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COST BENEFIT ANALYSIS AND MARKETING OF TOMATO

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Abstract: *The present study "Cost Benefit analysis and Marketing of Tomato vegetable in Bhandara district." For this 40 vegetable growers, and 10 village trader, wholesalers, retailers were selected in the study area. The data were collected with the help of specially tested schedule by personal interview method, using multistage random sampling method for the year 2013-14. The twenty villages of four tahsils viz., Bhandara, Tumsar, Mohadi and Pavani of Bhandara district were selected for the study. The study revealed that the cost of cultivation per hectare for Tomato over the cost C_2 was found 76417.41 Rs./ha. The net return over cost-C_2 was found to 65139.23 Rs./ha. for Tomato. The B:C ratio over cost A_2; which is known as available cost was found to 3.73 for Tomato. However the B:C ratio over C_2 i.e. cost of cultivation was 1.85 for Tomato. It represent that vegetable cultivation is a profitable venture. The resource use efficiency was estimated by Cobb-Douglas production function. It revealed that R^2 found for Tomato was 0.845. The study identified for different marketing channel for Tomato vegetable. It shown that Channel-I i.e. Producer to Consumer was best channel for marketing for selected vegetable. However very less quantity of produce sold through this Channel. The price spread for Tomato in all selected Channel, except Channel-I was around 40 per cent. The marketing efficiency was worked out with three different method viz; Conventional method, Shepherd method and Acharya method. It reveal that efficiency was decline with increase in number of intermediaries. The different constraints were identified during production and marketing of Tomato vegetable. The damage due to insect and pest was the major constraint in vegetable cultivation followed by lack of finance, lack of technical knowledge, low level of crop production, insufficient irrigation etc. whereas arbitery charges by market intermediaries was the major constraint in marketing of Tomato.*

Key words: *Tomato, Economics, Cobb-Douglas, Vegetable Marketing*

I. Introduction

Area and production of vegetables in the world and India are on the rise because of the following advantages over the crops of viz; Vegetables crops give 5-10 times more yield per unit area than cereals and millets. In India, the area under cultivation of vegetables stood at 9.609 million hectares and produced around 170.248 MTs of vegetables (2013-14) which accounts for nearly 15.0 Per cent of country's share in the world total production of vegetables. India is the second largest producer of vegetables in the world next only to China. In India, the Maharashtra has 7.56 per cent share in total vegetable area of country and 5.94 per cent share in total production of vegetables. The area share of selected vegetables viz; Tomato, Tomato and cabbage in Maharashtra during 2013-14 were 6.8 per cent, 4.1 per cent, 3.9 per cent however in production it were 10.38 per cent, 7.6 per cent, 6.8 per cent respectively.

At present, greater than 70 per cent of our population is engaged in Agriculture over an area of 320 million acres. Out of this hardly about 1-2 per cent of the total cultivated area is under vegetable crops. These figures showed the necessity of vegetable cultivation on larger area. On an average, the yield-of vegetable crop is about 5 to.10 times more than these of cereals. They are quick growing and shorter duration. The short duration nature offers scopes for raising three or more crops a year and for fitting effectively in different cropping systems. Vegetables crops are labor intensive and generate additional farm employment. Therefore it is time now, to take up the intensive and multiple vegetable cropping patterns in India.

The vegetables crops hold a great promise for accelerating income of the farmers. Realizing the importance of vegetable cultivation many farmers are diverting their resources towards vegetables crops. The production of vegetable being seasonal and face tremendous uncertainties on several counts. Further, vegetables are extremely perishable in nature and, therefore, require speedy and efficient marketing. This give rise to various problems to vegetable growers. High marketing cost, quantitative and qualitative losses at various stages, high level of price spread and unpredictable behavior of prices are some problems. Low marketed surplus, market imperfection and poor infrastructural facilities add to these problems.

Therefore, in the backdrop of situation it becomes worthwhile to conduct studies on economics of production and marketing of vegetables and also to identify the issues of vegetables business and suggest measures to improve the systems. In view of this, the present research was conducted with following specific objectives.
1) To analyze the cost and return of Tomato vegetable.
2) To study the existing marketing systems along with marketing cost, margins, marketing efficiency of Tomato vegetable.
3) To identify the constraints in production and marketing of Tomato Vegetable.

