MARKETING CHANNELS OF GRAPES IN PUNE DIVISION OF MAHARASHTRA

ABSTRACT

India emerging as the world's second-largest producer of fruits and vegetables. Farmers who produce agricultural products are spread over distant communities whereas customers live in semi-urban or urban areas. This produce must reach consumers for final usage and consumption. This product passes via various agencies and functionaries before reaching the consumer. The study objective is to identify different marketing channels of Grapes, estimate the price spread and marketing efficiency of identified channels, and identify Problems faced by different stakeholders. Primary data were collected through 60 farmers and 30 intermediaries. A descriptive study design with a non-probability sampling method and purposive sampling technique was employed. Tabular, percentage and Garrett ranking methods were utilized for data analysis to obtain the desired results. From this study, four marketing Channels were found namely Channel I (Farmer – village trader- wholesalers cum commission agents - Retailer - Consumer), Channel II (Farmer – pre-harvest contractor- wholesalers cum commission agents - Retailer - Consumer), Channel III (Farmer -Wholesaler cum commission agent - Retailer – Consumer) and Channel IV (Farmer - Company CC - Company DC - Consumer. Channel III stands out with the highest producer's share in the consumer's rupee (62.43%) and the highest marketing efficiency (1.66). The majority of farmers faced the challenge of high costs incurred for the purchase of inputs and for the transportation of produce. The quality variation was a major problem faced by village traders. Price fluctuation was a major problem faced by pre-harvest contractors. Facing competition from other private players was a major problem for private companies. Quality variation was a major problem for the wholesaler cum commission agent. Retailers' major problems were price fluctuation followed by high transportation costs.

Keywords: *Marketing channel, cost, margin, efficiency, price spread, constraint*

1. INTRODUCTION

India is emerging as the world's second-largest producer of fruits and vegetables. Knowing the economic importance of fruit production many farmers changed their cultivation from commercial crops to horticultural crops which has resulted in a higher per-unit return from agriculture. However, India's production remains below that of developed countries. India lacks adequate infrastructure for processing and storing produced food.

As India's population continues to grow there is a rising demand for fresh fruits and vegetables. Despite the recent economic growth shown in the service and manufacturing sectors, agriculture remains significant contributing 17% of the GDP and employs 60% of the population. The increasing investments from national and international players in food retailing the agriculture sector is expected to modernize rapidly. Changing consumption patterns, alongside the growth of modern retail, present vast opportunities for stakeholders in production, processing, marketing, infrastructure development, technology upgrading and education. The use of Information Technology systems and increased organized retail sectors are better for the marketing of fruits and vegetables [1].

Right now, production is a concern, but the marketing of that produce is a major concern because the farmers do not get enough price for that produce because they face challenges like lack of market information, poor infrastructure for storage and a lack of transportation facilities, price fluctuation, quality variation etc. [2].

In horticulture crops, Karnataka has the most area of cultivation (2771.91 thousand hectares) followed by Uttar Pradesh (2530.32 thousand hectares). Uttar Pradesh has the highest production of 47089.15 thousand MT followed by Madhya Pradesh with 36553.61 thousand tonnes in horticulture crops. Maharashtra is the first-ranking state with 839.25 thousand hectares of area of cultivation and Andhra Pradesh ranked first with a total production of 18112.01 thousand metric tons in fruit crops [3].

Grapes (*Vitis vinifera*) belongs to the family *Vitaceae* and it is one of the most popular fruits in the world. Table grapes are more consumed in India. It is also used to make raisins, wine and other products. Grape skin is a source of essential oil and pectin. It can also be used as a raw material in the production of animal feed and sweets. Grapes have a high concentration of sugars the majority of which are fructose and antioxidants. It activates liver function, facilitates digestion, helps lower blood cholesterol and excrete uric 6 Acid. Viticulture is important because it is the third most cultivated fruit after citrus and banana [4]

Globally grapes production accounts for approximately 16 per cent of total fruit production. China is the leading country in Grapes production approximately 12.6 million tonnes and India ranks seventh in global Grapes production with a production output of 3.4 million tonnes in 2022 [5]. Over the last five years in India Grapes production has increased with a CAGR of 4.31% [6]. In the 2022-2023 period, Maharashtra emerged as the leading grape-producing state in India with a cultivation area of 118.84 thousand hectares and production of 2497.68 thousand metric tonnes [7].

