Original Research Article

ECONOMIC ANALYSIS OF CUCUMBER MARKET PERFORMANCE AND THEIR CONSTRAINTS IN SULTANPUR DISTRICT OF UTTAR PRADESH

ABSTRACT

The study of cucumber marketing in Sultanpur district of Uttar Pradesh necessary to find out the share of profit made by farmers and other intermediaries in the marketing channel. Therefore, current study was attempted to find out the marketing cost, market margins, price spread and marketing efficiency of cucumber produced. A multistage stratified purposive cum random sampling technique was applied for the selection of district, block, villages and respondents. Total 100 respondents (i.e., 66 marginal, 23 small and 11 medium) were selected randomly through proportionate allocation method in the population during 2021-22. The primary data were collected through survey schedule with the help of personal interviews. From the investigation there are three types of marketing channels were observed in cucumber marketing *i.e.,* Channel-I (producer → consumer), Channel-II (producer → retailer → consumer) and Channel-III (producer → wholesaler → retailer → consumer). Overall maximum produce of cucumber was sold by different group of farms through channel-III. Moreover, cucumber growers were also faced different types of marketing problems. In which major three marketing problems faced by the growers were perishability problems, lack of storage facilities and grading problems, respectively which were ranked by using Garrett ranking technique. Major suggestions of cucumber farmers to overcome these constraints are storage facilities in mandi should be provided to the farmers for their perishable products and entrusting government representatives with marketing duties in exchange for a fair fee.

Keywords: Price spread, marketing efficiency, producer's share in consumer rupee, marketing pattern, garrett ranking technique.

INTRODUCTION

Indian economy has been based mainly on agriculture and allied sectors. Its share of GDP has dropped from 54.19% in 1950–51 to only 20.2% in 2020-21 (NSO 2021). Globalization, resource depletion, climate change, increasing industrialization, population growth, and changing consumer behaviour are responsible for this. Agriculture and allied sectors are experiencing a period of transition all around the world. Now, Indian agriculture must reorganize itself by extending its scope beyond just primary agriculture. As a result, there is a need to reform the farming sector, invest

extensively in infrastructure development, enhance access to formal credit, and adopt agriculture policies that are in step with ground reality.

Vegetable demand in developing countries has increased due to population and economic development *(Arsanti et al. 2007).* India, the world's second largest producer of fruit and vegetables after China, is generally known as the Fruits and Vegetable Basket *(Chari and Madhav Raghavan, 2012; Sudharshan et al. 2013; Nabi and Bagalkoti, 2017)*. In recent decades, this sector has expanded importance by contributing a growing share in Gross Value addition of the agriculture and allied sectors. Under the changing agriculture scenario, it has been realized that the horticulture sector is important to the Indian economy (contributes 30.4% to GDP and 33% to GVA of agriculture) *(Fedorov and Kuznetsova, 2020; Schenau et al. 2022; Agarwal et al. 2016)*. Because it is more productive than agriculture, the horticulture sector has emerged as one of the primary drivers of growth (food grains mainly). Horticulture production in India has risen dramatically in recent years. In the past ten years, annual production grew by 4.8%, and the area under horticulture increased by 2.6% *(Kumar and Singh, 2020; Jiji, 2020; Saryam and Jirli, 2020)*. Apart from ensuring the nation's nutritional security, it also creates new jobs, diversification of farm activities, provides raw materials to various food processing industries and increases farm profitability through increased productivity and foreign exchange earnings.

Vegetables contain fibre, carbs, minerals, and vitamins, including fat-soluble vitamins like vitamin A and vitamin D as well as water-soluble vitamins like vitamin B and vitamin C. *(Settaluri et al. 2012)*. These proteins have a great biological value even though they only comprise less than 3% protein. Vegetables additionally have therapeutic qualities. The juices of carrot, cucumber, bitter gourd, cabbage, lettuce, and spinach are a few examples. *(Adhiguru et al. 2004; Sharma et al. 2010; Wavdhane et al. 2016)*. Fruit and vegetable sources of traditional antioxidant elements like vitamin C, beta-carotene, and manganese include cucumbers (*Cucumis sativus*), which are a valuable source of these nutrients. It also contains approximately 95% water, making it frequently advised as a natural diuretic and useful for bodybuilding *(Elum et al. 2016; Maurya et al. 2019)*.

Cucumber (*Cucumis sativus* L.) (2n=14) belongs to the family of Cucurbitaceae, a member of the Cucumis genus. The cucumber is known to be originated from Southern Asia, but today grown in most countries *(Grumet et al. 2021)*. Asia is responsible for more than half of global cucumber production. Turkey, Iran, Uzbekistan, Japan, and Iraq were regarded as Asia's largest cucumber producers *(Khan et al. 2015)*. Cucumber has spread beyond Indian borders since that pivotal moment over 4000 years ago, passing through Ancient Greece, Rome, Europe, the New World, and China on its way to becoming the world's fourth most widely cultivated vegetable *(Lutfa et al. 2019)*.