II. Methodology

In order to test the specific objective of investigation, data was collected from the primary and secondary sources. To evaluate the objective of the study the sample farmers were interviewed personally using a pre-tested structure interview schedule. The details pertaining to Tomato cultivation namely area under these crops, land preparation operations followed, interculture operation performed, inputs used and outputs obtained, production & marketing problems faced by farmer were collected.
Also in the pre-tested structure interview schedule data collected from the farmers, village trader, wholesaler, and retailer with respect to Cost of gunny bags, Cost of packing, Cost of loading, Transportation, Near market, Octroi, Weighing charges, Hamali, Dalali, Unloading, Selling price, Cost of marketing, Price received, Constraints in marketing etc. are collected.
Secondary data with regard to district background, cropping pattern, rainfall and other necessary data were collected from district statistical office (DSO), Bhandara.
Keeping in view of the objectives of the study the primary data collected is based on the multistage – random sampling Technique. In the first stage, Bhandara district was selected for the study. In the second stage, four talukas for vegetable Tomato, were selected purposively from Bhandara district, namely Bhandara, Mohadi, Tumsar and Lakhani. In the third stage, from these selected talukas, five villages and from each village two farmers for Tomato vegetable were randomly selected for the study. Thus, a total 40 vegetable growers were selected for collecting the required information for the study. In the fourth stage the data of marketing of vegetables were collected from village trader, wholesaler, and retailer by selected them randomly at each pre-selected tahsils of Bhandara district. The 10 village trader, wholesaler and retailer overall 30 to be selected for the study.

III. Tabular analysis

The cost of production of the selected vegetables were calculated as per the standard cost concept viz; Cost-A, Cost-B, Cost-C and tabulated for interpretation.
Cost concepts: These includes cost A_1, A_2, B_1, B_2, C_1, C_2 and C_3
Cost A_1: All actual expenses in cash and kind incurred in production by the producer. The following items are included in cost A_1

1) Wages of hired human labour.
2) Wages of permanent labour.
3) Wages of contract labour.
4) Wages of hired bullock labour.
5) Imputed value of owned bullock labour Charges of hired machinery.
6) Imputed value of owned machinery.
7) Market rate of manures and fertilizer.
8) Market rate of seed.
9) Imputed value of owned seed.
10) Imputed value of manure.
11) Market value of pesticides, herbicides, hormones, etc.
12) Irrigation charges.
13) Land revenue, cess and other tax.
14) Depreciation on farm machinery, implements, equipment farm buildings, Irrigation structures, etc.
15) Interest on working capital.
16) Miscellaneous expenses.

Cost A_2: Cost A_1 + Rent paid for leased in land
Cost B_1: Cost A_1 + Interest on the fixed capital excluding land+ rental value of owned land

Cost B_1: Cost A_1 or A_2 + Interest on amount of owned capital invested in the business excluding the value to land.

Cost B_2: Cost B_1 + Rental value of owned land less land revenue + Rent paid for leased in land.

Cost C_1: Cost B_1 + Imputed value of family labour.

Cost C_2: Cost B_2 + Imputed value of family labour.

Cost C_3: Cost C_2 + 10 percent of Cost C_2

Price spread (PS)

This represent the difference between the net price received by the producer- seller (PNP) and the price paid by the ultimate consumer i.e difference between Producer's Net Price(PNP) and Retailer Selling Price(RP).

$$PS = RP - PNP$$

Producer share in consumer's rupee (PSCR)

It is the percentage of the net price received by the producer to the price paid by the consumer or selling price of retailer.

$$PSCR = \frac{PNP}{RP} X\ 100$$

Where,

PNP = Producer Net Price,

RP = Retailer Price

Marketing Efficiency Index (MEI)

The ratio of the total value of goods marketed to the total marketing costs is issued as a measure of efficiency. The higher the ratio, the higher is the efficiency and vice-versa. Shepherd's equation,

$$MEI = \frac{V}{I}\ X\ 100$$

Where,

MEI = Index of Marketing Efficiency

V = Value of the goods sold (Consumer's price)

I = Total marketing cost and marketing margins

Production function

Cobb-Douglas type of production function use to determine the efficiency of input on the output. The model is specified compressively in such way that it can specify adequately the production process of the vegetable. The Cobb-Douglas production function model in the stochastic form may be expressed as

$$Y = aX_1^{b1}X_2^{b2}X_3^{b3}X_4^{b4}X_5^{b5}X_6^{b6}X_7^{b7}X_8^{b8}$$

Where,

Y = Output (Yield qtl/ha)

a = Intercepts / constant

X_1 = Hired Human Labour (Days/ha.)

