

Original Research Article

<https://doi.org/10.20546/ijcmas.2020.906.224>

An Economic Estimation of Capsicum Production in Shajapur District of Madhya Pradesh, India

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ABSTRACT

Capsicum or Bell pepper or Hot pepper (*Capsicum annum* L.) is a crop of Solanaceae family and its genus is Capsicum. It is also known as green pepper or shimla mirch. Present investigation was conducted in Shajapur District of M.P. A multistage stratified random sampling technique was adopted to selection of sample. The study showed that on an average, cost of cultivation per hectare of capsicum crop on overall basis was found to be cost A1 that is paid out cost Rs.53318 followed by Rs.56624.32 (cost B1), Rs.10015.50 (cost B2), Rs.64383.98 (cost C1), Rs.107775.16 (cost C2) and Rs.118552.68 (cost C3) respectively. The average yield was found to be 110.08 quintal per hectare. The net income is the real income realized by capsicum growers and it was found to be on an average of Rs.141794.40 per hectare, and B.C. ratio on an average of 2.19 as B.C. ratio in capsicum production. The major constraints which got higher frequency value than the average value were “high cost of seed” reported by (83.33%, rank Ist) followed by “absence of remunerative price” reported by (83.33%, rank IInd), “lack of desire variety” reported by (82.22%, rank IIIrd) and “lack of knowledge of plant protection measures” reported by (78.88%, rank IVth) respectively.

Keywords

Solanaceae family,
green pepper,
cultivation

Article Info

Accepted:
18 May 2020
Available Online:
10 June 2020

Introduction

Capsicum or Bell pepper or hot pepper (*Capsicum annum* L.) is a crop of Solanaceae family and its genus is Capsicum. It is also known as green pepper or shimla mirch. Capsicum is one of the most important commercial crops of India. It is grown almost throughout the country. There are more than 400 different varieties of chillies found all over the world. It is also called as hot pepper,

cayenne pepper, sweet pepper, bell pepper, etc. to Its botanical name is “*Capsicum annum*”.

Chillies are rich in vitamins, especially in vitamin A and C. India contributes one fourth of world production of capsicum with an average annual production of 0.9 MT from an area of 0.885 million hectares [*International Journal of Farm Sciences* 6(1)], While M.P. contributes 33.84 million tones which shares

about 11.73% of total area(National Horticulture Board). Madhya Pradesh is the producer of Capsicum in India and contributes about 7% to the total area under chilli.

The main objectives of this study includes, to estimate cost of cultivation of capsicum in different categories of respondents. And also to identify constraints in capsicum production.

Materials and Methods

A multistage stratified random sampling technique was adopted to select the block, villages and the respondents, market and different functionaries involved in capsicum marketing in Shajapur district of Madhya Pradesh. The details of the sampling techniques at various stages are given as under:

Selection of block

The Shajapur district of Madhya Pradesh. was selected purposively because capsicum is the main vegetable crop of the district. There are 5 blocks in the Shajapur. Thus, from 5 blocks, Shujalpur block was selected purposively due to higher area and production of capsicum cultivation.

Selection of the villages

A list of selected villages coming under the study areas was prepared and three villages namely (Barchha, Mewasa and Sajod) from Shujalpur block was selected on the basis of highest production and productivity of capsicum crop.

Selection of farmers

A list of selected farmers from the selected villages were prepared as per their size of holding and farmers categorized under three

category viz. Small (Up to 2 ha), Medium (2 to 4 ha) and Large (above 4 to 10 ha). From each group 30 farmers were selected by random sampling basis hence, the sample was consisted of 90 farmers.

Collection of data

Land use pattern

Table No. 1 shows that the average size of land holdings ranged from 1.86 ha. to 8.79 ha. on different size of farm with an average of 4.66 ha. on sample respondent. Of the total net cultivated area, 94.27 per cent was available for cultivation on sample respondents with marginal variations in small and medium size groups.

The minimum area under net sown was observed on large size group (93.06%) against maximum in case of small group (97.31 %). Thus, proportionate area under cultivation revealed inverse relation with the farm size. The net irrigated area was 76.56 to 79.57 per cent of total area on sample respondent and the uncultivated area was 2.69 to 6.94 per cent in different size of groups.

Cost of cultivation of capsicum

The data of Table No. 2 revealed that irrespective of the farm size of holdings, the total cost of cultivation of capsicum of sample farms has been observed on overall average basis as Rs.118552.68 per hectare, total variable cost was 51.52% and the share of material input cost was maximum and found to be 34.12% followed by labor cost 17.40%, interest on working capital 1.03% and fixed cost 39.38%.

Rental value of land 36.60% and interest on fixed capital 0.76%, respectively. The share of machine power and bullock power were 4.20% and 0.27 % respectively.