Cucumber is also referred to as pepino, cetriolo, gherkin, gurke, krastavac, concombre, hunggua, kiukaba, khira, kiukamupa, and kukamba. It's a summer season (temperature between 18 and 24 °C) short duration (90-100 days) crop that matures quickly. It is used as a cooling food in summer *(Khan et al. 2015; Xanthopoulou et al. 2022)*. Cucumber grows best on light, heavy, well-drained soil with an abundance of organic matter. Cucumber plants are naturally monoecious, which means they have separate male and female flowers. *(Bai and Xu, 2013; Swamy, 2017)*. The present study is an attempt to work out marketing costs, marketing margins, price spread and identify marketing channels and constraints in the marketing of cucumber.

MATERIALS AND METHODS

The study was based on primary data which collected from Sultanpur district of Uttar Pradesh. In which the Amhat Mandi serving as major market for disposal of cucumber in the study area, was selected for studying the nature and magnitude of marketing costs and margins in the marketing of cucumber. A multistage stratified purposive cum random sampling technique was applied for the selection of district, block, villages and respondents. Total 100 respondents (i.e., 66 marginal, 23 small and 11 medium) were selected randomly through proportionate allocation to the population during August-October 2022. The main market functionaries engaged in the marketing of Amhat village traders, wholesalers/commission agents and retailers. Therefore, a list of all market functionaries involved in the marketing channels have been prepared and then a sample of 10 per cent of all the market functionaries have been randomly selected for the study of marketing aspects. Model price was used for the study.

Marketable surplus:

It is the quantity of produce left after meeting out the requirements of the producer for family consumption, paid as wages, used for seed purpose etc *(Seth et al. 2018)*. The marketable surplus was measured through following formula:

$$MS = P - \{C + W + S\}$$

Where,

MS = Marketable Surplus
P = Total Production
C = Family Consumption
W = Quantity use for wage
S = Quantity kept for seed

Marketed surplus:

Marketed surplus is that quantity of the produce which the producer farmer actually sell in the market, irrespective of his requirements for family consumption, farm needs and other payments. The marketed surplus may be more, less or equal to the marketable surplus:

$$\text{Marketed surplus} \begin{matrix} < \\ = \\ > \end{matrix} \text{Marketable surplus}$$

Marketing cost:

Marketing cost was worked out using the following formula:

$$Marketing\ cost = T_c = C_p + \sum_{i=1}^{n} M_{ci}$$

Where,

T_c = Total cost of marketing
C_p = Cost incurred by the producer in marketing of his produce
M_{ci} = Marketing costs incurred by middle men or traders

Marketing margin:

Khanal and Dhakal (2020) were used to analyse the market margin. This is the difference between the total payment (cost + purchase price) and receipts (sale price) at the middlemen (i^{th} agency). The formula was,

a. Absolute margin of i^{th} middlemen (A_{mi}):

$$A_{mi} = P_{Ri} - (P_{pi} + C_{mi})$$

b. Percentage margin of i^{th} middleman (P_{mi}):

$$P_{mi} = \frac{P_{Ri} - (P_{pi} + C_{mi})}{P_{Ri}} \times 100$$

Where,
P_{Ri} = Total value of receipts per unit (sale price)
P_{pi} = Purchase value of produce per unit (purchase price)
C_{mi} = Cost incurred on marketing per unit.

Marketing efficiency:

Marketing efficiency was measured through following shephered's formula:

The ratio of the total value of goods marketed to the marketing cost was efficiency and vice versa. used to measure the efficiency. The higher the ratio, the higher efficiency and vice versa were suggested by *Harriss (1979)*.

$$Marketing\ efficiency\ (ME) = \frac{V}{I} - 1$$

Where,
V = Value of goods sold (consumer's price)
I = Total marketing costs (MC)

Higher the ratio, the higher efficiency and vice-versa.

Marketing channels:

In the study area, different channels were prevalent for the marketing of cucumber. The following channels were practiced by the farmers:

Channel - I: Producer → Consumer;
Channel - II: Producer → Retailer → Consumer; and
Channel - III: Producer → Wholesaler → Retailer → Consumer.