X_2 = No. of Bullock pair (Days/ha.)

X_3 = Seed (Kg/ha)

X_4 = N fertilizer dose (Kg/ha.)

X_5 = P fertilizer dose (Kg/ha.)

X_6 = K fertilizer dose (Kg/ha.)

X_7 = No. of Irrigation (No/ha.)

X_8 = Land (ha.)

b_1 to b_8 = coefficient

The above function was converted into the linear form through logarithmic transformation of all variables and is written as

$$\log Y = \log A + a_1 \log_{X1} + a_2 \log X_2 + a_3 \log X_3 + a_4 \log X_4 + a_5 \log X_5 + a_6 \log X_6 + a_7 \log X_7 + a_8 \log X_8$$

Constraints Analysis

The constraints faced by the vegetable growers during production and marketing are identified and tabulated for interpretation.

IV. Result and Discussion

Table1 cost of cultivation of Tomato revealed the details of per hectare cost of cultivation of Tomato by over all cultivators and it is found that the total cost (Cost C_2) was worked out to Rs. 76417.41/ha. The cost A_1 contributed to Rs. 37984.64 per hectares. (49.71 per cent), of which hired human labour (15.16 per cent), fertilizer (7.32 per cent), manure (7.02 per cent), bullock labour (4.74 per cent), followed by plant protection (4.18 per cent) were contributed highest share in cost A_1. The total yield was obtained 176.85 quintals, where as the per quintal cost of production was worked out to Rs. 432.10/ha.

Table 1 Per hectare cost of cultivation of Tomato (Rs./qtl.)

Sr. No.	Items		Units	Units required	Price per unit	Cost Rs.	Per cent
1	Hired Human Labour	Male	Days	22.04	120	2644.44	3.46
		Female	Days	127.69	70	8937.96	11.70
		Total	Days	149.72	77.36	11582.41	15.16
2	Bullock Labour	Hired	Days	0	-	-	-
		Owned	Days	8.06	450	3625	4.74
		Total	Days	8.06	450	3625	4.74
3	Machine	Hired	Hrs.	1.25	600	750	0.98
		Owned	Hrs.	0.14	600	83.33	0.11
		Total	Hrs.	1.39	-	833.33	1.09
4	Seed		Kg.	0.58	7692	4487	5.87
5	Manure		ton.	12.56	427.25	5366.26	7.02
6	Fertilizer	N	Kg.	78.31	32.75	2565	3.36
		P	Kg.	50.08	44.99	2253	2.95
		K	Kg.	22.34	34.60	773	1.01
		Total		150.73	-	5591	7.32
7	Irrigation		Rs.	-	-	1256	1.64
8	Incidental		Rs.	-	-	312.5	0.41
9	Insecticide		Rs.	-	-	1576.30	2.06
10	Repairs		Rs.	-	-	495.37	0.65
11	Working Capital		Rs.	-	-	35125.17	45.96
12	Depriciation		Rs.	-	-	652.70	0.85
13	Land Revenue		Rs.	-	-	99.26	0.13
14	Int. On Wor. Cap. @ 6%		Rs.	-	-	2107.51	2.76
15	**Cost A1**		Rs.	-	-	37984.64	49.71
16	Rent paid For leased land		Rs.	-	-	0	-
17	**Cost A2**		Rs.	-	-	37984.64	49.71
18	Int.On Fixed Capital @ 10%		Rs.	-	-	9215.26	12.06
19	**Cost B1**		Rs.	-	-	48604.9	61.77
20	Rental Value Of Land (1/6 of GPV- Land revenue)		Rs.	-	-	23493.51	30.74
21	**Cost B2**		Rs.	-	-	70693.41	92.51
22	Family Labour	Male	Days	32.23	120	3867.60	5.06
	Charges	Female	Days	26.52	70	1856.40	2.43
		Total	Days	58.75	-	5724	7.49
23	**Cost C1**		Rs.	-	-	52923.90	69.26
24	**Cost C2**		Rs.	-	-	76417.41	100
25	**Cost C3**		Rs.	-	-	84059.15	-
26	Yield Main		-	176.85	800.43	141556.64	-
27	**Production Cost/qt**.		-	-	-	432.10	-
28	**B:C ratio**		**-**	-	**-**	**1.85**	**-**

Cost and returns of Tomato vegetable

Table 2 revealed per hectare cost and netreturns from Tomato vegetable viz., Tomato
over the cost A2, B2, C1, C2 and C3. The benefit cost ratio for Tomato over these cost obtained as 3.73, 1.94, 2.67, 1.85 and 1.68 respectively. The high B:C ratio was estimated for Tomato i.e. 1.85 over cost C2, therefore it concluded that the cultivation of Tomato was beneficial However; the hypothesis of the study i.e. vegetable cultivation is profitable venture was tested and accepted.

