

# Marketing pattern and price spread of climate controlled polyhouse and open field cucumber in Jaipur district of Rajasthan

## ABSTRACT

In recent years, there has been concern about the effectiveness of marketing fruits and vegetables, which has resulted in high and volatile consumer price with only a minute portion of the consumer rupee flowing to the farmers. Horticultural crops are difficult to market because of their perishability, seasonality, and bulkiness. Present study was an attempt to study the marketing channel and their efficiency. The Jaipur district of Rajasthan was selected purposively for the present study. A total of 10 wholesaler/ commission agent, 10 retailer and 50 farmers in which 25 respondent of polyhouse and 25 respondents were open field cucumber grower were selected randomly. The most common marketing channel engaged in marketing of polyhouse and open field cucumber in Jaipur district are following: Channel – I: Producer – Commission Agent – Wholesaler – Retailer – Consumer and Channel- II: Producer- Retailer- Consumer. Among both cucumber production system, in channel II the marketing cost incurred per quintal of cucumber was much lower than cost incurred in channel I. **Since the marketing cost and marketing margin in channel I was higher, so the marketing efficiency was very low for that channel.** At the same time in channel II was found to be lower price spread under both production systems. The most effective means of enhancing farmers' market access and reduce marketing cost through institutional means is by reinforcing cooperative societies, FPOs and shorten the marketing channel.

**KEYWORD:** Acharya approach, Shepherd approach, marketing channel, price spread and marketing efficiency.

## 1. INTRODUCTION

Agricultural marketing refers to a variety of interconnected services and activities pertaining to the transportation of agricultural goods from the farm to the consumer. Production planning, planting and harvesting, sorting, packaging, moving, and storage; agro- and food processing; distribution; and

marketing and sales are some of these tasks. A vital aspect of food production nowadays is the agricultural market. The infrastructure available for marketing agricultural products is intimately related to the growth of an economy in general and the agriculture sector in particular. Farmers, consumers, and traders are all very concerned about the marketing of agricultural goods since it offers a channel for selling agricultural produce, a way for consumers to meet their consumption needs, and a way for traders to make money and support their livelihood [1]. Strong connections between production and marketing strategies are required, yet the marketing infrastructure in Indian polyhouse agriculture is lacking. In the case of several crops, the imbalance resulted in a market surplus. Only by establishing a strong agricultural marketing system in our nation, can we overcome the difficulties brought on by the surplus crop output and, more crucially, the worldwide environment of liberalized trade. It has been recognized that the growth of polyhouse agriculture must be driven by the market as well as responsive to the changed global trade environment [2].

India transitioned from a food scarcity economy in the 1950s to a food surplus economy today. Agriculture and related sector activities employ more than 50 percent of India's total workforce and contribute about 18.8 percent of the country's gross value added at constant prices in 2021-22. Horticulture accounts for 30% of India's agriculture GDP and India is the world's second largest producer of fruits and vegetables after China [3]. The entire area under horticulture crops in India is 27.59 million hectares, with a total output of 331.05 million tonnes; however, the total area under vegetable production in the country is 10.97 million hectares, with a total production of 197.23 million tonnes. Among horticulture crop, cucumber area and production in India during 2020-21 were 0.12 million hectares and 1.67 million metric tonnes, respectively [4]. Cucumber (*Cucumis sativus* L.) is a popular vegetable and one of the Cucurbitaceae family's most popular member [5]. Fruits are popular as a cooling snack in the summer. They're utilized in salads and in cooking curries. Cucumbers cover a huge region and are enjoyed by a wide range of people throughout the year. This is a summer-season crop that is commonly produced in India and may be easily included into a variety of vegetable and non-vegetable crop rotations. It offers a lot of potential in terms of yield, revenue, and job creation per unit of land and time. Vegetable consumption has grown nationwide, across all areas and income classes, as a result of the expanding population and better economic conditions [6,7].