Producer's share in consumers rupees:

It is the price received by the farmer expressed as a percentage of the retail price (*i.e.,* the price paid by the consumer) (*Singh et al. 2018; Khanal et al. 2020*). If P_r is the retail price, the producer's share in the consumer's rupees (P_o) may be expressed as follows:

$$P_o = \frac{P_p}{P_r} \times 100$$

Where,

P_o = The producer's share in the consumers rupee
P_p = The producer's price for their produce
P_r = The price paid by the consumers or sale price of the retailers

Garrett's ranking technique:

To achieve this goal, the Garrett Ranking Technique was used to identify the most significant constraints that influence marketing of cucumber *(Laishram et al. 2022)*. Initially, the farmers' ranks were converted to percentage positions using the following formula:

$$Percent\ Position = \frac{100\ (R_{ij} - 0.5)}{N_j}$$

Where,

R_{ij} = Rank given for i^{th} preference by j^{th} farmer
N_j = Number of preferences ranked by j^{th} farmer

The percent position of each rank was translated to scores using the Garrett table. Individual respondent scores were added together and divided by the total number of respondents whose scores were combined for each constraint. As a result, the mean score for each limitation was sorted by arranging them in descending order. *(Agrawal and Banerjee, 2019; Upadhyay et al. 2021; Gautam et al. 2022)*.

RESULTS AND DISCUSSION

1. **Nature and extent of the marketable and marketed surplus of cucumber:**

Marketable and marketed surplus of cucumber is the difference between the total production and consumption of cucumber. Per farm nature and extent of the marketable and marketed surplus of cucumber is presented in table 1. It is observed from the table the marketable and marketed surplus was increasing with the increase in the size of sample farms. Family consumption was observed to be 0.56, 0.78 and 1.12 quintals on marginal, small and medium size group of farms, respectively. And marketable surplus was observed to be 12.37, 38.43 and 96.27 quintals on marginal, small and medium size group of farms with overall average 27.59 quintals. It may be concluded that vegetable cultivation has a positive correlation with the size of farms in the study area.

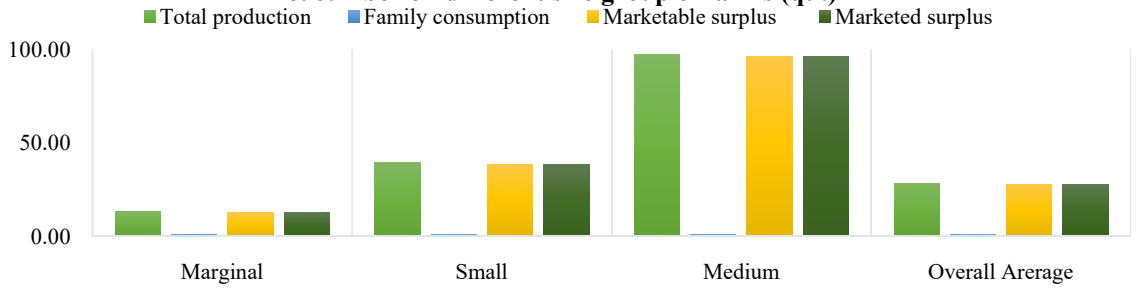
Table 1: Nature and extent of the marketable and marketed surplus of cucumber on different size group of farms (qtl.)

S. No.	Particulars	Size group of farms			Overall Average
		Marginal	Small	Medium	
A.	**Total production**	**12.93 (100.00)**	**39.21 (100.00)**	**97.39 (100.00)**	**28.27 (100.00)**
1.	**Family consumption**	**0.56**	**0.78**	**1.12**	**0.67**

		(4.33)	(1.99)	(1.15)	(2.38)
2.	**Marketable surplus**	**12.37** (95.67)	**38.43** (98.01)	**96.27** (98.85)	**27.59** (97.62)
3.	**Marketed surplus**	**12.37** (95.67)	**38.43** (98.01)	**96.27** (98.85)	**27.59** (97.62)

(Figures in parentheses indicate percentage to per farm to the total production under each size of samples)

Fig. 1: Nature and extent of the marketable and marketed surplus of cucumber on different size group of farms (qtl.)



2. Disposal pattern of cucumber through different channels of distribution:

The total yield of cucumber production on marginal, small and medium farms were 12.93, 39.21 and 97.39 quintals, respectively (table 1). Disposal pattern of cucumber through various channels, as producer → consumer, producer → retailer → consumer and producer → wholesaler → retailer → consumer is given table 2.