Table 2 Per hectare cost and returns from Tomato vegetable

Sr.No.	Perticulars	Tomato
1	Yield (qt/ha)	176.85
2	Gross return (Rs.)	141556.64
3	Price Rs/qtl	800.43
4	**Total cost**	
i	Cost-A1	37984.64
ii	Cost-A2	37984.64
iii	Cost-B1	70693.41
iv	Cost-B2	72197.68
v	Cost-C1	52923.90
vi	Cost-C2	76417.41
vii	Cost- C3	84059.15
5	**Net returns over(Rs.)**	
i	Cost-A2	103572.01
ii	Cost-B2	69358.97
iii	Cost-C1	88632.75
iv	Cost-C2	65139.23
v	Cost- C3	57497.49
6	**B:C Ratio**	
i	Cost-A2	3.73
ii	Cost-B2	1.94
iii	Cost-C1	2.67
iv	Cost-C2	1.85
v	Cost- C3	1.68

Resource use efficiency

The Cobb-Douglass production function was estimated to analyze the relationship between input on the output. The input used in the model explained 84.50 per cent variation for Tomato as reveled by R^2. The estimated parameters of expenditure on hired human labour, phosphorus and number of irrigation were negatively significant at 5 per cent of probability level for Tomato vegetable farmer. This indicates that, where five per cent increase in utilization of inputs would result in decease of gross income by 0.053 per cent, 0.568 per cent and 0.162 per cent respectively.

Table 3 Resource use efficiency of input on the output

Sr. no.	Perticulars/ Variables	Coefficient of Tomato
1	Intercept/ Constant	2.452
2	Hired Human Labour (X1)	-0.053* (0.070)
3	No. of Bullock pair(X2)	0.020 (0.023)
4	Seed (X3)	0.013 (0.062)
5	Nitrogen(X4)	0.090 (0.438)
6	Phosphorus(X5)	-0.568* (0.617)
7	Potash(X6)	0.538 (0.538)
8	No. of Irrigation(X7)	-0.162* (0.202)
9	Land in ha. (X8)	0.784 (0.132)
10	**R^2**	0.845

(Figure in parenthesis indicates the standard error.)

Marketing of Tomato vegetable

Marketing channels are the root through which produce move from producer to consumer. Following important channels of were identified and distribution have been observed while studying the marketing of vegetables under study area.

Table 4 Channel wise disposal of Tomato Vegetable

Sr. No.	Channels	Tomato	
		No. of farmers	Quantity sold (qtl.)
1	Channel I	40 (100)	34.40 (19.45)
2	Channel II	40 (100)	48.83 (27.61)
3	Channel III	40 (100)	79.56 (44.98)
4	Channel IV	40 (100)	14.07 (7.95)
Total		40 (100)	176.85 (100)

(Figure in parenthesis indicates percentage to total)

Channel I : Producer→ Consumer.
Channel II : Producer→ Retailer → Consumer.
Channel-III: Producer→ Whoesaler→ Retailer→ Consumer
Channel IV: Producer → Village trader → Retailer → Consumer.

The marketing channels were used by selected vegetable grower for disposal of their produce discussed in the Table 4. It revealed that all four channels were used by the farmer for disposal of Tomato vegetable in the study area. The most widely used channel for disposal of Tomato was channel III (P-W-R-C) which accounts 44.98 per cent of total disposed quantity of Tomato vegetable.

