

Cost Benefit Analysis and Marketing of Brinjal Vegetable in Bhandara District

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Abstract

The present study "Cost Benefit analysis and Marketing of Brinjal 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 Lakhni of Bhandara district were selected for the study. The study revealed that the cost of cultivation per hectare for Brinjal over the cost C_2 was found 79346.71 Rs./ha. The net return over cost- C_2 was found to 75545.39 Rs./ha. for Brinjal. The B:C ratio over cost A_2 , which is known as available cost was found to 3.60 for Brinjal. However the B:C ratio over C_2 i.e. cost of cultivation was 1.95 for Brinjal. 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 Brinjal was 0.845. The study identified for different marketing channel for Brinjal 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 Brinjal 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 Brinjal vegetable. The damage due to insect and pest was the major constraint in vegetable cultivation followed by lack of skilled labour, irregular supply of electricity, low level of crop production, insufficient irrigation etc. whereas arbitrary charges by market intermediaries was the major constraint in marketing of Brinjal.

Keywords: Brinjal, Economics, Cobb-Douglas, Vegetable Marketing.

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, brinjal 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 labour intensive and generates additional farm employment. Therefore it is time now, to take up the intensive and multiple vegetable cropping pattern 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 were conducted with following specific objectives.

1. To analyze the cost and return of Brinjal vegetable.
2. To study the existing marketing systems along with marketing cost, margins, marketing efficiency of Brinjal vegetable.
3. To identify the constraints in production and marketing of Brinjal Vegetable.

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 Brinjal 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 Brinjal, 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 Brinjal 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, wholeseller and retailer overall 30 to be selected for the study.

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 A1, A2, B1, B2, C1, C2 and C3

Cost A1

All actual expenses in cash and kind incurred in production by the producer. The following items are included in cost A1

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 A2

Cost A₁ + Rent paid for leased in land.

Cost B₁

Cost A₁ + Interest on the fixed capital excluding land+ rental value of owned land.

Cost B₁

Cost A₁ or A₂ + Interest on amount of owned capital invested in the business excluding the value to land.

Cost B₂

Cost B₁ + Rental value of owned land less land revenue + 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 percent of Cost C₂

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.

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

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,

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

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

$$Y = aX_1^{b_1} X_2^{b_2} X_3^{b_3} X_4^{b_4} X_5^{b_5} X_6^{b_6} X_7^{b_7} X_8^{b_8}$$

Where,

Y = Output (Yield qtl/ha)
a = Intercepts / constant
X₁ = Hired Human Labour (Days/ha.)

X₂ = No. of Bullock pair (Days/ha.)

X₃ = Seed (Kg/ha)

X₄ = N fertilizer dose (Kg/ha.)

X₅ = P fertilizer dose (Kg/ha.)

X₆ = K fertilizer dose (Kg/ha.)

X₇ = No. of Irrigation (No/ha.)

X₈ = Land (ha.)

b₁ to b₈ = coefficient

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

$$\log Y = \log A + a_1 \log X_1 + a_2 \log X_2 + a_3 \log X_3 + a_4 \log X_4 + a_5 \log X_5 + a_6 \log X_6 + a_7 \log X_7 + a_8 \log X_8$$

Constraints Analysis

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

Result and Discussion

Table1 cost of cultivation of Brinjal revealed the details of per hectare cost of cultivation of brinjal by over all cultivators and it is found that the total cost (Cost C₂) was worked out to Rs. 79346.71/ha. The cost A₁ contributed to Rs. 43608.11 per hectares. (54.28 per cent), of which hired human labour (24.52 per cent), manure (5.24 per cent), plant protection (4.18 per cent), fertilizer (4.03 per cent) followed by bullock labour (3.33 per cent) were contributed highest share in cost A₁. The total yield was obtained 256.02 quintals, where as the per quintal cost of production was worked out to Rs. 309.92/ha.