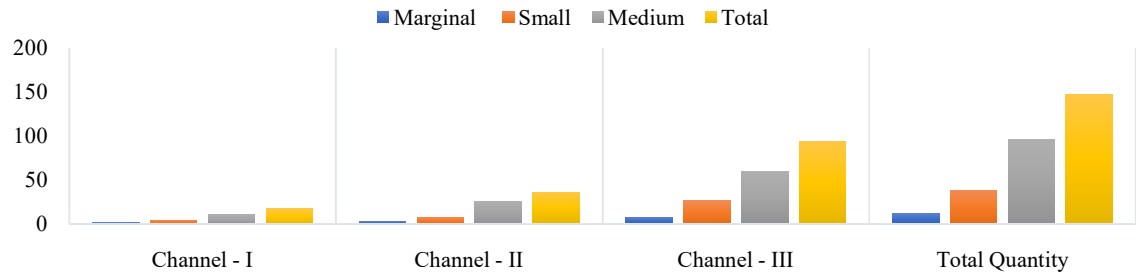
This table indicates that the maximum sale of cucumber was done through channel - III (94.03 qtl.) followed by channel - II (35.92 qtl.) and channel - I (17.12 qtl.), respectively. In respect to marginal farms, the maximum sale of cucumber was rooted through channel - III (7.76 qtl.), followed by channel - II (2.86 qtl.) and channel - I (1.75 qtl.). In the case of small farms, the maximum sale of cucumber was also done through channel - III (26.21 qtl.) followed by channel - II (7.69 qtl.) and channel - I (4.53 qtl.), respectively. In respect to medium farms, maximum sale of cucumber was also done in the same manner as marginal and small farms *i.e.,* channel - III (60.06 qtl.) followed by channel - II (25.37 qtl.) and channel - I (10.84 qtl.), respectively.

Table 2: Disposal pattern of cucumber through different channels on different size group of farms (qtl.)

S. No.	Size group of farms	Channel - I	Channel - II	Channel - III	Total Quantity
1.	**Marginal**	**1.75** (10.22)	**2.86** (7.96)	**7.76** (8.25)	**12.37** (8.41)
2.	**Small**	**4.53** (26.46)	**7.69** (21.41)	**26.21** (27.87)	**38.43** (26.13)
3.	**Medium**	**10.84** (63.32)	**25.37** (70.63)	**60.06** (63.87)	**96.27** (65.46)
Total		**17.12 (100.00)**	**35.92 (100.00)**	**94.03 (100.00)**	**147.07 (100.00)**

(Figures in parentheses indicate percentage)

Fig. 2: Disposal pattern of cucumber through different channels on different size group of farms (qtl.)



3. Price spread, marketing costs, marketing margin and market efficiency of cucumber:

The price spread refers to the difference between the price paid by the consumer and the actual (net) price received by the producer during the reference period for an equivalent quantity of farm produce. Marketing margins refer to the difference between the price paid and price received by any specific marketing agency. Marketing costs refers to the margin or profits of the middlemen, marketing charges paid by producers plus charges paid by whole sellers plus charge paid by retailers in the process of marketing of said procedure.

A. Channel – I (Producer → Consumer):

The price spread (marketing cost + market margin) of cucumber in the study area was worked out and depicted in table 3. It revealed from the table that the price spread came to ₹ 49.79, ₹ 51.32 and ₹ 53.12 per quintal on marginal, small and medium farms, respectively with accounted for 3.89, 4.05 and 4.27 per cent of the consumer's price. On an average marketing cost incurred by the producer was worked out *i.e.,* ₹ 50.51 per quintal with accounted for 3.97 per cent of the consumer's price which was charged for transportation, labour charge and loss during the sale. Producer's share in consumer's rupee was 96.03 per cent, as it was highest in comparison to the other three channels.

Table 3: Price spread for cucumber marketing in Channel - I (Producer → Consumer) (₹/qtl.)

S. No.	Particulars	Size group of farms			Overall average
		Marginal	Small	Medium	
1.	**Net price received by the producer**	**1229.00** (96.11)	**1216.00** (95.95)	**1191.00** (95.73)	**1221.83** (96.03)
2.	**Cost incurred by the producer**				
(i)	Transportation	**8.62** (0.67)	**8.84** (0.70)	**9.10** (0.73)	**8.72** (0.69)
(ii)	Cost of bags	**6.52** (0.51)	**6.71** (0.53)	**6.93** (0.56)	**6.61** (0.52)
(iii)	Weighing charge	**9.85** (0.77)	**10.15** (0.80)	**10.24** (0.82)	**9.96** (0.78)
(iv)	Loading and unloading	**5.29** (0.41)	**5.47** (0.43)	**5.86** (0.47)	**5.39** (0.42)
(v)	Losses	**10.27** (0.80)	**10.53** (0.83)	**10.91** (0.88)	**10.40** (0.82)

(vi)	Other	**9.24** (0.72)	**9.62** (0.76)	**10.08** (0.81)	**9.42** (0.74)
(vii)	Total cost incurred by the producer	**49.79** (3.89)	**51.32** (4.05)	**53.12** (4.27)	**50.51** (3.97)
3.	**Producer sale price/consumer purchase price**	**1278.79** (100.00)	**1267.32** (100.00)	**1244.12** (100.00)	**1272.34** (100.00)
4.	**Price spread**	**49.79 (3.89)**	**51.32 (4.05)**	**53.12 (4.27)**	**50.51 (3.97)**