The study was conducted with the following objectives:

1. To identify different marketing channels for Grapes
2. To estimate the price spread and marketing efficiency of identified channels
3. To identify Problems faced by different stakeholders

2. METHODOLOGY

2.1 Research Methodology

The study employed a descriptive research design utilizing the Non-probability sampling method and the Purposive sampling technique to select the respondents. The sampling unit consisted of farmers, pre-harvest contractors, village traders, private companies, wholesalers cum commission agents and retailers. The total sample size of 90 respondents, comprising 60 farmers, 4 village traders, 3 pre-harvest contractors, 4 private companies, 9 wholesalers cum commission agents and 10 retailers. The study was conducted in Pune Division and data was collected using a semi-structured schedule. This included 60 farmers from Pune, Satara, Sangli, Solapur, and Kolhapur districts, which are major Grapes-producing areas, selling their produce at the Pune APMC market. Analytical tools employed included Acharya's method, tabular analysis and Garrett's Ranking Technique which enabled the researcher to describe and analyze the production constraints faced by different stakeholders.

2.2 Analytical tools

Objective 2: To estimate the price spread and marketing efficiency of identified marketing channels

Several parameters, including price spread, marketing cost, and margin, were calculated for each channel to assess and compare the marketing efficiency of various channels.

Marketing cost

This encompasses the overall expenses accrued by farmers and intermediaries involved in the

marketing channel. It was estimated by considering various factors and using the following formula:

$C = CF + CM_1 + CM_2 + CM_3 + \text{----------} + CM_n$

Where, C = Total cost of marketing

CF = Cost borne by the producer from the time the produce leaves the farm till it is sold,

CM_1, …., CM_n = Cost incurred by different market intermediaries

Marketing margin

The marketing margin of market intermediaries is computed as the difference between the total cost incurred by the intermediaries in purchasing the produce from the producer along with the cost of marketing and selling price of the market intermediaries and was calculated as:

$A_{mi} = P_S - (P_p + M_{Ci})$

Where, A_{mi} = Absolute marketing margin of the i^{th} market intermediaries

P_S = Selling price of the i^{th} market intermediaries

P_p = Purchase price of the i^{th} market intermediaries

M_{Ci} = Marketing cost incurred by the i^{th} market intermediaries

Price Spread

The price spread in the context of agricultural marketing refers to the difference between the price paid by the final consumer for a specific quantity of farm produce and the price received by the producer for the same amount of the product.

Price spread (P_{sd}) = $P_c - P_F$

Where, P_{sd} = Price spread

P_c = Price paid by the consumer

P_F = Price received by the farmers for an equivalent quantity of the produce

Marketing efficiency

The evaluation of marketing efficiency in various channels in the study area was calculated using Acharya's approach [8].

$$\text{Marketing Efficiency} = \frac{P_f}{Mc + Mm}$$

Where, P_f = Net price received by the farmer

Mc = Total marketing cost

Mm = Total marketing margin

Objective 3. To identify problems faced by different stakeholders

The Garrett Ranking Technique (1969) was used [9]

$$\text{Per cent position} = \frac{100\ (Rij - 0.5)}{Nj}$$

Where:- Rij = Rank given for the ith variable by jth respondents

Nj = Number of variables ranked by jth respondents

3. RESULTS AND DISCUSSION

3.1 Marketing channels

The grapes marketing channels began with the farms in Maharashtra, where grapes were grown and harvested. Channel III and IV are the shortest channels and intermediaries are also less. Channel I and II are the longest channels because intermediaries are more. In Channel IV private company procures the grapes from the farmer and the company does the packaging of grapes and transports them to the company DC to reach a final Consumer.