## 2. METHODOLOGY

The study is based on primary data. The primary information regarding marketing of cucumber was collected from 25 polyhouse farmers and 25 open field farmers from four villages of two block of the Jaipur district of Rajasthan using the multistage stratified random sampling technique. Further a sample of 5 wholesalers/commission agents from Jaipur (Fruit and Vegetables) mandi and 5 retailers from Jobner area were selected for gathering information on expenses incurred on cucumber marketing at different marketing channels in both production system. To meet the objectives of the study, primary data was collected with the help of pre-tested schedule by personal interview method with the respondents.

### 2.1. Analytic Tool

In conducting analysis, employed the methodology proposed by Acharya and Agrawal as outlined in their work. Their book provided a comprehensive framework for understanding and implementing price spread, marketing cost, margin and marketing efficiency analysis, which proved instrumental in research study [8].

#### 2.1.1. Marketing cost:

The cost incurred by the producer and middlemen involved in buying and selling of the cucumber reaches to the ultimate consumer. The marketing cost was calculated as:

$$C = C_f + C_{m1} + C_{m2} + \dots + C_{mi}$$

Where,

C= Total cost of marketing of the cucumber.

C<sub>f</sub>= Cost incurred by the producer

C<sub>mi</sub> = Cost incurred by <sup>i</sup><sup>th</sup> middle-man in the process of buying and selling the cucumber.

#### 2.1.2. Marketing margins:

This is the earnings that the intermediaries received for the services rendered by them in moving the cucumber in the marketing channels.

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

Where,

A<sub>mi</sub> = Margin of Middlemen

$P_{Ri}$  = Selling price per unit

$P_{pi}$  = Buying price per unit

$C_{mi}$  = Marketing cost incurred per unit

### 2.1.3. Producer' Price

$$P_f = P_A - C_f$$

Where,

$P_A$  = Wholesale price in assembling market

$C_F$  = marketing cost incurred by producer

$P_f$  = Producer price

### 2.1.4. Producer's share in consumer's rupee:

It refers to the price received by the farmer expressed as the percentage of retail price i.e., the price paid by consumer for cucumber.

$$\text{Producer's share in Consumer's rupee (Ps)} = \frac{\text{Price received by producer (Pf)}}{\text{Price paid by consumer (Pc)}} \times 100$$

### 2.1.5. Price spread:

It refers to the difference between price paid by consumer and price received by producer for an equivalent quantity of cucumber.

$$\text{Price spread} = \frac{P_c - P_f}{P_c} \times 100$$

Where,

$P_c$  = Price paid by the consumer

$P_f$  = Net price received by the producer

### 2.1.6. Acharya's modified marketing efficiency [8] (ME):

$$ME = \frac{FP}{(MC + MM)}$$

Where,

FP = Net price received by farmers for cucumber

MC = Total marketing cost

MM = Total net margin of intermediaries

### 2.1.7. Shepherd approach (Shepherd, 1965):

$$\text{Marketing efficiency} = \frac{\text{Consumer purchase price } (P_c)}{\text{Total marketing cost } (M_c)}$$

## 3. RESULTS AND DISCUSSION

Two marketing channels were prevailing in the study area. These are [1] Channel – I: Producer – Commission Agent – Wholesaler – Retailer – Consumer and Channel- II: Producer- Retailer- Consumer. In agricultural marketing higher producer's share in consumer rupees and lower price spread indicates high efficiency of marketing channels. As farmers sell their products to commodity agents and those agents sell them further in market at double rate which is actual great loss to farmers [9]. Polyhouse cucumber got good market price in comparison to open field cucumber because former produce have good quality and high market demand.

### 3.1. Marketing Cost and Margin of Cucumber

The marketing cost, marketing margin and marketing efficiency for channel – I and channel – II for polyhouse and open field cucumber crop under study was presented in Table 1 and Table 2. It was observed from the table 1 that the per quintal total marketing cost for polyhouse cucumber was Rs 293.58 in channel – I whereas it was Rs 240.00 in channel – II. In marketing of open field cucumber in Channel I farmers incurred higher marketing cost of Rs.262.25 per quintal followed by Channel II with Rs.197.40 per quintal. The market margin for polyhouse cucumber was found higher in channel I in comparison to channel – II, similar trend was found in open field cucumber. In the polyhouse and open field cucumber marketing, channel II found a greater producer share in consumer rupees than channel II.