(Figures in parentheses indicate percentage total of consumer's price each size of sample)

B. Channel – II (Producer → Retailer → Consumer):

It is observed from table 4 that the sale of cucumber was made through producer → retailer → consumer. On an average, share in consumer's rupee was worked out *i.e.,* 81.50 per cent, which was comparatively lower than channel - I because of one middlemen *i.e.,* the retailer involved. Expenses incurred on the marketing of cucumber and margins received by retailer came to 3.52 and 10.68 per cent, respectively. Per quintal price received by marginal, small and medium farms were ₹ 1134.00, ₹ 1121.00, and ₹ 1096.00 however, the producer's share in consumers rupee was 81.71, 81.30 and 80.64 per cent, respectively. It also revealed from the table that the price spread came to ₹ 253.78, ₹ 257.80 and ₹ 263.12 per quintal on marginal, small and medium farms, respectively with accounted for 18.29, 18.70 and 19.36 per cent of the consumer's price. On an average price spread was worked out *i.e.,* ₹ 255.73 per quintal accounted for 18.50 per cent.

Table 4: Price spread for cucumber marketing in Channel – II (Producer → Retailer → Consumer) (₹/qtl.)

S. No.	Particulars	Size group of farms			Overall average
		Marginal	Small	Medium	
1.	**Net price received by the producer**	**1134.00** (81.71)	**1121.00** (81.30)	**1096.00** (80.64)	**1126.83** (81.50)
2.	**Cost incurred by the producer**				
(i)	Transportation cost	**16.78** (1.21)	**16.83** (1.22)	**16.97** (1.25)	**16.81** (1.22)
(ii)	Cost of bags	**6.58** (0.47)	**6.66** (0.48)	**6.75** (0.50)	**6.62** (0.48)
(iii)	Weighing charge	**9.50** (0.68)	**9.72** (0.70)	**9.87** (0.73)	**9.59** (0.69)
(iv)	Loading and unloading	**5.50** (0.40)	**5.86** (0.43)	**6.21** (0.46)	**5.66** (0.41)
(v)	Losses	**10.34** (0.75)	**10.59** (0.77)	**10.82** (0.80)	**10.45** (0.76)
(vi)	Other	**10.20** (0.73)	**10.37** (0.75)	**10.81** (0.80)	**10.31** (0.75)
(vii)	Total cost incurred by the producer	**58.90** (4.24)	**60.03** (4.35)	**61.43** (4.52)	**59.44** (4.30)
(viii)	Producer sale price / Retailer purchase price	**1192.90** (85.96)	**1181.03** (85.66)	**1157.43** (85.16)	**1186.27** (85.20)
3.	**Cost incurred by the retailer**				

(i)	Transportation	**14.58** (1.05)	**14.76** (1.07)	**14.99** (1.10)	**14.67** (1.06)
(ii)	Grading	**4.72** (0.34)	**4.87** (0.35)	**5.02** (0.37)	**4.79** (0.35)
(iii)	Loading and unloading	**5.27** (0.38)	**5.63** (0.41)	**5.74** (0.42)	**5.40** (0.39)
(iv)	Market fee	**10.29** (0.74)	**10.53** (0.76)	**10.81** (0.80)	**10.40** (0.75)
(v)	Losses	**5.38** (0.39)	**5.67** (0.41)	**5.95** (0.44)	**5.51** (0.40)
(vi)	Other charges	**7.82** (0.56)	**8.03** (0.58)	**8.21** (0.60)	**7.91** (0.57)
	Total cost incurred by the retailer	**48.06** (3.46)	**49.49** (3.59)	**50.72** (3.73)	**48.68** (3.52)
4.	**Retailer net margin**	**146.82** (10.58)	**148.28** (10.75)	**150.97** (11.11)	**147.61** (10.68)
5.	**Retailer sale price / consumer purchase price**	**1387.78** (100.00)	**1378.80** (100.00)	**1359.12** (100.00)	**1382.56** (100.00)
6.	**Price spread**	**253.78 (18.29)**	**257.80 (18.70)**	**263.12 (19.36)**	**255.73 (18.50)**

C. Channel – III (Producer → Wholesaler → Retailer → Consumer):

Channel - III *i.e.,* producer → wholesaler → retailer → consumer was involved in the marketing of cucumber. On an average, the share in consumer's rupee was worked out *i.e.,* 70.08 per cent, which was comparatively lower than channel – I and II because of two middlemen *i.e.,* wholesaler and retailer involved (table 5). Expenses incurred on marketing costs at wholesalers and retailers were 1.74 and 4.71 per cent, respectively. Per quintal price received by marginal, small and medium farms were ₹ 1039.00, ₹ 1026.00, and ₹ 1001.00 however, the producer's share in consumers rupee was 70.42, 69.78 and 68.63 per cent, respectively. It also revealed from the table that the price spread came to ₹ 436.37, ₹ 444.37 and ₹ 457.45 per quintal on marginal, small and medium farms, respectively with accounted for 29.58, 30.22 and 31.37 per cent of the consumer's price. On an average price spread was worked out *i.e.,* ₹ 440.53 per quintal accounted for 29.92 per cent.