Table 1. Marketing Channels of Grapes

Channel No	Marketing Channel
Channel I	Farmer - Village Trader - Wholesaler cum commission agent -Retailer – Consumer

Channel II	Farmer – Pre-harvest Contractor - Wholesaler cum commission agent -Retailer – Consumer
Channel III	Farmer -Wholesaler cum commission agent - Retailer - Consumer
Channel IV	Farmer- Company CC- Company DC- Consumer

3.2 Price Spread and Marketing Efficiency of Identified Marketing Channels of Grapes

Table 2. Channel I, II, III Marketing Cost and Marketing Margin of Grapes (Rs. /q)

Sr. No.	Particulars	Channel-I	Channel-II	Channel-III
1	Net price received by the producer	4127.51	4053.50	4257.88
2	**Cost incurred by the producer**			
I	Loading and Unloading cost	-	-	71.37
II	Grading, Sorting and packing cost	145.00	-	145.00
III	Transportation cost	-	-	268.00
IV	Weighing charges	6.80	-	6.80
V	Wastage Loss	65.33	-	72.75
VI	Miscellaneous cost	10.86	-	28.20
	Total cost (i to vi)	227.99	-	592.12
3	Village Traders' price	4355.50	-	4850.00
4	**Cost incurred by the village trader**			
I	Loading and Unloading cost	86.20	-	-
II	Transportation cost	314.22	-	-
III	Wastage Loss	65.33	-	-
IV	Miscellaneous cost	23.29	-	-
	Total cost (i to iv)	489.04	-	-
5	Village trader margin	348.44	-	-
6	Pre-harvest contractors' price	-	4053.50	-
7	**Cost incurred by the Pre-harvest contractor**			
I	Harvesting cost	-	110.00	-
II	Cleaning, grading and sorting cost	-	145.00	-
III	Loading and Unloading cost	-	71.37	-
IV	Weighing charges	-	6.80	-
V	Transportation cost	-	268.00	-
VI	Wastage Loss	-	60.80	-
VII	Miscellaneous cost		33.10	-
	Total marketing cost (i to vii)	-	695.07	-
8	Pre-harvest contractor margin	-	324.28	-
9	Wholesaler cum commission agents' price	5192.98	5072.85	4850.00
10	**Cost incurred by the Wholesaler cum commission agent**			
I	Labour cost	72.00	72.00	72.00
II	Wastage Loss	77.89	76.09	72.75
III	Miscellaneous cost	14.99	14.81	14.48
	Total cost (i to iii)	164.88	162.90	159.23
11	Wholesaler cum commission agent margin	571.23	558.01	533.50

12	Retailers' price	5929.09	5793.77	5542.73
13	**Cost incurred by the Retailer**			
I	Loading and Unloading cost	33.33	33.33	33.33
II	Transportation cost	164.00	164.00	164.00
III	Market fee	59.29	57.94	55.43
IV	Wastage Loss	177.87	173.81	167.28
V	Miscellaneous cost	28.08	27.70	27.00
	Total marketing cost (i to v)	462.58	456.78	446.04
14	Retailer margin	889.36	869.07	831.41
15	Consumers' price	7281.03	7119.62	6820.17
16	**Total marketing cost**	**1344.49**	**1314.76**	**1197.38**
17	**Total marketing margin**	**1809.03**	**1751.36**	**1364.91**

Table 2 shows in channel I the price received by the producer is Rs. 4355.50 while the cost incurred by the producer is Rs. 227.99. Thus, the net price received by the producer is Rs. 4127.51. Further, the price received by the village trader is Rs. 5192.98 while the cost incurred by the trader is Rs. 489.04 while the margin of a local trader is Rs. 348.44. As the grapes move through the chain, costs and margins accumulate with significant expenses related to transportation, wastage, and miscellaneous charges at each stage. The total marketing cost amounts to Rs. 1344.49 per quintal with a total marketing margin of Rs. 1809.03 per quintal.

