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## Research Article

### AN ECONOMIC ANALYSIS OF BRINJAL IN ALLAHABAD DISTRICT OF UTTAR PRADESH STATE

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#### ABSTRACT

The present study is carried out from November 2015 to March, 2016 to access the socio – economic profile of the respondent and price spread of brinjal in Allahabad District. Soran village was purposively selected for the study because of high economics in brinjal production. A sample of 100 farmers' cultivating brinjal (56 small farmers; 31 medium farmers; 13 large farmers) has been selected on purposive random sampling technique. Details of marketing and agencies involved in marketing of the brinjal were obtained from 5 functionaries from each category selected randomly. The result of a demand from the spectrum of prices and transactions supply, which is the leading manufacturer for the consumer marketing system at various levels, between the various intermediaries is also unique to the vegetables. In addition, at different stages in marketing system price levels play an important role in farm gate to end users. These features make the marketing system of vegetables to dissimilar from other agricultural commodities, especially in providing time, form and space utilities.

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#### INTRODUCTION

Marketing plays a vital role in determining the levels of income to the producer for his produce. Marketing is the final stage where the farmer converts all his efforts and investment into cash. In modern times farmers have become highly cost conscious and their financial position will depend not only on returns they receive from a particular enterprise but, also the place where they are selling their produce for getting a remunerative price. Hence, it is important to analyse the marketing practices that are being followed and to identify the market intermediaries and channels of marketing. In view of this, the present investigation was attempted to study the socio-economic profile of the respondent in study area, to identify the different marketing channels in disposal of brinjal and to workout the price spread in different marketing channels.

#### METHODOLOGY

A sample of 100 vegetable growers in Saron tahsil of Allahabad district (Uttar Pradesh) was selected randomly to have information in different aspects of marketing of brinjal. Details of marketing and agencies involved in marketing of the brinjal were obtained from 5 functionaries from each category selected randomly. Information on the marketing, costs and

prices received by different marketing agencies was collected for the year 2015-2016.

To study the effect of farm size on socio-economic status and disposal pattern of brinjal, the selected vegetable cultivators were grouped according to their size of total holding of land. The grouping was done with the following procedure. The cultivators were classified into three categories viz., (I) Small group upto 0.98 ha., (II) Medium group from 0.99 to 1.61 ha., (III) Large group 1.62 and above to draw meaningful conclusions.

**Table-1** Distribution of sample vegetable cultivators

Category	No. of Cultivators	Holding Size
Small	56	0 to .98 ha.
Medium	31	0.99 to 1.61 ha.
Large	13	1.62 ha. and above
Total	100	

#### Price spread (PS)

This represented 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's Selling price (RP).

$$PS = RP - PNP$$

In other words, it includes (I) the total costs of marketing (TMC) incurred by producer-sellers and market intermediaries

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excluding the commission agent and (ii) the net profit (NP) accrued to the intermediaries in the process of moving the produce from the producer-seller to consumer.

$$PS = TMC + NP$$

**Producer’s share in consumer’s rupee (PSCR)**

This was the percentage of the net price received by the producer-seller to the price paid by the consumer or selling price of retailer.

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

**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

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

MEI = Index of Marketing Efficiency

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

I = Total marketing cost and marketing margins.

**RESULTS AND DISCUSSION**

**Detail description of the selected farm households in different size of farms group**

**Demographic characteristics**

Table 1 revealed that size of the farms group in numbers for small, medium and large size farms were 56, 31 and 13 respondents respectively. Altogether 100 respondents were selected for study. Average family size of farmer was small 5.5, medium 5.8, and large Average size of the male and female small size farms was 3.07, 2.42 medium size farms 3.00, 2.79 and large size of farms group was 3.36, 3.04 and average size was 3.10, 2.67 respectively. Highest sample average percentage of different size of farms belongs to the age composition of below 15-59 years (69.47 %) followed by below 14 years (22.33 %) and above 60 years and above (7.88) respectively.