Table 5: Price spread for cucumber in Channel – III (Producer → Wholesaler → Retailer → Consumer) (₹/qtl.)

S. No.	Particulars	Size group of farms			Over all average
		Marginal	Small	Medium	
1.	**Net price received by the producer**	**1039.00** (70.42)	**1026.00** (69.78)	**1001.00** (68.63)	**1031.83** (70.08)
2.	**Cost incurred by the producer**				
(i)	Transportation cost	**35.84** (2.43)	**36.20** (2.46)	**36.89** (2.53)	**36.04** (2.45)
(ii)	Cost of bags	**6.42** (0.44)	**6.61** (0.45)	**6.82** (0.47)	**6.51** (0.44)
(iii)	Weighing charge	**8.58** (0.58)	**8.80** (0.60)	**9.25** (0.63)	**8.70** (0.59)
(iv)	Loading and unloading	**5.76** (0.39)	**5.94** (0.40)	**6.34** (0.43)	**5.87** (0.40)

(v)	Losses	**8.21** (0.56)	**8.49** (0.58)	**8.87** (0.61)	**8.35** (0.57)
(vi)	Other	**9.60** (0.65)	**9.84** (0.67)	**10.20** (0.70)	**9.72** (0.66)
(vii)	Total cost incurred by the producer	**74.41** (5.04)	**75.88** (5.16)	**78.37** (5.37)	**75.18** (5.11)
(viii)	Producer sale price / wholesaler purchase price	**1113.41** (75.47)	**1101.88** (74.94)	**1079.37** (74.01)	**1107.01** (75.19)
3.	**Cost incurred by the wholesaler**				
(i)	Grading	**4.52** (0.31)	**4.76** (0.32)	**4.89** (0.34)	**4.62** (0.31)
(ii)	Market fee	**7.14** (0.48)	**7.56** (0.51)	**7.91** (0.54)	**7.32** (0.50)
(iii)	Loading and unloading	**5.40** (0.37)	**5.67** (0.39)	**5.85** (0.40)	**5.51** (0.37)
(iv)	Weighing charge	**8.09** (0.55)	**8.18** (0.56)	**8.34** (0.57)	**8.14** (0.55)
(v)	Total cost incurred by wholesaler	**25.15** (1.70)	**26.17** (1.78)	**26.99** (1.85)	**25.59** (1.74)
(vi)	Wholesaler margin	**124.89** (8.46)	**126.27** (8.59)	**129.68** (8.89)	**125.73** (8.54)
(vii)	Whole seller's sale price / retailer purchase price	**1263.45** (85.64)	**1254.32** (85.31)	**1236.04** (84.75)	**1258.34** (85.46)
4.	**Cost incurred by the retailer**				
(i)	Transportation	**22.53** (1.53)	**23.84** (1.62)	**25.43** (1.74)	**23.15** (1.57)
(ii)	Loading and unloading	**5.62** (0.38)	**5.93** (0.40)	**6.12** (0.42)	**5.75** (0.39)
(iii)	Grading	**4.81** (0.33)	**4.97** (0.34)	**5.10** (0.35)	**4.88** (0.33)
(iv)	Weighing charge	**7.24** (0.49)	**7.59** (0.52)	**7.73** (0.53)	**7.37** (0.50)
(v)	Rent of shop / rehire	**10.48** (0.71)	**10.69** (0.73)	**10.95** (0.75)	**10.58** (0.72)
(vi)	Losses	**9.25** (0.63)	**9.43** (0.64)	**9.74** (0.67)	**9.35** (0.63)
(vii)	Other charge	**8.17** (0.55)	**8.36** (0.57)	**8.62** (0.59)	**8.26** (0.56)
(viii)	Total cost incurred by retailer	**68.10** (4.62)	**70.81** (4.82)	**73.69** (5.05)	**69.34** (4.71)
(ix)	Retailer margin	**143.82** (9.75)	**145.24** (9.88)	**148.72** (10.20)	**144.69** (9.83)
(x)	Retailer sale price / consumer purchase price	**1475.37** (100.00)	**1470.37** (100.00)	**1458.45** (100.00)	**1472.36** (100.00)
5.	**Price spread**	**436.37 (29.58)**	**444.37 (30.22)**	**457.45 (31.37)**	**440.53 (29.92)**

Inter-channel comparison as a whole for cucumber:

Table 6 highlights a summary of inter-channel comparison in respect of average marketing costs, margins and price spread of cucumber. It is interesting to mention that marketing costs increased as the increase in the number of intermediaries under channel - II and channel - III. By comparing, gross marketing margins were found to maximum having 29.92 per cent in channel - III followed by 18.50 per cent and 3.97 per cent in channel - II and channel - I, respectively.

