ECONOMICS OF PRODUCTION AND MARKETING OF OKRA (*ABELMOSCHUS ESCULENTUS*) IN BILASPUR DISTRICT OF CHHATTISGARH STATE OF INDIA

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Abstract

The study was carried out to estimate the cost and return of okra production in Bilaspur District of Chhattisgarh. Out of 07 blocks in Bilaspur 04 blocks namely Bilha, Masturi, Kota and Takhatpur were selected. A 10 per cent vegetable grower was selected at random and made the total sample size of 154 farmers. Also, a 10 per cent intermediary was selected at random with the sample size 30 for market. The cost of cultivation of okra, on an average basis was estimated Rs 60405.82 /ha . The major share (37.49%) of cost of cultivation gone to labour cost i.e. Rs 22643.88/ha. The cost of production of okra was estimated Rs 665.85 /q. The net returns were observed over cost of cultivation and cost of production Rs 65209.28/ha and Rs 718.79 /q. The input –output ratio of okra production estimated 1: 2.08. There were two marketing channels found in the study area for marketing of okra, Channel-I : Producer –Consumer and Channel-II: Producer-Commission agent /Retailer- Consumer. The Channel –I found more efficient as 31.06 than channel –II for marketing of okra. The study suggested that the labour cost must be reduced to enhance the profitability in okra production and channel –I must be encouraged by the Govt. as having more marketing efficiency.

Keywords :

Introduction

Chhattisgarh is popularly known for rice production as larger area comes under paddy cultivation. Hence, the State is known as the rice bowl. Apart from paddy, vegetables are also grown. Vegetable is now much recognized and understood by agricultural community due to its wide range of utility. It has been observed that economic returns to vegetable growers are better than other several crops. In the State, during 2010-11 vegetables occupied an area of 0.346 million hectares with the production 4.25 million metric tonnes which accounted 4.1 and 2.9 percent over the national figures, respectively. The productivity of State 12.3 metric tonnes is quite less than the national average i.e. 17.3 metric tonnes. More or less all the Districts of the State produce vegetables, most prominent areas are of tomato (12.81%), potato (10.87%), brinjal (7.97%), okra (7.53%), cauliflower (5.49%), cabbage (4.39%), cowpea (3.68%) and onion (3.34%) in the State. Bilaspur District shared 20.41 per cent area and 16.32 per cent production of vegetables to the total area and production in the State. Due to large area in vegetable production in Bilaspur District has immense potential to fetch greater profit from vegetable production and marketing. Therefore, looking to the potentiality of production and marketing of vegetable for the benefit of the farmer the study was under taken in Bilaspur with the following objectives.

Objectives

1. To examine the cost and return of okra production on selected farms.

2. To find out the marketing pattern of okra in study area.

Material and Method

The study was conducted in Bilaspur District of Chhattisgarh State. Out of 7 blocks 04 blocks Bilha, Masturi, Kota and Takhatpur were selected purposively for the study and from each block, fifteen per cent villages to total number of vegetable growing villages were selected. The farmer grows vegetables commercially were considered as a vegetable farmer. The study considered a classified farmers categories viz. marginal (<1), small (1<2 ha) medium (2<4 ha), and large (> 4 ha). A 10 per cent vegetable grower was selected at random with the sample size of 154 farmers. The study was based on both primary and secondary data. Primary data were collected through personal interview method with the help of pre tested questionnaires and schedule with selected vegetable growers. Secondary data were also collected though scan from district, block and village level official records. A 10 per cent intermediary was selected at random with the sample size 30 from the market.

Analytical Procedure

The following analytical procedure were adopted to analyse the data

Cost of Cultivation

To work out the cost of cultivation simple arithmetic and statistics and statistical techniques of analysis viz. average, percentage and standard method of cost of cultivation were adopted to fulfill the objectives of the study.

The study worked out the cost of production of selected vegetable crops as per the definition given by Commission on Agricultural Costs and Prices (CACP) that are as follows;

Cost A1 = Value of purchased material inputs (seed, insecticides and pesticides, manure, fertilizer), hired human labour, animal labour (hired and owned), hired farm machinery, depreciation on farm implements and farm buildings, irrigation charges, land revenue cesses and other taxes, and interest on working capital.