**Table 1** Detail descriptions of the demographic and age in different size of farms group

S. No.	Particulars	Farms Size			Sample Average
		Small	Medium	Large	
1.	Total number of sample households	56	31	13	100
2.	Average family Size	5.5	7.0	5.2	5.78
3.	Male	3.05 (55.90)	3.00 (51.86)	3.38 (52.50)	3.10 (53.84)
4.	Female	2.47 (44.09)	2.74 (48.13)	3.04 (47.50)	2.67 (46.15)
Age composition					
	Below 14 years	1.18 (20.90)	1.35 (24.13)	1.46 (22.50)	1.29 (22.33)
	15-59 years	3.93 (71.45)	3.95 (68.10)	4.30 (67.18)	4.01 (69.47)
	60 years and above	0.42 (7.63)	0.45 (7.75)	0.56 (8.75)	0.46 (7.88)

**Age composition**

Table 2 reveals that educational status of different size of farms groups. Literacy percentage was highest in large size farms (91.25%) followed by small size farms (87.28 %) and medium size farms (87.27 %) respectively. This makes the sample average for different size of farms group was 88.03 %. Among small, medium and large size farms group literates were 35.08 % of farms had studied education up to intermediate, 17.60 % of farms then studied the primary education followed by 16.01 % farms studied up to middle and high school. Only 13.64 % of farms had studied up to graduation.

From the table it could be seen that illiteracy percentage was highest in small size farms (12.74%) followed by medium size farms (12.73 %) and was lowest in large size farms (8.75%) respectively. Sample average was 11.98 % for different size of farms groups.

**Table 2** Detail description of Literacy in different Size of Farms Group

Sl. No.	Particulars	Literacy			Sample Average
		Size of Farms Group			
		Small	Medium	Large	
1.	Total number of sample households	56	31	13	100
3.	Average family Size	5.5(100)	7.0(100)	6.4(100)	5.78 (100)
1.	Primary	0.91	1.04	1.25	1.02
2.	Middle High school	0.86	0.86	1.20	0.93
3.	Intermediate	2.31	2.45	2.45	2.39
4.	Graduation and above	0.72	0.79	0.96	0.79
5.	Total literacy	4.80	5.16	5.84	5.12
6.	Total illiteracy	0.70	0.60	0.60	0.65

**Occupation or Working members of sample farmers**

Table 3 revealed that size of the farms group in numbers for small, medium and large size of farms were 56, 31 and 13 respondents respectively. Primary occupation was highest in small size farms (43.33%) followed by medium size farms (37.33%) and lowest in case of small size farms (20%) respectively. This makes the sample average for primary occupation was 30.00 % for different farms size groups. Secondary occupation for small, medium and large size of farms group was 46.34%, 34.1% and 19.5 % respectively and the sample average for secondary occupation was 41.00 % among different size of farms group. Tertiary occupation was highest in small size farms (48.27%) followed by medium size farms (34.48%) and lowest in large size farms (17.24%) respectively. This makes the sample average for tertiary occupation was 29.00 % in different size of farms groups.

The category-wise irrigated area at sampled farms is shown in Table 4 and Fig.4 Most of the area under irrigation is covered by well (38.03 %) followed by canals (23.85 %), (23.50 %) followed by tube wells and there is few farmers (18.54 %) who depends on river. These figures are clear indication that farmers of this region are very cautious about the irrigation in agriculture. They are investing to create the irrigation facilities at their farms if they easily get the electric connection. About 38.03 % area of total irrigation is irrigated by tube wells.

