



Marketing Pattern and Price Spread of Polyhouse and Open Field Cucumber Production in Jaipur District of Rajasthan, India

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Authors' contributions

This work was carried out in collaboration among all authors. Author SD conducted primary data collection, analyzed and interpreted the collected data using statistical methods and contributed to the results and discussion sections and conducted a comprehensive literature review. Author HLS developed the theoretical framework for the research, assisted in refining research objectives and hypotheses and drafted the methodology section. Author SY contributed to the interpretation of experimental results. All authors read and approved the final manuscript.

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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

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efficiency. The Jaipur district of Rajasthan was selected purposively for the present study. A total of 26 intermediaries and 50 farmers were selected randomly. Among the total farmers, 25 growers producing cucumber in polyhouses and 25 in open field 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- Commission agent- 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.

Keywords: Acharya approach; shepherd approach; marketing channel; price spread; 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 about 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 sector 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]. Cucumber 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 26 intermediaries from

Jaipur (Fruit and Vegetables) mandi and local market were selected for gathering information on expenses incurred on cucumber marketing at different marketing channels in both production systems. 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_f= Cost incurred by the producer

C_{mi} = Cost incurred by ith 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_{mi} = 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 [9] (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):

$$\text{Marketing efficiency} = \frac{\text{Consumer purchase price (P}_c\text{)}}{\text{Total marketing cost (M}_c\text{)}}$$

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-

Commission Agent- 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 is 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 I.

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.

Table1. Marketing costs in various channels of polyhouse and open field cucumber marketing (Rs./qtl.)

S. No	Particular	Polyhouse		Open field	
		Channel-I	Channel-II	Channel-I	Channel-II
1	Producer				
	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
2	Wholesaler				
	Marketing cost incurred by wholesaler				
(i)	Commission (@6%)	72.24	-	48.72	-
(ii)	Mandi tax(@1.50%)	18.06	-	12.18	-
	Total marketing cost borne by wholesaler	90.30	-	60.90	-
3	Retailer				
	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
	Total marketing cost	293.58	240.00	262.25	197.40

(Source: Field Survey 2021-22)

Identifying the profound influence of technology-driven mission initiatives on enhancing vegetable cultivation's productivity and expansion, it becomes essential to identify particular regions holding untapped potential in this sector and integrate them into the 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.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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