Table -1
Per hectare cost of cultivation of Brinjal

| Sr. No. | Items | Units | Units required | Price per unit | Cost Rs. | Per cent | |
|---------|---------------------|--------|----------------|----------------|----------|----------|-------|
| 1 | Hired Human Labour | Male | Days | 48.48 | 124 | 6011.52 | 7.58 |
| | | Female | Days | 184.16 | 73 | 13443.68 | 16.94 |
| | | Total | Days | 232.64 | 83.63 | 19455.2 | 24.52 |
| 2 | Bullock Labour | Hired | Days | 0 | - | - | |
| | | Owned | Days | 5.13 | 515 | 2641.95 | 3.33 |
| | | Total | Days | 5.13 | 515 | 2641.95 | 3.33 |
| 3 | Machine | Hired | Hrs. | 2.38 | 600 | 1428 | 1.80 |
| | | Owned | Hrs. | 0.54 | 600 | 324 | 0.41 |
| | | Total | Hrs. | 1.39 | - | 1752 | 2.21 |
| 4 | Seed | Kg. | 0.71 | 4875.75 | 3461.78 | 4.36 | |
| 5 | Manure | ton. | 8.88 | 468.25 | 4158.06 | 5.24 | |
| 6 | Fertilizer | N | Kg. | 83.11 | 18.72 | 1555.99 | 1.96 |
| | | P | Kg. | 28.85 | 37.5 | 1081.82 | 1.36 |
| | | K | Kg. | 22.72 | 24.61 | 559.05 | 0.70 |
| | | Total | | 134.68 | - | 3196.86 | 4.03 |
| 7 | Irrigation | Rs. | - | - | 1792.57 | 2.26 | |
| 8 | Incidental | Rs. | - | - | 334.57 | 0.42 | |
| 9 | Insecticide | Rs. | - | - | 3316.32 | 4.18 | |
| 10 | Repairs | Rs. | - | - | 208.18 | 0.26 | |
| 11 | Working Capital | Rs. | - | - | 40317.49 | 50.81 | |
| 12 | Depreciation | Rs. | - | - | 285.66 | 0.36 | |
| 13 | Land Revenue | Rs. | - | - | 45.91 | 0.06 | |
| 14 | Int. On Wor. Cap. @ | Rs. | - | - | 2419.049 | 3.05 | |

| | | | | | | | | |
|----|---|-----|--------|------|----------|-------------|---------|------|
| | 6% | | | | | | | |
| 15 | Cost A1 | Rs. | - | - | 43068.11 | 54.28 | | |
| 16 | Rent paid For leased land | Rs. | - | - | - | - | | |
| 17 | Cost A2 | Rs. | - | - | 43068.11 | 54.28 | | |
| 18 | Int.On Fixed Capital @ 10% | Rs. | - | - | 4019.03 | 5.07 | | |
| 19 | Cost B1 | Rs. | - | - | 47087.14 | 59.34 | | |
| 20 | Rental Value of Land (1/6 of GPV- Land revenue) | Rs. | - | - | 25769.44 | 32.48 | | |
| 21 | Cost B2 | Rs. | - | - | 72856.58 | 91.82 | | |
| 22 | Family Labour | | Male | Days | 40.96 | 124 | 5079.04 | 6.40 |
| | Charges | | Female | Days | 19.33 | 73 | 1411.09 | 1.78 |
| | | | Total | Days | 60.29 | - | 6490.13 | 8.18 |
| 23 | Cost C1 | Rs. | - | - | 53577.27 | 67.52 | | |
| 24 | Cost C2 | Rs. | - | - | 79346.71 | 100.00 | | |
| 25 | Cost C3 | Rs. | - | - | 87281.38 | - | | |
| 26 | Yield Main | - | 256.02 | | 605 | 154892.10 | - | |
| 27 | Production Cost/qt. | - | - | - | - | 309.92 | - | |
| 28 | B:C ratio | - | - | - | - | 1.95 | - | |

Cost and returns of Brinjal vegetable

Table 2 revealed per hectare cost and net returns from Brinjal vegetable viz., Brinjal over the cost A2, B2, C1, C2 and C3. The benefit cost ratio for Brinjal over these cost obtained as 3.60, 2.13, 2.89, 1.95 and 1.77 respectively. The high B:C ratio was estimated for Brinjal i.e. 1.95 over cost C2, therefore it concluded that the cultivation of Brinjal 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 Brinjal Vegetable

| Sr.No. | Perticulars | Brinjal |
|----------|------------------------------|-----------|
| 1 | Yield (qt/ha) | 256.02 |
| 2 | Gross return (Rs.) | 154892.10 |
| 3 | Price Rs./qtl | 605 |
| 4 | Total cost | |
| i | Cost-A1 | 43068.11 |
| ii | Cost-A2 | 43068.11 |
| iii | Cost-B1 | 47087.14 |
| iv | Cost-B2 | 72856.58 |
| v | Cost-C1 | 53577.27 |
| vi | Cost-C2 | 79346.71 |
| vii | Cost- C3 | 87281.38 |
| 5 | Net returns over(Rs.) | |
| i | Cost-A2 | 111823.99 |
| ii | Cost-B2 | 82035.52 |
| iii | Cost-C1 | 101314.83 |
| iv | Cost-C2 | 75545.39 |
| v | Cost- C3 | 67610.72 |
| 6 | B:C Ratio | |

| | | |
|-----|----------|------|
| i | Cost-A2 | 3.60 |
| ii | Cost-B2 | 2.13 |
| iii | Cost-C1 | 2.89 |
| iv | Cost-C2 | 1.95 |
| v | Cost- C3 | 1.77 |