Cost A2	= Cost A1 + rent paid for leased-in land.
Cost B1	= Cost A1+ interest on value of owned capital assets (excluding land).
Cost B2	= Cost B1+ rental value of owned land (net of land revenue) and rent paid for leased-in land.
Cost C1	= Cost B1 + Imputed value of family labour.
Cost C2	= Cost B2 + Imputed value of family labour.
Cost C3	= Cost C2+ 10% of Cost C2 on account of managerial functions performed by farmer.

Marketing Cost, Margins and Price Spread:

$$C = C_f + C_{m1} + C_{m2} + C_{m3} + \ldots C_{mn}$$

Where,

C = Total cost of marketing of the commodity

C_f = Cost paid by the producers from the time producer leaves the farm till he sells it, and

C_{mi} = Cost incurred by the ith middleman in the process of buying and selling the product.

Gross Margin $M = S_i - P_i$

Where,

M = Gross margin

S_i = Sale value of produce for i^{th} middleman

P_i = Purchase value for i^{th} middleman

i = Type of ith middleman

Net Margin of market intermediaries:

$$N_{mi} = P_{ri} - (P_{pi} + C_{mi})$$

Where,

N_{mi} = Net margin of ith type of market middleman

P_{ri} = Total value of receipts per unit (Sale)

P_{pi} = Per unit purchase price of goods by the ith middleman

C_{mi} = Per unit marketing cost incurred by the ith middleman

Producer's Price: $P_F = P_A - C_F$

Where,

P_F = Net price received by farmer

P_A = Wholesale price

C_F = The marketing cost incurred by the farmer

Producer's share in consumer rupee:

$$P_S = (P_F / P_R)\ 100$$

Where,

P_S = Producers share in consumer rupee

P_F = Net price received by farmer

P_R = Price paid by the consumer

Marketing Efficiency: $ME = (V/I) - 1 * 100$

Where,

ME = Index of marketing efficiency

V = Value of the goods sold or price paid by the consumer

I = Total marketing cost or input of marketing

Results and Discussion

The results obtained from the study as well as discussion have been summarized under following heads.

Economics of Okra

Table 01 reveals that the overall average cost of cultivation of okra turned out to be Rs 60405.82/ha. The major proportion of total cost was expenditure on seed as 26.98 per cent followed by hired labour with 14.11 per cent and family labour with 13.94 per cent. The cost of cultivation of okra on different farm groups amounted from Rs 55653.39/ha to Rs 67742.86/ha. The expenditure on seed was the major proportion on all size groups of farms with 27.94, 27.85, 26.05 and 25.99 per cent on large, marginal, medium and small group of farms respectively. Apart from this, expenditure on family labour was next major proportion as 24.90 per cent and 21.42 per cent on small and marginal farms respectively. While, medium and large farms spent next more after seed on hired labour with 25.45 per cent and 22.18 per cent respectively.

Table 02 shows the cost of cultivation of okra as per cost concept on different size group of farms. An overall farms average of Cost A1, Cost A2, Cost B1, Cost B2, Cost C1, Cost C2 and Cost C3 amounted as Rs 33950.36/ha, Rs 34078.00/ha, Rs 34190.48/ha, Rs 40739.69/ha, Rs 48365.18/ha, Rs 54914.38/ha and Rs 60405.82/ha respectively. The cost A1 ranged from Rs 31047.38/ha to Rs 39668.33/ha on marginal to large farm respectively. The Cost A2 was higher on large farm as 39765.50/ha while minimum on marginal farm i.e. Rs 31096.46/ha.

Table 1: Cost of cultivation of okra on different size group of farms. (Rs/ha)