Marketing cost, margins of Tomato vegetable

Producer to consumer is the direct marketing channel of marketing. Consumer purchase required quantity of selected vegetables directly from the producer; hence consumer incurred lowest marketing cost. Table 5 revealed the total marketing cost incurred by producer, wholesaler, village trader and retailer in marketing of Tomato were Rs. 47.36/- per quintal, Rs.50.03 /- per quintal, Rs.76.14 /- per quintal and Rs. 93.80/- per quintal respectively. The retailer's margin in Channel-II, Channel-III, and Channel-IV were worked out Rs. 661.38 /- per quintal, Rs. 480.95/- per quintal and Rs. 450.95/- per quintal respectively. The wholesaler margin in channel-III was Rs. 248.82/- per quintal and village trader margin in channel-IV was Rs. 245.35/- per quintal. The prices paid by consumer were Rs.1143.25/- per quintal, Rs. 1472.50/- per quintal, Rs.1553.50/- per quintal Rs.1527.50/- per quintal in Channel-I, Channel-II, Channel-III, and Channel-IV respectively.

Table 5 Marketing cost and margins for Tomato (Rs./qtl)

Sr. No.	Perticulars	Total Price			
		Channel- I	Channel -II	Channel -III	Channel -IV
A.	**Marketing Cost incurred by Producer**				
1	Assembling / Preparing	1.49	1.49	1.49	0
2	Packaging	0.00	0.00	0.00	0
3	Loading / unloading	4.05	4.05	4.05	0
4	Transport	25.88	25.88	25.88	0
5	Tax/market fee	1.84	1.84	1.84	0
6	Spoilage loss etc.	13.74	13.74	13.74	0
7	Other	0.36	0.36	0.36	0
8	Total Marketing Cost	47.36	47.36	47.36	0.00
9	Selling price of Producer	1143.25	717.32	679.90	661.26
B.	**Marketing cost incurred by Wholesaler**				
1	Assembling / Preparing	0	0	2.90	0
2	Packaging	0	0	0	0
3	Loading /unloading	0	0	4.56	0
4	Transport	0	0	0	0
5	Tax/market fee	0	0	1.66	0
6	Spoilage loss etc.	0	0	40.25	0
7	Other	0	0	0.66	0
8	Total Marketing Cost	0.00	0.00	50.03	0.00

9	Market Margin of Wholesaler	0	0	248.82	0
10	Selling price of Wholesaler	0	0	978.75	0
C	**Marketing cost incurred by Village trader**				
1	Assembling / Preparing	0	0	0	2.2375
2	Packaging	0	0	0	0.00
3	Loading /unloading	0	0	0	4.675
4	Transport	0	0	0	21.9625
5	Tax/market fee	0	0	0	0.6025
6	Spoilage loss etc.	0	0	0	46.32
7	Other	0	0	0	0.34875
8	Total Marketing Cost	0.00	0.00	0.00	76.14
9	Market Margin of Village trader	0	0	0	245.35
10	Selling price of Village trader	0	0	0	982.75
	Marketing cost incurred by Retailer				
1	Assembling / Preparing	0	0.00	0.00	0.00
2	Packaging	0	13.96	13.96	13.96
3	Loading / unloading	0	4.69	4.69	4.69
4	Transport	0	24.75	24.75	24.75
5	Tax /market fee	0	0.61	0.61	0.61
6	Spoilage loss etc.	0	49.52	49.52	49.52
7	Other	0	0.26	0.26	0.26
8	Total Marketing Cost	0.00	93.80	93.80	93.80
9	Market margin of Retailer	0.00	661.38	480.95	450.95
10	**Selling price of Retailer/ Purchase price of Consumer**	**1143.25**	**1472.50**	**1553.50**	**1527.50**

Price spread in marketing of Tomato vegetable

Table 6 described the price spread of Tomato in channel-I the producers shares in consumer rupee was 95.86 per-cent while the marketing cost incurred by producer was 4.14 per-cent. The marketing cost incurred by Producer and Retailer in channel-II was 9.59 per cent. The price paid by the consumer was Rs. 1472.5/qt. jn which producers share was 45.50 per cent. The marketing cost incurred by Producer, Wholesaler and Retailer in channel-III was 12.31 per cent. The price paid by the consumer in channel-III was Rs. 1553.5 /qt in which producers share was 40.72 per cent. The marketing cost incurred by Producer, Village trader and Retailer in channel-IV was 11.13 per cent. The price paid by the consumer in channel-III was Rs. 1527.5/qt in which producers share was 43.29 per cent. Highest market margin was observed in Channel-III i.e. 46.98 per cent. It was found that comparatively channel-I found more profitable than channel-II channel-III and channel-IV in Tomato marketing in Bhandara district.

Table 6 Price spread in marketing of Tomato (Rs./qtl.)