Resource Use Efficiency

The Cobb-Douglass production function was estimated to analyze the relationship between input on the output. The estimated production functions are presented in the Table 3. The inputs included in the model explained 84.50 per cent of variation in Brinjal as revealed by the coefficient of multiple determination (R^2). The estimated parameters of expenditure does not shown any positive or negative significant at five per cent of probability level for selected Brinjal farmer.

Table-3
Resource Use Efficiency of Input on the Output

| Sr. No. | Perticulars/ Variables | Coefficient of Brinjal |
|---------|-------------------------|------------------------|
| 1 | Intercept/ Constant | 0.708 |
| 2 | Hired Human Labour (X1) | 0.491 (0.170) |
| 3 | No. of Bullock pair(X2) | 0.086 (0.077) |
| 4 | Seed (X3) | 0.145 (0.118) |
| 5 | Nitrogen(X4) | 0.077 (0.200) |
| 6 | Phosphorus(X5) | 0.580 (1.195) |
| 7 | Potash(X6) | -0.451 (1.187) |
| 8 | No. of Irrigation(X7) | 0.136 (0.255) |
| 9 | Land in ha. (X8) | 0.209 |

Asian Resonance

| | | |
|----|----------------|---------|
| | | (0.145) |
| 10 | R ² | 0.845 |

(Figure in parenthesis indicates the standard error.)

Marketing of Brinjal 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.

Channel I

Producer → Consumer.

Channel II

Producer → Retailer → Consumer.

Channel-III

Producer → Wholesaler → 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 brinjal vegetable in the study area. The most widely used channel for disposal of Brinjal was channel III (P-W-R-C) which accounts 49.03 per cent of total disposed quantity of Brinjal vegetable.

Table- 4
Channel Wise Disposal of Brinjal Vegetable

| Sr. No. | Channels | Brinjal | |
|---------|-------------|----------------|----------------------|
| | | No. of farmers | Quantity sold (qtl.) |
| 1 | Channel I | 40 (100) | 42.66 (16.66) |
| 2 | Channel II | 40 (100) | 65.92 (25.75) |
| 3 | Channel III | 40 (100) | 125.54 (49.03) |
| 4 | Channel IV | 40 (100) | 21.90 (8.56) |
| Total | | 40 (100) | 256.02 (100) |

Marketing Cost, Margins of Brinjal 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 Brinjal were Rs. 42.87/- per quintal, Rs.26.36/- per quintal, Rs.64.22 /- per quintal and Rs. 61.52/- per quintal respectively. The retailer's margin in Channel-II, Channel-III, and Channel-IV were worked out Rs. 405.40/- per quintal, Rs. 411.34/- per quintal and Rs. 404.19/- per quintal respectively. The wholesaler margin in channel-III was Rs. 141.98/- per quintal and village trader margin in channel-IV was Rs. 161.27/- per quintal. The price paid by consumer were Rs. 943.23/- per quintal, Rs. 977.14/- per quintal, Rs. 1131.43/- per quintal Rs. 1168.57/- per quintal in Channel-I, Channel-II, Channel-III, and Channel-IV respectively.

Table 5 Marketing Cost and Margins for Brinjal (Rs./qtl)