In channel II the price received by the producer is Rs. 4053.50 while there is no cost incurred to the producer because the pre-harvest contractor bears the cost. Thus, the net price received by the producer is Rs. 4053.50. The pre-harvest contractor then incurs various costs such as harvesting, sorting, transportation, and miscellaneous costs, amounting to Rs.695.07 per quintal. The wholesaler cum commission agent further adds value by incurring costs related to labour costs, transportation, and miscellaneous expenses, totalling Rs. 162.90 per quintal, with a margin of Rs. 558.01. The retailer incurs additional costs such as transportation, market fees, wastage, and miscellaneous expenses, amounting to Rs. 456.78 per quintal, with a margin of Rs. 869.07. Consequently, the retailer selling price of grapes to the consumer is Rs. 7119.62 per quintal. The total marketing cost is Rs. 1314.76 per quintal, with a total marketing margin of Rs. 1751.36 per quintal.

In channel III The farmer receives a net price of Rs. 4257.88 per quintal. The farmer incurs costs including sorting, packing, transportation, weighing charges, wastage loss, and miscellaneous costs totalling Rs. 592.12 per quintal. The wholesaler incurs costs such as labour, wastage loss, and miscellaneous expenses, totalling Rs. 159.23 per quintal, and retains a margin of Rs. 533.50. The produce is then sold to the retailer for Rs. 5542.73 per quintal. The retailer incurs transportation, market fees, wastage loss, and miscellaneous costs amounting to Rs. 446.04 per quintal and retains a margin of Rs. 831.41. The final selling price to the consumer is Rs. 6820.17 per quintal, with a total marketing cost of Rs. 1197.38 and a marketing margin of Rs. 1364.91.

Table 3. Channel IV Marketing Cost and Marketing Margin of Grapes (Rs. /q)

Sr. No.	Particulars	Rs./qtl.
1	Net price received by the farmer	5237.35
2	**Cost incurred by farmer**	
I	Sorting and packing cost	145
II	Loading and Unloading cost	10.40
III	Transportation cost	90
IV	Weighing charges	6.80

V	Wastage Loss	55.45
VI	Miscellaneous cost	15.38
	Total marketing cost (I to VI)	307.65
3	Farmer's selling price to Company CC	5545.00
4	**Cost incurred by Company CC**	
I	Labour Cost	244.35
II	Packaging Material cost	600.00
III	Transportation cost	315.00
IV	Wastage Loss	221.80
V	Miscellaneous cost	124.30
	Total marketing cost (I to V)	1505.45
6	Company CC selling price to Company DC	7050.45
7	**Cost incurred by Company DC**	
I	Labour cost	45.00
II	Transportation cost	150.00
III	Delivery charge	400.00
IV	Wastage Loss	70.50
V	Miscellaneous cost	33.28
	Total marketing cost (I to V)	698.78
8	Company margin	1109.00
9	Company's selling price to consumer	8858.23
10	**Total marketing cost**	**2511.88**
11	**Total marketing margin**	**1109.00**

Table 3 shows in channel IV that the farmer receives a net price of Rs. 5237.35 per quintal. The farmer incurs various costs including sorting, packing, transportation, weighing charges, wastage loss, and miscellaneous expenses, totalling Rs. 307.65 per quintal. The grapes are then sold to the company CC for Rs. 5545.00 per quintal. Company CC costs include labour, packaging material, transportation, wastage loss, and miscellaneous expenses, totaling Rs. 1505.45 per quintal. The grapes were further transported to company DC. DC has incurred labour, transportation, delivery charges, wastage loss, and miscellaneous expenses, totalling Rs. 698.78 per quintal. The company then adds a margin of Rs. 1109 per quintal, selling the product to the consumer for Rs. 8858.23 per quintal. The total marketing cost is Rs. 2511.88 per quintal, with a marketing margin of Rs. 1109 per quintal.