**Table 3** Occupation or Working members of sample farmers

S. No.	Particulars	Size of Farms Group			Total number of samples
		Small	Medium	Large	
1	Size of farms group (in numbers)	56	31	13	100
3.	Average family Size	5.5 (100%)	7.0 (100%)	6.4 (100%)	5.7 (100%)
I	One occupation (Primary occupation)	13 (43.33)	11 (37.32)	6 (20)	30 (30)
II	Two occupation (Secondary occupation)	19 (46.34)	14 (34.1)	8 (19.5)	41 (41)
III	Three occupation (Tertiary occupation)	14 (48.27)	10 (34.48)	5 (17.24)	29 (29)

**Table 4** Source-wise irrigated area at sampled farms(ha./farm)

S. No.	Categories	Size of Farms Group			Sample Average
		Small	Medium	Large	
1.	Tube well	0 (0.00)	0.6 (42.85)	2.4 (50.52)	0.67 (23.50)
2.	River	1.23 (21.42)	0.56 (3.57)	0.95 (20.00)	0.53 (18.54)
3.	Wells	0.5 (47.61)	0.20 (10.71)	1.6 (6.31)	0.97 (38.03)
4.	Canals	0.20 (30.95)	1.0 (42.85)	1.1 (23.15)	0.68 (23.85)
5.	Total irrigated area	3.56 (100)	1.56 (100)	6.3 (100)	2.85 (100)

### Cropping pattern

The cropping pattern at sampled farms is presented in Table 5 and Fig.5. It may be seen that the total cropped area is observed to be 0.92 hectare, 2.74 hectare and 7.5 hectare at small, medium and large farms, respectively. The highest cropped area is found to be in kharif season among all the categories.

The area under different crops in kharif season is observed to be 77.68 % at small, 71.78 percent at medium and 65.09 % at large farms. The area under rabi season is observed to be 22.82 %, 33.57 % and 15.20 % at small, medium and large farms, respectively. Cropping pattern may be observed from analysis that most of the respondents in the study area are interested to grow paddy crop during kharif season. The cropping intensity is calculated 129 %, 150 % and 126 % at marginal, small, medium and large farms, respectively.

**Table 5** Cropping pattern used by sampled farmers (ha/farm)

S. No.	Particulars	Size of Farms Group			Sample Average
		Small	Medium	Large	
1	Size of farms group (in numbers)	(77.68)	(71.78)	(65.09)	(73.22)
2	Average size of cultivated land (ha)	0.71	2.84	4.36	2.17
A.	Kharif crop				
	1. Paddy	0.36	1.02	4.14	1.30
	2 Green gram	0.35	0.62	1.22	0.82
	3.Black gram	-	0.2	0.46	0.16
	4. Vegetable	-	-	0.24	0.05
	5. Arhar	-	-	0.3	0.06
B.	Rabi crop				
	1. Wheat	0.21	0.24	0.45	0.27
	2. Mustard	-	0.45	0.54	0.26
	3.Pea	-	0.23	0.15	0.11
1	Average size of cultivated land (ha)	0.21	0.92	1.14	0.64
2	Size of farms group (in numbers)	(22.82)	(33.57)	(15.20)	(25.13)
	Total cropped area	0.92 (100)	2.74 (100)	7.5 (100)	2.81 (100.00)
	Cropping intensity (%)	129	150	126	135.78

### Disposal pattern of Brinjal

For agrarian economics, it is not important to merely increase agricultural production, but simultaneously marketable surplus must also increase. In most cases, marketed surplus may be less than the marketable surplus because of hoarding a part of the commodity in anticipation of rising price. Contrary to this, no difference between marketable surplus and marketed surplus of vegetables was observed in the present study. This was attributed mainly to the highly perishable nature of vegetables, lack of appropriate storage facilities and wide price fluctuations in the market. The per hectare disposal pattern of brinjal is shown in Table 6. The vegetable growers marketed almost all the produce from the farm after using 0.59 per cent quantity for family consumption, while the losses were meagre (0.35%). The disposal pattern revealed that the marketed surplus decreased with increase in farm size.

### Sale pattern and marketing channels

#### Sale Pattern

The sale pattern of brinjal through various marketing channels is presented in Table 7.

It is observed from Table 7 that out of the total quantity of brinjal (1399.80 quintals) marketed by vegetable growers, 59.30 per cent was handled by the wholesaler. The Share of commission agent in total quantity marketed was found to be 36.26 percent. The share of wholesalers in total value of brinjal sold was higher than the share of commission agents. The per quintal price received by the producers was higher when sold through retailer (Rs. 726.57).