Sr. No.	Particulars	Total Price (Rs./qtl.)			
		Channel- I	Channel -II	Channel -III	Channel -IV
1	Net price received by producer	1095.88 (95.86)	669.96 (45.50)	632.54 (40.72)	661.26 (43.29)
2	Total Marketing cost incurred by producer, wholesaler, retailer, village trader	47.36 (4.14)	141.16 (9.59)	191.19 (12.31)	169.94 (11.13)
3	Total market margin of wholesaler and retailer	0	480.95 (32.66)	729.77 (46.98)	696.30 (45.58)
4	Selling price of retailer/purchase price of consumer	1143.25 (100.00)	1472.5 (100.00)	1553.5 (100.00)	1527.5 (100.00)

(Figure in parenthesis indicates the percentage to total)

Marketing efficiency

Table 5.21 revealed that the marketing efficiency was higher in channel-I (24.14) fallowed by channel-II (10.43), channel-IV (8.99) and channel-III (8.13) for the Tomato crop. The higher marketing margins intercepted by the market intermediaries in the channel-II, channel-III and channel-IV resulted in the poor efficiency of marketing of Tomato.

Table 7 marketing efficiency of Tomato vegetable

Sr. No.	Particular	Unit	Channel-I	Channel-II	Channel-III	Channel-IV
1	Retailer's sale price or consumer's purchase price	Rs/qtl.	1143.25	1472.50	1553.50	1527.50
2	Total marketing cost	Rs/qtl.	47.36	141.16	191.19	169.94

3	Total net margins of intermediaries	Rs/qtl.	0	480.95	729.77	696.30
4	Net price received by farmer	Rs/qtl.	1095.88	669.96	632.54	661.26
5	Value added	Rs/qtl.	47.36	802.54	920.96	866.24
6	**Index of marketing efficiency**					
a)	Conventional method	Ratio	1	5.69	4.82	5.10
b)	**Shepherd's method**	**Ratio**	**24.14**	**10.43**	**8.13**	**8.99**
c)	Acharya method	Ratio	23.14	1.08	0.69	0.76

Constraints in Production and Marketing

All the selected vegetables growers were interviewed for the problems they are facing while producing and marketing of vegetables. The information regarding the important problems faced by the growers is presented in Table 8. The Table 8 reveals main problem of damages due to insect and pest (80.00 per cent) and lack of finance (67.50 per cent) at the production level faced by overall farmers. In regarding to marketing of vegetables, arbitory charges by marketing agent (72.50 per cent), mal-practices by labour (42.50 per cent) followed by lack of pacca roads (40.00 per cent) were the main problems to the Tomato growers in the study area.

Table 8 Constraints in production & marketing faced by Tomato growers

Sr.no.	Perticulars	Tomato
A.	Total no. of vegetable grower	n=40 (100)
B.	**Problems at Production level**	
1	Lack of timely availability of Seeds/Plants/ fertilizer etc	25 (62.5)
2	Irregular electricity	15 (37.5)
3	Lack of Finance	27 (67.5)
4	Lack of skilled manpower	23 (57.5)
5	Lack of Technical Knowledge	25 (62.5)
6	Non availability of Machine input	16 (40)
7	Damage due to insect ,pest and diseases	32 (80)
8	Insufficient irrigation	19 (47.5)
9	Low level of Crop Production	19 (47.5)
10	Conventional necessary donation of produce	14 (35)
C.	**Problems at marketing level**	
1	Lack of cheap transport facility	14 (35)
2	Lack of Pacca roads	16 (40)
3	Lack of Packaging materials	11 (27.5)
4	Poor infrastructure at Market	12 (30)
5	Arbitery charges by marketing intermediaries	29 (72.5)
6	Malpractices by labour	17 (42.5)
8	Market intelligence	8 (20)

(Figure in parenthesis indicates percentage to total)

V. Conclusion

1) The per hectare cost of cultivation of Tomato was Rs.76417.41/-ha. which gives net reruns of Rs.65139.23/-ha.
2) Tomato crop was most profitable with high B-C ratio(1.85).
3) Among the four vegetable marketing channels, channel-III(Producer-Wholesaler-Retailer-Consumer) was most favoured for marketing of selected vegetable.
4) Producers share in consumer rupee for Tomato was highest in Channel-I i.e. 95.86 per cent.
5) It was found that comparatively Channel-I (Producer-Consumer) found more profitable than Channel-II, Channel-III and Channel-IV in selected vegetable marketing in Bhandara District.

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