Sl. No.	Particulars	Category of vegetable growers				Overall average
		Marginal	**Small**	**Medium**	**Large**	
A.	Labour Cost					
	(i) Family labour	11918.21 (21.42)	15029.36 (24.90)	2261.59 (3.91)	4468.80 (6.60)	8419.49 (13.94)
	(ii) Hired labour	2057.46 (3.70)	2292.53 (3.80)	14726.01 (25.45)	15025.20 (22.18)	8525.30 (14.11)
	(iii) Bullock labour	3685.37 (6.62)	1146.32 (1.90)	0.00 (0.00)	0.00 (0.00)	1207.92 (2.00)
	(iv) Machine power	1415.08 (2.54)	4837.26 (8.01)	5480.31 (9.47)	6232.00 (9.20)	4491.16 (7.43)
	Total Labour Cost	19076.13 (34.28)	23305.47 (38.61)	22467.92 (38.83)	25726.00 (37.98)	22643.88 (37.49)
B.	Material Cost					
	(i) Seed	15501.45 (27.85)	15686.35 (25.99)	15070.86 (26.05)	18924.00 (27.94)	16295.67 (26.98)
	(ii) Manure and fertilizer	4170.80 (7.49)	4452.30 (7.38)	4130.30 (7.14)	4628.93 (6.83)	4345.59 (7.19)
	(iii) Plant protection	863.84 (1.55)	1039.50 (1.72)	1058.43 (1.83)	1124.80 (1.66)	1021.64 (1.69)
	(iv) Irrigation	938.60 (1.69)	938.60 (1.55)	988.00 (1.71)	957.60 (1.41)	955.70 (1.58)
	Total Material Cost	21474.70 (38.59)	22116.76 (36.64)	21247.60 (36.72)	25635.33 (37.84)	22618.60 (37.44)
C.	Total Working Cost (A+B)	40550.82 (72.86)	45422.22 (75.25)	43715.51 (75.55)	51361.33 (75.82)	45262.47 (74.93)
D.	Other Costs					
	(i) Depreciation	247.76 (0.45)	128.66 (0.21)	380.71 (0.66)	341.24 (0.50)	274.59 (0.45)
	(ii) Interest on working capital	2155.01 (3.87)	2634.4886 (4.36)	2535.50 (4.38)	2978.96 (4.40)	2575.99 (4.26)
	(iii) Land revenue	12.00 (0.02)	12.00 (0.02)	12.00 (0.02)	12.00 (0.02)	12.00 (0.02)
	(iv) Rent paid for leased in land	49.08 (0.09)	225.16 (0.37)	139.18 (0.24)	97.17 (0.14)	127.65 (0.21)
	(v) Rental value of land	7384.53 (13.27)	6199.01 (10.27)	5564.19 (9.62)	6538.49 (9.65)	6421.56 (10.63)
	(vi) Interest on value of own capital	194.79 (0.35)	255.24 (0.42)	255.24 (0.44)	255.24 (0.38)	240.13 (0.40)
	Total Cost	10043.16 (18.05)	9454.56 (15.66)	8886.82 (15.36)	10223.09 (15.09)	9651.91 (15.98)
E.	Total Cost (C+D)	50593.99 (90.91)	54876.79 (90.91)	52602.34 (90.91)	61584.42 (90.91)	54914.38 (90.91)
F.	Managerial Cost	5059.40 (9.09)	5487.68 (9.09)	5260.23 (9.09)	6158.44 (9.09)	5491.44 (9.09)
G.	Grand Total (E+F)	55653.39 (100.00)	60364.46 (100.00)	57862.57 (100.00)	67742.86 (100.00)	60405.82 (100.00)

Note- Figures in parentheses show per cent to the total.

Table 2: Break-up of cost of cultivation of okra on different size group of farms.   (Rs/ha)

Sl. No.	Particulars	Category of vegetable growers				Overall average
		Marginal	Small	Medium	Large	
1.	Cost A1	31047.38	33168.01	31917.71	39668.33	33950.36
2.	Cost A2	31096.46	33393.17	32056.89	39765.50	34078.00
3.	Cost B1	31242.17	33423.25	32172.95	39923.56	34190.48
4.	Cost B2	38675.78	39847.42	37876.32	46559.22	40739.69
5.	Cost C1	43160.39	48452.61	46898.96	54948.76	48365.18
6.	Cost C2	50593.99	54876.78	52602.34	61584.42	54914.38
7.	Cost C3	55653.39	60364.46	57862.57	67742.86	60405.82