#### Marketing Channels

Following marketing channels were identified in the study area in marketing of brinjal:

1. Producer - Retailer - Consumer.
2. Producer - Wholesaler - Retailer-Consumer.
3. Producer - Commission agent - Wholesaler - Retailer - Consumer.

The channel II was the important channel in sale of brinjal for the farmers in the study area because major portion of the produce was marketed through this channel.

**Table 6** Per hectare disposal pattern of Brinjal

(Quantity in quintals)

S. No.	Particulars	Group			
		Small (N=56)	Medium (N=31)	Large (N=13)	Overall (N=100)
I. Production		153.40 (100.00)	167.85 (100.00)	164.40 (100.00)	162.70 (100.00)
II. Quantity consumed on farm					
	(a) Home Consumption	0.50 (0.32)	0.67 (0.40)	0.67 (0.41)	0.59 (0.36)
	(b) Gift to relatives	-	0.16 (0.09)	0.44 (0.27)	0.12 (0.07)
	(c) Losses (due to breakages and spoilage)	0.29 (0.19)	0.33 (0.20)	0.28 (0.17)	0.35 (0.22)
III. Marketed Surplus		152.61 (99.49)	166.69 (99.31)	162.99 (99.15)	161.64 (99.35)

(Figures in the parentheses indicate percentages to the total)

**Table-7** Sale pattern of Brinjal through various marketing channel

S. No.	Particulars	Functionaries involved			All Functionaries
		Retailer	Wholesaler	Commission Agent	
1	Quantity sold (q)	62.10 (4.44)	830.10 (59.30)	507.60 (36.26)	1399.80 (100.00)
2	Price Per quintal (Rs.)	726.57	703.94	705.86	705.64
3.	Value (Rs.)	45120.00	58340.50	358297.00	987757.50

(Figures in the parentheses indicate percentages to the total).

**Marketing cost incurred by different market functionaries**

The cost incurred by different marketing functionaries is given in Table 7.

**Table-8** Per quintal cost of marketing of Brinjal incurred in various channels by market functionaries

Sl. No.	Channels	Producer	Retailer	Whole-Saler	Comm. Agent	Total cost of Marketing
1.	Sale through retailer	33.80 (34.90)	63.05 (65.10)	-	-	96.86 (100.00)
2.	Sale through Wholesaler	53.33 (37.80)	64.26 (45.54)	23.52 (16.66)	-	141.10 (100.00)
3.	Sale through Commission agent	24.57 (21.84)	62.73 (55.75)	23.80 (21.15)	1.42 (1.26)	112.52 (100.00)

(Figures in the parentheses indicate percentages).

**Table-9** Per quintal price spread in Brinjal

(Quantity in quintals)

Sl. No.	Particulars	I	Marketing Channels	
			II	III
1	2	3	4	5
1	Net price realised by producer	692.77 (69.28)	650.61 (57.94)	610.43 (53.14)
2	Wholesaler's net margin	-	57.48 (5.12)	58.18 (5.06)
3	Retailer's net margin	210.36 (21.04)	273.61 (24.37)	296.71 (25.83)
4	Commission agent's net Margin	-	-	70.86 (6.17)
5	Cost of marketing	96.86 (9.68)	141.10 (12.57)	112.52 (9.80)
6	Consumer's price	999.99 (100.00)	1122.80 (100.00)	1148.70 (100.00)
7	Total marketing cost (TMC)	307.22 (30.72)	472.19 (42.06)	538.27 (46.86)

(Figures in the parentheses indicate percentages to the total).

It is observed from the Table 8 that per quintal marketing cost of brinjal incurred by the producers was maximum in channel II (Rs. 53.33) followed by Channel I (Rs. 33.80) and Channel III (Rs. 24.57). The marketing cost incurred by producers was low in channel III because the produce was transported in large quantity, which resulted in low cost of transportation. In most cases, in channel III, producers did not incur the losses.