| Sr. No. | Particulars | Total Price | | | |
|-----------|--|-------------|------------|-------------|------------|
| | | Channel-I | Channel-II | Channel-III | Channel-IV |
| A. | Marketing Cost incurred by Producer | | | | |
| 1 | Assembling / Preparing | 1.48 | 1.48 | 1.48 | 0 |
| 2 | Packaging | 13.69 | 13.69 | 13.69 | 0 |
| 3 | Loading / unloading | 2.64 | 2.64 | 2.64 | 0 |
| 4 | Transport | 18.46 | 18.46 | 18.46 | 0 |
| 5 | Tax/market fee | 0.52 | 0.52 | 0.52 | 0 |
| 6 | Spoilage loss etc. | 5.83 | 5.83 | 5.83 | 0 |
| 7 | Other | 0.24 | 0.24 | 0.24 | 0 |
| 8 | Total Marketing Cost | 42.87 | 42.87 | 42.87 | 0.00 |
| 9 | Selling price of Producer | 943.23 | 510.23 | 490.23 | 477.37 |
| B. | Marketing cost incurred by Wholesaler | | | | |
| 1 | Assembling / Preparing | 0 | 0 | 0.66 | 0 |
| 2 | Packaging | 0 | 0 | 0 | 0 |
| 3 | Loading /unloading | 0 | 0 | 4.64 | 0 |
| 4 | Transport | 0 | 0 | 0.00 | 0 |
| 5 | Tax/market fee | 0 | 0 | 0.29 | 0 |
| 6 | Spoilage loss etc. | 0 | 0 | 19.04 | 0 |
| 7 | Other | 0 | 0 | 1.73 | 0 |

| | | | | | |
|-----------|--|---------------|---------------|----------------|----------------|
| 8 | Total Marketing Cost | 0.00 | 0.00 | 26.36 | 0.00 |
| 9 | Market Margin of Wholesaler | 0 | 0 | 141.98 | 0 |
| 10 | Selling price of Wholesaler | 0 | 0 | 658.57 | 0 |
| C | Marketing cost incurred by Village trader | | | | |
| 1 | Assembling / Preparing | 0 | 0 | 0 | 2.04 |
| 2 | Packaging | 0 | 0 | 0 | 18.76 |
| 3 | Loading /unloading | 0 | 0 | 0 | 2.83 |
| 4 | Transport | 0 | 0 | 0 | 22.24 |
| 5 | Tax/market fee | 0 | 0 | 0 | 0.60 |
| 6 | Spoilage loss etc. | 0 | 0 | 0 | 17.44 |
| 7 | Other | 0 | 0 | 0 | 0.31 |
| 8 | Total Marketing Cost | 0.00 | 0.00 | 0.00 | 64.22 |
| 9 | Market Margin of Village trader | | | | 161.27 |
| 10 | Selling price of Village trader | 0 | 0 | 0 | 702.86 |
| | Marketing cost incurred by Retailer | | | | |
| 1 | Assembling / Preparing | 0 | 1.99 | 1.99 | 1.99 |
| 2 | Packaging | 0 | 13.57 | 13.57 | 13.57 |
| 3 | Loading / unloading | 0 | 3.11 | 3.11 | 3.11 |
| 4 | Transport | 0 | 19.00 | 19.00 | 19.00 |
| 5 | Tax /market fee | 0 | 0.62 | 0.62 | 0.62 |
| 6 | Spoilage loss etc. | 0 | 22.94 | 22.94 | 22.94 |
| 7 | Other | 0 | 0.29 | 0.29 | 0.29 |
| 8 | Total Marketing Cost | 0.00 | 61.52 | 61.52 | 61.52 |
| 9 | Market margin of Retailer | | 405.40 | 411.34 | 404.19 |
| 10 | Selling price of Retailer/ Purchase price of Consumer | 943.23 | 977.14 | 1131.43 | 1168.57 |

Price Spread in Marketing of Brinjal Vegetable

Table 6 described the price spread of brinjal in channel-I the producers shares in consumer rupee was 95.46 per-cent while the marketing cost incurred by producer was 4.54 per-cent. The marketing cost incurred by Producer and Retailer in channel-II was 10.68 per cent. The price paid by the consumer was Rs. 977.14/qt in which producers share was 47.81 per cent. The marketing cost incurred by Producer, Wholesaler and Retailer in channel-III was 11.56 per cent. The price paid by the consumer in channel-III

was Rs. 1131.43/qt in which producers share was 39.54 per cent. The marketing cost incurred by Producer, Village trader and Retailer in channel-IV was 10.76 per cent. The price paid by the consumer in channel-III was Rs. 1168.67/qt in which producers share was 40.85 per cent. Highest market margin was observed in Channel-IV i.e. 48.39 per cent. It was found that comparatively channel-I found more profitable than channel-II channel-III and channel-IV in Brinjal marketing in Bhandara district.

