32)	19873 (9.97)
6.	Irrigation charges	1613 (0.87)	1420 (0.71)	1824 (0.85)	1619 (0.81)
	Input cost	66163 (35.75)	73709 (37.09)	85214 (39.81)	75028 (37.65)
7.	Land revenue	12 (0.01)	18 (0.01)	29 (0.01)	20 (0.01)
8.	Depreciation on implements and machinery	1269 (0.69)	1341 (0.67)	1537 (0.72)	1382 (0.70)
9.	Interest on working capital (@ 6 % for 6 months)	1985 (1.07)	2211 (1.11)	2556 (1.19)	2251 (1.13)
	Cost-A	69428 (37.52)	77279 (38.89)	89337 (41.74)	78681 (39.49)
10.	Interest on fixed capital (@ 10 %)	2458 (1.33)	2938 (1.48)	3586 (1.68)	2994 (1.50)
11.	Rental value of land ($1/6^{th}$ of gross value-land revenue)	75324 (40.71)	83720 (42.12)	85216 (39.81)	81420 (40.86)
	Cost-B	147210 (79.55)	163937 (82.50)	178139 (83.23)	163095 (81.84)
12.	Family human labour				
	Male days	12923 (6.98)	12880 (6.48)	15745 (7.86)	13849 (6.95)
	Female days	18299 (9.89)	14534 (7.31)	11628 (5.43)	14820 (7.74)
	Total	31222 (16.87)	27414 (13.79)	27372 (12.79)	28669 (14.39)
13.	Supervision charges (10% of input cost)	6616 (3.58)	7371 (3.70)	8521 (3.98)	7503 (3.77)
	Cost- C	185048 (100.00)	198722 (100.00)	214032 (100.00)	199264 (100.00)

Figures in the parentheses indicate percentages to the total cost of cultivation 'cost-C'

total cost of cultivation at overall level was Rs. 199264 and per quintal cost was 1070 resulting in to a yield of okra to the tune of 186.22 q.

It could also seen that, among the groups total per hectare cost of cultivation (Cost 'C') of okra production was Rs. 185048, Rs. 198722 and Rs. 214032 in small, medium and large group, respectively. As regards to yield of okra it was 183.12, 186.30 and 189.23 the same order. This revealed that the cost of cultivation was maximum in medium group followed by large and small group. However, cost A was minimum in small group and it was maximum in large group due to higher expenditure on plant protection chemicals.

As regards to item wise cost of cultivation it was maximum *i.e.* Rs. 36954 (18.53%) in case of human labour (family and hired), followed by fertilizer Rs. 28095 (14.10%). The cost incurred for other items was such as plant protection 19873 (9.97%), seed 8360 (4.20%). Among the different categories of cost, out of total cost of cultivation Rs. 199264 (cost 'C'), cost 'A' was 39.49 per cent (Rs. 78681), while cost 'B' was 81.14 per cent (Rs. 163095).

Yield and returns :

Per hectare profitability of okra cultivation was worked out by deducting different cost *viz.*, Cost 'A',

Table 4 : Per hectare cost, returns and yield obtained by sample farmer

Sr. No.	Item	Group			Overall (n=135)
		Small (n=45)	Medium (n=45)	Large (n=45)	
1.	Yield (q)	183.12	186.30	189.23	186.22
2.	Gross returns	452015	502430	511467	488637
3.	Cost-A	69428	77279	89337	78681
	Cost-B	147210	163937	178139	163095
	Cost-C	185048	198722	214032	199264
4.	Net returns at				
	Cost-A	382587	425151	422131	409956
	Cost-B	304806	338493	333328	325542
	Cost-C	266968	303708	297735	289368
5.	Per quintal cost (Rs.)	1011	1067	1131	1070
6.	Per quintal price (Rs.)	2468	2697	2703	2624
7.	Input output ratio	2.44	2.53	2.39	2.45

Figures in the parentheses indicate percentages to the total

Table 5 : Problem faced by the okra grower in production and marketing of okra

Sr. No.	Particulars	No. of respondents (n=135)	Per cent
Production			
1.	High price of seed	118	87.41
2.	Non- availability of certified seed	75	55.56
3.	Lack of manure	53	39.26
4.	High cost of fertilizer, pesticide and fungicides	58	42.96
5.	Non availability of labour in peak period	83	61.48
6.	High wage rate of labour	51	37.78
7.	Lack of variety resistant to yellow vein mosaic	86	63.70
Marketing			
1.	Non-availability of market information	48	35.56
2.	Wide fluctuation in prices	106	78.52
3.	Lack of transportation	59	43.70
4.	High charges of transportation	114	84.44
5.	Late payment	65	48.15
6.	Remunerative prices are not received	93	68.89
7.	Commission charges are high	96	71.11

Cost 'B' and Cost 'C' from the per hectare gross returns and it is presented in the Table 4, it was observed that the overall profit at Cost A, Cost B and Cost C was Rs. 409956, Rs. 333149 and Rs. 296977, respectively. Similar results were also obtained by Shivgunde (2011) while studying economics of production and marketing of okra in Parbhani district of Maharashtra. The per quintal cost (Cost 'C') of okra cultivation was Rs. 1011, Rs. 1067 and Rs.1131, respectively, with an overall average being Rs. 1070.

The input output ratio at total cost (Cost 'C') was found to be 1:2.44 in small group, 1:2.55 in medium group and 1:2.65 in large group. At overall level it was 1:2.55. The results were corroborated with the results obtained by Ganesh Kumar *et al.* (2004) in his study on economics of production and marketing of vegetables. This indicated the okra cultivation is highly profitable crop in the study area. The input output ratio was higher (1:2.65) in large size group of farmers indicating operation of economies of scale.

Problems faced by the okra grower in production and marketing of okra :

Problems faced by the okra growers were studied and they are presented in Table 5.

It is evident form the table that, in relation to okra production, serious problem was high price of seed which was faced by (87.41%) of okra growers. About (63.70%) growers facing the problem of lack of resistant variety to yellow vein mosaic, non-availability of labour in peak period (61.48%), non- availability of certified seed (55.56%), high cost of fertilizer, pesticide and fungicide (42.96%), lack of manure (39.26%) and high wages of labour (37.78%). The similar results were also observed by Nawadkar *et al.* (2005) while studying marketing of vegetables in western Maharashtra.

In marketing of okra serious problem faced by the growers was high transportation cost which was opined by 84.44 per cent farmers. Another major problem next to it was wide fluctuation in price which was expressed by 78.52 per cent farmers. High rate of commission charges was reported by 71.11 per cent. While 68.89 per cent farmers opined that they do not get remunerative price. Other problems reported where late payment (48.15%), lack of transportation (43.70%) and non availability of market information (35.56).

Conclusion :

The per hectare input use in okra cultivation was 304.58 man days human labour, 10.34 kg. seed, 3.68 tonn manures, 1654.48 kg. fertilizers and 26.08 lit. plant protection okra found to be highly labour intensive crop and provided proportionately higher employment of 304 days to family members *i.e.* for male and female members. Per hectare overall total cost of cultivation of okra *i.e.* cost C was Rs.199264 in which contribution of cost A and cost B were Rs. 78681 (39.49%) and Rs. 163095 (81.84%), respectively. At overall level profit at cost A, cost B and cost C was Rs. 409956, Rs. 325542 and Rs. 289368, respectively. The output-input ratio was 2.45 which indicated that okra crop was highly profitable enterprise for boosting income of farmers.

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