Table 03 depicts an overall average cost of production of okra for Cost A1, Cost A2, Cost B1, Cost B2, Cost C1, Cost C2 and Cost C3 turned out to be Rs 374.23/q, Rs 375.64/q, Rs 376.88/q, Rs 533.12/q, Rs 605.31/q and Rs 665.85/q respectively. While, the respective net return over the Cost A1 to Cost C3 were amounted Rs 1010.41/q, Rs 1009.00/q, Rs 1007.76/q, Rs 935.57/q, Rs 851.52/q, Rs 779.33/q and Rs 718.79/q. Large farm amounted maximum Cost A1 for production of one quintal okra as Rs 404.93/q whereas, minimum on medium farm as Rs 342.92/q. Net return over the Cost A1 was estimated maximum on medium farm and minimum on large farm as Rs 1041.72/q and Rs 979.71/q respectively. While, Cost C3 was maximum on small farm and minimum on medium as Rs 691.56/q and Rs 621.66/q respectively. Against the Cost C3 net return was observed maximum on medium and minimum on small farm as Rs 762.98/q and Rs 693.08/q respectively.

Table 3: Economics of production of okra on selected households.

Sl. No.	Particulars	Farm size				Overall average
		Marginal	Small	Medium	Large	
1.	Cost of production Rs/q					
	Cost A1	367.19	379.99	342.92	404.93	374.23
	Cost A2	367.77	382.57	344.41	405.92	375.64
	Cost B1	369.50	382.91	345.66	407.53	376.88
	Cost B2	457.41	456.51	406.94	475.27	449.07
	Cost C1	510.45	555.09	503.87	560.91	533.12
	Cost C2	598.37	628.69	565.15	628.64	605.31
	Cost C3	658.20	691.56	621.66	691.51	665.85
2.	Net return Rs/q					
	Cost A1	1017.45	1004.65	1041.72	979.71	1010.41
	Cost A2	1016.87	1002.07	1040.23	978.72	1009.00
	Cost B1	1015.14	1001.73	1038.98	977.11	1007.76
	Cost B2	927.23	928.13	977.70	909.37	935.57
	Cost C1	874.19	829.55	880.77	823.73	851.52
	Cost C2	786.27	755.95	819.49	756.00	779.33
	Cost C3	726.44	693.08	762.98	693.13	718.79
3.	Net return Rs/ha					
	Cost A1	86028.80	87693.49	96960.15	95976.55	91664.74
	Cost A2	85979.72	87468.33	96820.97	95879.38	91537.10
	Cost B1	85834.01	87438.25	96704.91	95721.31	91424.62
	Cost B2	78400.40	81014.07	91001.53	89085.65	84875.41
	Cost C1	73915.79	72408.89	81978.89	80696.11	77249.92
	Cost C2	66482.19	65984.72	76275.52	74060.45	70700.72
	Cost C3	61422.79	60497.04	71015.29	67902.01	65209.28

Table 04 shows the overall average input-output ratio in okra production worked out to be 1: 2.08 on the sample farms. The cost and returns of okra production on different categories of farms were observed in terms of input-output ratio maximum as 1: 2.23 on medium farm while minimum on small and large farm with 1:2.00.

Table 4: Cost and return of okra on the sampled farms.

(Rs/ha)

Sl. No.	Particulars	Farm size				Overall average
		Marginal	**Small**	**Medium**	**Large**	
1.	Cost C3 (Rs)	55653.39	60364.46	57862.57	67742.86	60405.82
2.	Yield (q)	84.55	87.29	93.08	97.96	90.72
3.	Average price received	1384.64	1384.64	1384.64	1384.64	1384.64
4.	Output value	117076.18	120861.50	128877.86	135644.87	125615.10
5.	Net Income	61422.79	60497.04	71015.29	67902.01	65209.28
6.	Input-Output ratio	1: 2.10	1: 2.00	1: 2.23	1: 2.00	1: 2.08

Marketing Channel of Okra

There two marketing channels were identified in the marketing of okra in the study area as.

Channel I: Producer - Consumer

Channel II: Producer – Commission agent/ Retailer- Consumer

Table 05 reveals the marketing channel- I was more efficient as efficiency estimated to be 31.06 against channel – II as 12.68.