**Table1:Marketing costs in various channels of polyhouse and open field cucumber marketing**

(Rs./qtl.)

S. No	Particular	Polyhouse		Openfield	
		Channel I	Channel II	Channel I	Channel II
1	<b>Producer</b>				
	Marketing cost incurred by producer				
(i)	Packaging	15	15	15	15

(ii)	Loading	15	15	15	15
(iii)	Unloading	10	10	10	10
(iv)	Weighing	10	0	10	0
(iii)	Transportation charge	66.28	24.80	64.35	25
(iv)	Commission	-	81.60	-	55.20
	Total marketing cost borne by Producer	116.28	146.40	114.35	120.20
<b>2</b>	<b>Wholesaler</b>				
	Marketing cost incurred by wholesaler				
(i)	Commission (@6%)	72.24	-	48.72	-
(ii)	Manditax (@1.50%)	18.06	-	12.18	-
	Total marketing cost borne by wholesaler	90.30	-	60.90	-
<b>3</b>	<b>Retailer</b>				
	Marketing cost incurred by retailer				
(i)	Loading	15	-	15	-
(ii)	Unloading	10	-	10	-
(iii)	Weighing	10	10	10	10
(iv)	Commission (@6%)	-	81.60	-	55.20
(v)	Market fee	2	2	2	2
(vi)	Transportation	50	-	50	-
	Total marketing cost borne by retailer	87	93.60	87	77.2
	<b>Total marketing cost</b>	<b>293.58</b>	<b>240.00</b>	<b>262.25</b>	<b>197.40</b>

(Source: Field Survey 2021-22)

### 3.2. Marketing Efficiency

The cost involved in moving the goods from producer to consumer and the level of service provided or preferred by the consumer is directly associated with the marketing efficiency. A channel is considered efficient if the price the customer pays is less than the value of the services they receive. Otherwise, it is considered inefficient. The efficiency of the channel will decrease as there are more middlemen between the farmer and the customer.

It may be observed from table 2, the marketing efficiency of channel II (7.75) is greater than of other existing channel under the Shepherd approach in polyhouse cucumber marketing. In such an approach, marketing efficacy is inversely connected to marketing expense and directly related to consumer purchase price. In open field cucumber marketing, channel II was found more efficient than channel I which was similar to polyhouse cucumber marketing. The marketing channel II was more efficient following Acharya approach in marketing of both technology produce because as compared to channel – I the marketing cost and margin was lower in channel – II. The result was supported by Mishra *et al.* (2014).

**Table 2: Producer's share, marketing margin, marketing cost and price spread in various channels of polyhouse and openfield cucumber marketing**

(Rs./qtl.)

S. No	Particulars	Polyhouse		Openfield	
		Channell	Channelll	Channell	Channelll
<b>1</b>	<b>Producer</b>				
(a)	Sales price of produce	1204.00	1360.00	812.00	920.00
(b)	Cost incurred by Producer	116.28	146.40	114.35	120.20
(c)	Producer Price	1087.72	1213.60	697.65	799.80
<b>2</b>	<b>Wholesaler</b>				
(d)	Purchase price of Produce	1204.00	-	812.00	-
(e)	Cost incurred by Wholesaler	90.30	-	60.90	-
(f)	Sales price of produce	1500.00	-	1060.00	-
(g)	Margin of wholesaler	205.70	-	187.10	-
<b>3</b>	<b>Retailer</b>				
(h)	Purchase price of produce	1500.00	1360.00	1060.00	920.00
(i)	Cost incurred by Retailer	87.00	93.60	87.00	77.20
(j)	Sales price of produce	1860.00	1860.00	1380.00	1380.00
(k)	Margin of Retailer	273.00	406.40	233.00	382.80
<b>4</b>	<b>Consumer</b>				
	Purchase price of Produce	1860.00	1860.00	1380.00	1380.00
	<b>Total marketing cost</b>	<b>293.58</b>	<b>240.00</b>	<b>262.25</b>	<b>197.40</b>
	<b>Total margin</b>	<b>478.70</b>	<b>406.40</b>	<b>420.10</b>	<b>382.80</b>
	<b>Price spread (%)</b>	<b>41.52</b>	<b>34.75</b>	<b>49.45</b>	<b>42.04</b>
	<b>Producer's share in consumer Rupees (%)</b>	<b>58.48</b>	<b>65.25</b>	<b>50.55</b>	<b>57.96</b>
	<b>Marketing efficiency</b>				
	<b>Acharya approach</b>	1.41	1.88	1.02	1.38
	<b>Shepherd approach</b>	6.34	7.75	5.26	6.99