Table 6: Inter-channel comparison as a whole for cucumber (₹/qtl.)

S. No.	Particulars	Channel - I	Channel - II	Channel - III
1.	Price received by the producer	**1221.83** (96.03)	**1126.83** (81.50)	**1031.83** (70.08)
2.	**Cost incurred by the producer**			
(i)	Total cost incurred by the producer	**50.51** (3.97)	**59.44** (4.30)	**75.18** (5.11)
(ii)	Producer sale price/consumer purchase price	**1272.34** (100.00)	**1186.27** (85.80)	**1107.01** (75.19)
3.	**Cost incurred by the retailer**			
(i)	Total cost incurred by the retailer	-	**48.68** (3.52)	-
(ii)	Retailer net margin	-	**147.61** (10.68)	-
(iii)	Retailer sale price /consumer purchase price	-	**1382.56** (100.00)	-
4.	**Total cost incurred by the wholesaler**			
(i)	Total cost incurred by the wholesaler	-	-	**25.59** (1.74)
(ii)	Wholesaler margin	-	-	**125.73** (8.54)
(iii)	Wholesaler's sale price / retailer purchase price	-	-	**1258.34** (85.46)
5.	**Total cost incurred by the retailer**			
(i)	Total cost incurred by retailer	-	-	**69.34** (4.71)
(ii)	Retailer margin	-	-	**144.69** (9.83)
(ii)	Retailer sale price / consumer purchase price	-	-	**1472.36** (100.00)
6.	**Price spread**	**50.51 (3.97)**	**255.73 (18.50)**	**440.53 (29.92)**

(Figures in parentheses indicate percentage to total of consumer's price each size of samples)

4. Marketing efficiency of cucumber:

The marketing efficiency of cucumber under different marketing channels has been presented in table 7. Which indicates that the channel - I was found more efficient as compared to channel - II

and channel - III because no middlemen were existing and producers were sold directly to the consumers which resulted in less marketing cost in channel - I as compared to other channels.

Table 7: Marketing efficiency of cucumber in different channels

Channel	Value of cucumber sold (₹/qtl.) (consumer's price)	Gross marketing margin (₹/qtl.) (Cost + margin)	Marketing Efficiency
I	1272.34	50.51	**24.19**
II	1382.56	255.73	**4.41**
III	1472.36	440.53	**2.34**

5. Producer's share in consumer's rupee, marketing costs and middlemen margins of cucumber under different channels:

Table 8 depicted that the producer's share in consumer's rupee, (in per cent), marketing costs (₹/qtl.) and middlemen margins (₹/qtl.) of different marketing channels in cucumber marketing. The producer's share in consumer's rupee was found maximum 96.03 per cent in channel - I followed by 81.50 per cent and 70.08 per cent in the case of channel - II and channel - III, respectively.

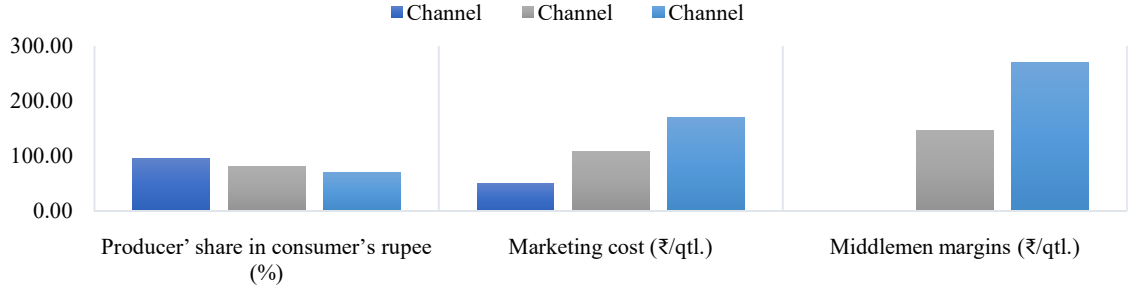
Table 8: Producer's share in consumer's rupee, marketing costs, and middlemen margins of cucumber in different channels

Particulars	Channel		
	I	**II**	**III**
Producer' share in consumer's rupee (%)	**96.03**	**81.50**	**70.08**
Marketing cost (₹/qtl.)	**50.51**	**108.12**	**170.11**
Middlemen margins (₹/qtl.)	**0.00**	**147.61**	**270.42**

Marketing costs per quintal were found maximum ₹ 170.11 in channel - III followed by ₹ 108.12 under channel - II and ₹ 50.51 under channel - I.