Table 5: Marketing cost, margin and price spread of okra on different size group of farms.   (Rs/q)

S. No.	Particulars	Marketing Channel - I	Marketing Channel - II
		Farm size	Farm size
		Average	Average
1	Farmer		
	Farmer's price	2069.70 (96.88)	1156.63 (35.95)
	Marketing cost	66.64 (3.12)	228.01 (7.09)
2	Commission agent /Retailer		
	Marketing cost	0.00 (0.00)	7.13 (0.22)
	Marketing Margin	0.00 (0.00)	1825.44 (56.74)
3.	Consumer		
	Consumer price	2136.34 (100.00)	3217.21 (100.00)
	Marketing efficiency	31.06	12.68

Note: Figures in parentheses indicate percentage to total.

Conclusion

An average cost of cultivation of okra turned out to be Rs 60405.82 ha. The total labour cost i.e. 2264.88 / ha was the major component (37.49%) in cost of cultivation. In material cost, the expenses on seed alone had maximum share 26.98 % of total cost of cultivation. The net return was observed as Rs 65209.28 / ha. The okra production having a B:C ratio of 1:2.08. The marketing channel-I was found to be the most efficient as ME estimated 1.06. The study recommended increase in mechanization so that labour cost may reduce in okra production and thereby profitability level may be achieved. Encouragement to farmers market should be given for fetching better prices. Monkey's nuisance was the major hurdle in vegetable production therefore some strategies should be framed to save vegetable crops in study area.

References

Acharya, S.S. and Agrawal, N.L. (1987). Agricultural Marketing in India, Oxford and IBH Publishing Co. New Delhi : 321-322.

Adil, S.A. (2007). Economics of vegetable production by farm location. Pakistan Journal of Agricultural Science, 44 (1): 179-183.

Akmal, N. (2007). Economics of vegetable production in Azad Jammu and Kashmir. Pakistan. Journal of Sustainable Development, 4 (1/2): 8-16.

Baba, S.H. (2010). Marketed surplus and price spread of vegetable in Kashmir valley. Agricultural Economic Research Review, 23 (1): 115-127.

Bala, B. (2011). Cost and return structure for the promising enterprise of off-season vegetables in Himanchal Pradesh. Agricultural Economic Research Review, 24 (1): 141-148.

Balappa, S.R. and Hugar, L.B. (2002). An economic evaluation of brinjal production and its marketing system in Karnataka. Agricultural Marketing, 44 (4): 45-49.

Chand, K. (2010). Price spread, marketing efficiency and constraints of carrot marketing in Rajasthan. Indian Journal of Agricultural Marketing, 24 (3): 131-142.

Dastagiri, M.B. (2013). Indian vegetables: Production trend, marketing efficiency and export competitiveness. American Journal of Agriculture and Forestry, 1(1): 1-11.

Emam, A.A. (2011). Evaluating marketing efficiency of tomato in Khartoum State, Sudan. Journal of Agriculture & Social Sciences, 7(1): 21-24.

Hosamani, R. (2007). Vegetable seed marketing in Belgaum District an analysis of market structure and farmers preferences. MBA (Agribusiness) Thesis. University of Agricultural Sciences Dharwad, Karnataka.

Raju, V.T. and Rao, D.V.S. (2010). Economics of farm production and management. Oxford & IBH Publishing Co. Pvt.Ltd. New Delhi, :182-186.

Rajur, B.C. (2007). Production and marketing performance of chilli in Karnataka-an economic analysis. Ph.D. Thesis. University of Agricultural Sciences, Dharwad, Karnataka.

Reddy, S.S. (2004). Agricultural Economics. Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi,: 346-347.

Sandika, A.L. (2011). Impact of middlemen on vegetable marketing channels in Srilanka. Tropical Agricultural Research & Extension, 14 (3): 58-62.

Sani, M.H. (2011). Economics of sustainable vegetable farming under Fadama condition in Dass Local Government Area of Bauchi State, Nigeria. Journal of Development and Agricultural Economics, 3 (9): 430-435.

Singh, R.P. and Toppo, A. (2010). Economics of production and marketing of tomato in Kanke block of Ranchi district. Indian Journal of Agricultural Marketing, 24 (2): 1-16.

Wadhwani, M.K. and Bhogal, T.S. (2003). Economics of production, post harvest management and price behaviour of cole crops in Western U.P.- An empirical analysis. Agricultural Marketing,: 10-20.