(Source: Field Survey 2021-22)

#### 4. CONCLUSION

It is clear from above discussion that as the number of intermediaries in a marketing channel increases, the overall efficiency of the channel tends to decrease. With the increase in the length of marketing channel, marketing costs and profit margins increase significantly. In the case of the cucumber crops the results shows that the channel I have higher marketing efficiency than channel II because former channel have low marketing cost and margin than latter channel. The study found that when considering farmers mostly considered channel I because in channel II lack of demand for product and fair market practices. Recognizing the significant impact of technology mission initiatives on the growth and output of vegetable cultivation, it is imperative to pinpoint specific regions with untapped potential in vegetable production and include them in this program. Furthermore, it is crucial to allocate increased financial resources within this initiative towards research and development efforts, aimed at creating innovative solutions to enhance productivity and improve the quality of vegetable yields. To complement these efforts, the establishment of local regulated markets in proximity to these specialized vegetable cultivation areas is essential. Additionally, offering institutional crop marketing loans to vegetable farmers at reduced interest rates during their critical financial needs should be a priority [11].

The above study suggested that there is a need to revamp primary cooperative marketing societies, especially with the aim of reducing marketing cost and margin, which is require to incentivizing farmers for cultivating cucumber crop profitably. The most effective means of enhancing farmers' market access and reduce marketing cost through institutional means is by reinforcing cooperative societies, Farmer Producer Organization and shorten the marketing channel.

## REFERENCES

1. Ramaulu, M., Ramakrishna, & Lalitha, B. Agricultural Marketing and Inclusive Growth in India What does the Survey Data Suggest? The Case of Two Villages in Medak District of Telangana State. American Journal of Business, Economics and Management. 2014; 4(14): 34-41.
2. Dhankar, G. H. Development of internet based agricultural marketing system in India. Agricultural Marketing-Delhi.2003; 45(4), 7-15.
3. Economic Survey of India. Ministry of Finance, Economic Division. Government of India, New Delhi. 2021-22.

4. Anonymous. Third advance estimates, National Horticulture Board, Ministry of Agriculture, Cooperation & Farmers Welfare, Government of India. 2021.
5. Lower, R. L., and Edwards, M. D. 1986. Cucumber breeding In: M J Basset (ed.). Breeding vegetables crops. Westport, Connecticut USA: AVI Publishing Co. pp. 173-203.
6. Kumar, P. and Mathur, V. C. Structural changes in the demand for food in India. Indian Journal of Agricultural Economics. 1996; 51(4): 664-773.
7. Kumar, P. Food Demand and Supply Projections for India. Agricultural Economics Policy Paper 98-01. Indian Agricultural Research Institute, New Delhi. 1998.
8. Acharya, S. S. and Agarwal, N. I. Agricultural Marketing in India (Third Edition), Oxford and IBH Publishing Co. Pvt. Ltd, New Delhi. 2001.
9. Bhandralia, A., Arya, R., Panda, S. N., and Ahuja, S. Polyhouse agricultural marketing system using big data hadoop. International Journal of Advances in Applied Sciences. 2016; 5(2): 78-84. <https://doi.org/10.11591/ijaas.v5.i2.pp78-84>
10. Mishra, S., Singh, R., & Singh, O. P. Economic analysis of marketing of major vegetables in Varanasi district of Uttar Pradesh, India. Economic Affairs. 2014; 59(4): 649. <https://doi.org/10.5958/0976-4666.2014.00038.2>
11. Panda, R. K., & Sreekumar. Marketing channel choice and marketing efficiency assessment in agribusiness. Journal of international food & agribusiness marketing. 2012; 24(3): 213-230. <https://doi.org/10.1080/08974438.2012.691812>