Middlemen margins were estimated ₹ 147.61 and ₹ 270.42 per quintal under channel - II and channel - III, respectively.

Fig. 3: Producer's share in consumer's rupee, marketing costs, and middlemen margins of cucumber in different channels



Constraints faced by the farmers during the cucumber marketing:

The major problems faced by cucumber growers on different size of farms in the study area were analyzed and presented in table 9**.** From the table revealed that the major marketing constraint faced by most of the cucumber growers was the perishability problem with a score of 56.20 (rank I). The second most important constraint faced by the cucumber growers was the lack of storage facilities (overall Garrett score 54.72). The other most important constraints reported by the growers was grading problem overall Garrett score 52.78 (rank III), difficulties in the transportation of vegetables overall Garrett mean score 50.79 with rank IV and constraints related to middlemen overall Garrett score 49.86 (rank V). In addition to the above problems, the minor problems faced also wide fluctuations in prices regarding the benefits of the scheme (rank VI), lack of market information and prices (rank VII) and weighing errors (rank VIII). The farmers further ranked IX higher constraints faced by the problem of the bulkiness of produce and observed Garrett's score 45.82 followed by the unavailability of chemicals constraints face in the production of cucumber with Garrett's score 45.71 and rank was X.

Table 9: Marketing problems on different size group of farms in the study area

S. No.	Particulars	Percent Position	Garrett Value	Total	Average Score	Rank
i	Weighing errors	5.00	82	4762	47.62	**VIII**
ii	Lack of storage facilities	15.00	70	5472	54.72	**II**
iii	Lack of market information and prices	25.00	63	4764	47.64	**VII**
iv	Unavailability of chemicals	35.00	58	4571	45.71	**X**
v	Difficulties in the transportation of vegetables	45.00	52	5079	50.79	**IV**
vi	Perishability problem	55.00	48	5620	56.2	**I**
vii	Grading problem	65.00	42	5278	52.78	**III**
viii	Constraints related to middlemen	75.00	37	4986	49.86	**V**
ix	Wide fluctuations in prices	85.00	30	4886	48.86	**VI**
x	Problem of bulkiness of produce	95.00	18	4582	45.82	**IX**

CONCLUSION

Marketing of vegetables assumes great significance from the producer's as well as consumer's point of view. We have emphasized the marketing of vegetables. Hence, this study has examined the marketing costs, market margins, market efficiency and price spread of cucumber in Sultanpur market. Three types of marketing channels were observed in cucumber marketing *i.e.,* Channel - I (producer → consumer), Channel - II (producer → retailer → consumer) and Channel - III (producer → wholesaler → retailer → consumer). Overall maximum produce of cucumber was sold by different group of farms through channel - III. Marketing cost was maximum in channel - III as compared to other channels while producer's share in consumer's rupee was maximum in channel - I and was minimum in channel - III. The family use of cucumber was observed to be 0.56, 0.78 and 1.12 quintals on marginal, small and medium size group of farms, respectively and marketable and

marketed surplus were observed to be 12.37, 38.43 and 96.27 quintals on marginal, small and medium farms, respectively. Total disposal of cucumber was 147.07 quintals out of which disposal of cucumber by channel - I, channel - II, channel - III, came to 17.12, 35.92 and 94.03 quintals, respectively. On overall average, net price received by the producer under channel - I, II and III was ₹ 1221.83, ₹ 1126.83 and ₹ 1031.83 per quintal, respectively. The highest net price received under channel - I due to farmers was to sell produce directly to the consumer in the local area. By comparing gross marketing margins was found maximum 29.92 per cent in channel - III followed by 18.50 per cent and 3.97 per cent in channel - II and channel - I, respectively. The marketing efficiency of cucumber under channel - I (24.19 per cent) was found more efficient as compared to channel - II (4.41 per cent) and channel - III (2.34 per cent) because no middlemen were found in channel - I. The producer's share in consumer rupee was found maximum in cucumber 96.03 per cent in channel - I followed by 81.50 per cent and 70.08 per cent under channel - II and channel - III, respectively. It was observed during the investigation that cucumber growers faced different types of marketing problems in which the top three marketing problems faced by the growers were perishability problems (overall Garrett score 56.20), lack of storage facilities (54.72) and grading problem (52.78).

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