Table -6
Price Spread in Marketing of Brinjal (Rs./qtl.)

| Sr. No. | Particulars | Total Price (Rs./qtl.) | | | |
|---------|---|------------------------|--------------------|---------------------|---------------------|
| | | Channel- I | Channel -II | Channel -III | Channel -IV |
| 1 | Net price received by producer | 900.36 (95.46) | 467.13 (47.81) | 447.36 (39.54) | 477.37 (40.85) |
| 2 | Total Marketing cost incurred by producer, wholesaler, retailer, village trader | 42.87 (4.54) | 104.38 (10.68) | 130.74 (11.56) | 125.73 (10.76) |
| 3 | Total market margin of wholesaler and retailer | - | 405.40 (41.49) | 553.32 (48.90) | 565.46 (48.39) |
| 4 | Selling price of retailer/purchase price of consumer | 943.23 (100.00) | 977.14 (100.00) | 1131.43 (100.00) | 1168.57 (100.00) |

(Figure in Parenthesis Indicates the Percentage to Total)

Marketing Efficiency

Table 5.20 revealed that the marketing efficiency was higher in channel-I (22.01) followed by channel-II (9.37), channel-IV (9.35) and channel-III

(8.66) for the Brinjal 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 Brinjal.

Table -7
Marketing Efficiency of Brinjal 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. | 943.23 | 977.14 | 1131.43 | 1168.57 |
| 2 | Total marketing cost | Rs/qtl. | 42.87 | 104.38 | 130.74 | 125.73 |
| 3 | Total net margins of intermediaries | Rs/qtl. | 0 | 405.40 | 553.32 | 565.46 |
| 4 | Net price received by farmer | Rs/qtl. | 900.36 | 467.13 | 447.36 | 477.37 |
| 5 | Value added | Rs/qtl. | 42.87 | 510.01 | 684.07 | 691.20 |
| 6 | Index of marketing efficiency | | | | | |
| a) | Conventional method | Ratio | 1 | 4.89 | 5.23 | 5.50 |
| b) | Shepherd's method | Ratio | 22.01 | 9.37 | 8.66 | 9.35 |
| c) | Acharya method | Ratio | 21.00 | 0.92 | 0.65 | 0.69 |

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 5.15 reveals main problem of damages due to insect and pest (77.17 per cent) and lack of skilled labour (67.50 per cent) at the production level faced by overall farmers. In regarding to marketing of vegetables, unfair deduction by marketing agent (67.50 per cent), lack of packaging material (52.50 per cent) followed by lack of pacca roads (35.00 per cent) were the main problems to the Brinjal growers in the study area.

Table -8

Constraints in Production & Marketing Faced by Brinjal Growers

| Sr.no. | Perticulars | Brinjal |
|-----------|---|-----------------------------|
| A. | Total no. of vegetable grower | n=40 (100) |
| B. | Problems at Production level | |
| 1 | Lack of timely availability of Seeds/Plants/ fertilizer etc | 21 (52.5) |
| 2 | Irregular electricity | 17 (42.5) |
| 3 | Lack of Finance | 24 (60) |
| 4 | Lack of skilled manpower | 27 (67.5) |
| 5 | Lack of Technical Knowledge | 23 (57.5) |
| 6 | Non availability of Machine input | 22 (55) |
| 7 | Damage due to insect ,pest and diseases | 31 (77.5) |
| 8 | Inadequate irrigation | 18 (45) |
| 9 | Low level of Crop Production | 21 (52.5) |
| 10 | Conventional necessary donation of produce | 16 (40) |
| C. | Problems at marketing level | |
| 1 | Lack of cheap transport facility | 11 (27.5) |

| | | |
|---|---|--------------|
| 2 | Lack of Pacca roads | 14 (35) |
| 3 | Lack of Packaging materials | 21 (52.5) |
| 4 | Poor infrastructure at Market | 9 (22.5) |
| 5 | Arbitrary charges by marketing intermediaries | 27 (67.5) |
| 6 | Malpractices by labour | 11 (27.5) |
| 8 | Market intelligence | 7 (17.5) |

(Figure in Parenthesis Indicates Percentage to Total)

Conclusion

- The per hectare cost of cultivation of Brinjal was Rs.79346.71/-ha. which gives net reruns of Rs.75545.39/-ha.
- Brinjal crop was most profitable with high B-C ratio(1.95).
- Among the four vegetable marketing channels, channel-III(Producer-Wholesaler-Retailer-Consumer) was most favoured for marketing of selected vegetable.
- Producers share in consumer rupee for Brinjal was highest in Channel-I i.e. 95.46 per cent.
- 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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