In channel-I, out of the total marketing cost (Rs. 96.86/ q), the producer's contribution was 34.90 per cent to the total and the remaining was incurred by the retailer. The proportionate share of producers was 37.80 per cent followed by retailers (45.54%) and wholesalers (16.66%) in channel II. In channel III the total cost of marketing (Rs. 141.10) was shared by producer, retailer, whole saler and commission agent in the proportion of 21.84, 55.75, 21.15 and 1.26 per cent, respectively.

The marketing cost incurred by commission agents was comparatively lower than those incurred by wholesalers and retailers. It was due to non-performance of grading, packing and transportation functions by commission agents.

**Total marketing cost and price spread**

The cost and margin for each agency with their share in different channels in marketing of brinjal is given in Table 9.

**Share of producer**

As apparent from Table 9 the producers who sold their brinjal through channel I realised maximum share (69.28%) in consumer's rupee, with a net price of Rs. 692.77/q. The producer's share in consumer's rupee in channel II was 57.94 per cent and channel III it was 53.14 per cent. The producer's share in consumer's rupee was the lowest in channel III because the producers marketed their produce through more intermediaries i.e. commission agents, wholesalers and retailers, who reaped away large amount from consumer's price.

Channel I is the most profitable channel followed by channel II for marketing of brinjal.

**Share of commission agent**

Commission agent as marketing functionary was found to be involved only in channel II. The margin of commission agent was about 6.17 per cent in the consumer's price. The

Commission agents reaped comparatively higher benefit with only a small effort.

**Share of wholesaler**

The net margin share of wholesaler was 5.12 per cent in channel II and 5.06 per cent in channel III, which is comparatively lower than commission agent.

**Share of retailer**

The net share of the retailer in consumer’s rupee was worked out to 21.04 per cent in channel I, 24.37 per cent in channel II and 25.83 per cent in channel III. The retailers usually fix their profits at a higher level due to low turnover as well as due to higher risk of spoilage.

**Total marketing cost (TMC)**

The percentage share of total marketing cost in consumer’s price paid was 30.72, 42.06 and 46.86 per cent in channel I, II and III respectively. The total marketing cost was highest in channel III and lowest in channel I.

**Marketing efficiency**

Marketing efficiency (ME) estimated in marketing of brinjal is presented in Table 10.

It is revealed from the Table 10 that the marketing efficiency was higher in channel I (2.25) followed by channel II (1.37) and channel III (1.13). The higher marketing margins intercepted by the market intermediaries in the channel II and III resulted in the poor efficiency of marketing of brinjal.

**Table-10** Marketing efficiency in marketing of Brinjal

Sl. No.	Particulars	I	Marketing Channels	
			II	III
1	2	3	4	5
1	Value of the produce sold (V) (Consumer’s price Rs./q)	999.99	1122.80	1148.70
2	Total marketing cost (I) Rs./q	307.22	472.19	538.27
3	Marketing efficiency	2.25	1.37	1.13

**CONCLUSION**

In case of brinjal following three channels were patronized by the vegetable growers for marketing of their produce: Channel-I (Producer-Retailer-Consumer), Channel- II (Producer-Wholesaler-Retailer-Consumer) Channel-III (Producer-Commission agent-Wholesaler-Retailer- Consumer). The channel II was most favoured channel in the study area as maximum (nearly 50%) quantity was passed through this channel.

The producer’s share in consumer’s rupee was maximum in channel I (68.28%), followed by channel II (57.94%) and channel III (53.14%). The share of retailer in consumer’s price 21.04 per cent in channel I, 24.37 per cent in channel II and 25.83 per cent in channel III. The share of wholesaler in consumer’s price was 5.12 per cent in channel II and 5.06 per cent in channel III. The net share of commission agent was 6.17 per cent in consumer’s rupee in channel III. The total marketing cost was maximum in channel III (46.86%) and minimum in channel I (30.72%). It was also revealed that the marketing efficiency was higher in Channel-I (2.25) followed by Channel-II (1.37) and Channel- III (1.13).

It is revealed that the marketing efficiency was higher in channel I (2.25) followed by channel II (1.37) and channel III (1.13).

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