Aggregate cost of capsicum cultivation

From Table No. 3 it has been observed that the cost of cultivation of capsicum showed that on an average cost, of cultivation per hectare of capsicum crop on overall basis was found to be cost A1 that was paid out cost Rs.53318 followed by Rs.56624.32 (cost B1), Rs.100015.50 (cost B2), Rs.64383.98 (cost C1), Rs.107775.16 (cost C2) and Rs.118552.68 (cost C3) respectively.

Productivity of capsicum production

From Table No. 4 it has been observed that the average yield was found to be 110.08 quintal per hectare. Data showed that the average yield on different size of holdings was found to be maximum 115.50 quintal per hectare on small size of holding followed by 109.25 quintal per hectare on medium size of holding and 105.50 quintal per hectare on large size of holding.

Profitability from capsicum cultivation

Gross income per hectare of capsicum

production received variation in different size group. This was due to different quantity of yield per unit area and market price received on the basis of quality of crop, place of marketing and time of disposal.

The overall gross income per, hectare of capsicum was found to be Rs. 260347.08 per hectare. The maximum gross return of capsicum cultivation was realized by small capsicum growers Rs.273157.50 per hectare followed by medium capsicum growers Rs.158376.25 per hectare and large capsicum growers Rs.249507.50 per hectare.

The net income is the real income realized by capsicum growers and it was found to be an average of Rs.141794.40 per hectare. The maximum net return of capsicum cultivation was realized by small capsicum growers Rs.149394.17 per hectare followed by medium capsicum growers Rs.140807.02 per hectare and large capsicum growers Rs.135182.02 per hectare.

Table.1 Average land use pattern of sample farms (in ha)

S. No.	Particulars	Size group			Average
		Small	Medium	Large	
1	Land holding	1.86 (100)	3.32 (100)	8.79 (100)	4.66 (100)
2	Net Cultivated area area	1.81 (97.31)	3.18 (95.78)	8.18 (93.05)	4.39 (94.27)
3	Uncultivated land	0.05 (2.69)	0.14 (4.22)	0.61 (6.94)	0.27 (5.73)
4	Net Irrigated area	1.48 (79.57)	2.59 (78.01)	6.73 (76.56)	3.91 (83.97)
5	Double cropped area	1.81 (92.18)	3.00 (87.07)	7.26 (74.54)	4.33 (80.49)
6	Grossed cropped area	3.55	6.18	15.44	8.97
7	Cropping Intensity (%)	196.13	194.37	188.75	193.08

(Figures in brackets indicate percentage to the total)

Table.2 Cost of cultivation of capsicum on different size of holding. (Rs./ha)

S. No.	Cost item	Size of farm			
		Small	Medium	Large	Average
A	Labour cost				
	Family human labour	10675 (8.63)	8018 (6.82)	4586 (4.01)	7759.67 (6.49)
	Hired human labour	5360 (4.33)	6896 (5.86)	10469 (9.16)	7574 (6.45)
	Bullock labour	450 (0.36)	400 (0.34)	125 (0.11)	325 (0.27)
	Machine Power	5045 (4.08)	5010 (4.26)	4865 (4.26)	4973.33 (4.20)
	Total labour cost	21530 (17.40)	20321 (17.28)	20045 (17.53)	20632 (17.40)
B	Material Cost				
	Seed cost	18590 (15.02)	18435 (15.68)	18175 (15.90)	18400 (15.53)
	Fertilizer & manure	8200 (6.63)	7420 (6.31)	7323 (6.41)	7647.67 (6.45)
	Irrigation charges	2535 (2.85)	3240 (2.76)	3115 (2.72)	3293.33 (2.78)
	Plant protection measures	11586 (9.36)	11142 (6.48)	10586 (9.26)	11104.67 (9.37)
	Total material cost	41901 (33.86)	40237 (34.22)	39199 (34.29)	40445.67 (34.12)
C	Fixed cost				
	Interest on working capital	1268.62 (1.03)	1211.16 (1.03)	1029.91 (1.04)	1149.80 (1.03)
	Taxes / land revenue	30 (0.2)	30 (0.3)	30 (0.3)	30 (0.3)
	Depreciation	1287.89 (1.04)	1131.59 (0.96)	1029.91 (0.90)	1149.80 (0.97)
	Rental value of own land	45526.25 (36.78)	43062.71 (36.63)	41584.58 (36.37)	43391.18 (36.60)
	Interest on fixed capital	968.36 (0.78)	887.66 (0.76)	858.88 (0.75)	904.97 (0.76)
	Total fixed cost	49081.12 (39.66)	46323.12 (39.40)	44688.25 (39.09)	46697.50 (39.38)
	Total cost (cost C₂)	112512.12 (90.91)	106881.12 (90.91)	103932.25 (90.91)	107775.16 (90.91)
	Cost C₃	123763.33 (100)	117569.23 (100)	114325.48 (100)	118552.68 (100)

(Figures in parentheses show percentage to total cost)

Table.3 Aggregate cost of capsicum on different size of holdings (Rs./ha)

Particulars	Size of farm			
	Small	Medium	Large	Overall
Cost A1/A2	52756.00	52540.00	54658.00	53318.00
Cost B1	56310.87	55800.41	57761.67	56624.32
Cost B2	101837.12	98863.12	99346.25	100015.50
Cost C1	66985.87	63818.41	62347.67	64383.98
Cost C2	112512.12	106881.12	103932.25	107775.16
Cost C3	123763.33	117569.23	114325.48	118552.68

Table.4 Productivity of capsicum in on different size of holding (q/ha)

Particulars	Size group			
	Small	Medium	Large	Overall
Production (qtl./ha)	115.5	109.25	105.50	110.08
value of product (Rs./ha) @ Rs.2365/q.	273157.5	258376.25	249507.50	260347.08

Table.5 Profitability of capsicum on different size of holding (Rs./ha.)

Particulars	Size group			
	Small	Medium	Large	Overall
Total cost (Cost C3)	123763.33	117569.23	114325.48	118552.68
Gross income	273157.50	258376.25	249507.50	260347.08
Net farm income	149394.17	140807.02	135182.02	141794.40
Family labour income	171320.38	159513.13	150161.25	160331.59
Farm business income	220401.50	205836.25	194849.50	207029.08
Farm investment income	195888.78	184757.39	177625.48	186090.55
Cost of production (Rs./q)	1071.54	1076.15	1083.65	1077.12
B:C ratio	1:2.20	1:2.19	1:2.18	1:2.19

Table.6 Constraints faced by the sample farmers in production of capsicum

S. No.	Constraints relating to	Small (N= 30)	Medium (N= 30)	Large (N= 30)	Total (N= 90)	Ranking
1	Lack of capital	27 (90)	18 (60)	16 (53.33)	61 (67.77)	VI
2	High cost of seed	26 (86.66)	24 (80)	21 (70)	78.88 (83.33)	I
3	Unavailability of skill labour	24 4(80)	21 (70)	19 (63.33)	64 (71.11)	V
4	Absence of remunerative price	27 (90)	25 (83.33)	23 (76.66)	75 (83.33)	II
5	Lack of desired variety	27 (90)	24 (80)	23 (76.66)	74 (82.22)	III
6	Lack of knowledge of plant protection measure	26 (86.66)	23 (76.66)	22 (73.33)	71 (78.88)	IV

The trend of net income revealed that it decreased with increase in size of holding. The other profitability measures reveal that on an average, the capsicum growers realized Rs.160331.59 per farm as family labour income, Rs.207029.08 per farm as farm business income. The B.C. ratio determines the return per rupee investment. Data revealed that the capsicum growers realized on an average of 2.19 as B.C. ratio in capsicum production.

The B.C. ratio was found to be varied in different size of holding and it was maximum 2.20 in small size group followed by 2.19 in medium size group and 1.18 in large size of capsicum growers. This indicates that the B.C. ratio of capsicum cultivation was found to increase with increase in size of holding.

Constraints of production of capsicum

The study regarding constraints faced by farmers in Production of capsicum among the all six constraints the major constraints which got higher frequency value than the average value were “high cost of seed” reported by (83.33%, rank Ist) followed by “absence of remunerative price ” reported by (83.33%, rank IInd), “lack of desire variety” reported by (82.22%, rank IIIrd), “lack od knowledge of plant protection measures” reported by (78.88%, rank IVth), “unavailability of skill labour” reported by (71.11%, rank Vth) and “lack of capital” reported by (67.77%, rank VIth) respectively.

The data on cost of cultivation of capsicum shows that on an average, cost of cultivation per hectare of capsicum crop on overall basis was found to be cost A1 that is paid out cost Rs.53318 followed by Rs.56624.32 (cost B1), Rs.10015.50 (cost B2), Rs.64383.98 (cost C1), Rs.107775.16 (cost C2) and Rs.118552.68 (cost C3) respectively. The average yield was found to be 110.08 quintal

per hectare. The net income is the real income realized by capsicum growers and it was found to be on an average of Rs.141794.40 per hectare.

Data revealed that the B.C. ratio determines the return per rupee investment. Data that the capsicum growers realized was on an average of 2.19 as B.C. ratio in capsicum production.

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How to cite this article:

Pradeep Kumar Patidar, P. R. Pandey, J. K. Gupta and Trapti Pawaiya. 2020. An Economic Estimation of Capsicum Production in Shajapur District of Madhya Pradesh, India. *Int.J.Curr.Microbiol.App.Sci.* 9(06): 1796-1802. doi: <https://doi.org/10.20546/ijcmas.2020.906.224>