Table 4. Price Spread, Producer's Share in Consumer's Rupee and Marketing Efficiency of Identified Marketing Channels of Grapes (Rs. /q)

Particulars	Channel-I	Channel-II	Channel-III	Channel-IV
Total marketing cost	1344.49	1314.76	1197.38	2511.88
Total marketing margin	1809.03	1751.36	1364.91	1109.00
Price spread (MC + MM)	3153.52	3066.12	2562.29	3620.88
Producer's share in consumer's rupee	56.69	56.93	62.43	59.12
Marketing efficiency (Acharya's Method)	**1.31**	**1.32**	**1.66**	**1.45**

Table 4 compares four marketing channels in terms of the producer's net price, total marketing cost, margin, consumer price, price spread, and marketing efficiency. Channel III stands out with the highest producer's share in the consumer's rupee (62.43%) and the most efficient marketing channel (1.66). It

offers a balance between the producer's earnings and consumer affordability with a relatively low price spread. Channel IV offers the highest net price to the producer but with a higher total marketing cost, resulting in a lower share in the consumer's rupee (59.12%) than channel III. Channels I and II have less producer's share in consumer's rupees and are less efficient. Overall, Channel III appears as the most favourable option for the producer in terms of earnings and marketing efficiency.

3.3 Problems Faced by Different Stakeholders

Table 5. Problems Faced by Farmers in Production

Problems	Average score	Rank
High cost of inputs	59.51	1
High initial investment in infrastructure	55.63	2
Losses due to attack of diseases and pests	51.03	3
Unavailability of labour on time	49.83	4
Lack of technical support	32.98	5

Table 5 shows Grape farmers face several critical challenges. The most pressing issue is the high cost of inputs, impacting profitability and sustainability. High initial investment in infrastructure is next, reflecting significant financial barriers. Losses due to diseases and pests severely affect crop yields and quality. Unavailability of labour on time causes inefficiencies and lower productivity. Lastly, the lack of technical support, while important, is less critical than the other immediate financial and operational issues.

Table 6. Problems Faced by Farmers in Marketing

Problems	Average score	Rank
High Transportation cost	57.98	1
Lack of market information	54.90	2
Exploitation by middleman	52.62	3
Lack of storage facility	45.00	4
Delay in payment	38.50	5

Table 6 shows that Farmers encounter several challenges, notably high transportation costs, which top the list, followed by a lack of market information and exploitation by middlemen. Farmers have not a proper facility to store and the selling area are far away from the grapes farm which incurred high transportation costs. Additionally, the absence of adequate storage facilities and delays in payment pose significant hurdles. Addressing these issues is crucial for enhancing agricultural efficiency and livelihoods.

Table 7. Problems Faced by Village Traders

Problems	Average score	Rank
Quality variation	54.80	1
Price fluctuation	52.00	2
High transportation cost	49.60	3
Loss during handling and transportation	48.00	4
Lack of market information	44.60	5

Table 7 highlighted The main challenges faced by village traders including quality variation, price fluctuation, high transportation costs, losses during handling and transportation and a lack of market information. Quality variation is a major problem because of the aggregator or village traders are aggregate grapes which are different quality. These issues highlight the need for improved efficiency and support in agricultural practices.

Table 8. Problems Faced by Pre-Harvest Contractors

Problems	Average score	Rank
Price fluctuation	60.00	1
Unavailability of labour on time	57.75	2
Quality variation	54.25	3
High transportation cost	50.00	4
Loss during handling and transportation	43.50	5
Lack of market information	34.50	6

Table 8 illustrates The major challenges for Pre-harvest contractors are price fluctuation, unavailability of labour on time, quality variation, high transportation costs, losses during handling and transportation, and a lack of market information. These issues underscore the importance of addressing marketing chain inefficiencies and improving access to resources for sustainable agricultural practices.

Table 9. Problems Faced by Private Companies

Problems	Average score	Rank
Face Competition from other private players	59.75	1
Price fluctuation	54.25	2
High transportation cost	52.25	3
High Packaging material cost	50.00	4
High Labour cost	43.50	5
Quality variation	40.25	6

Table 9 The major challenges confronting private companies include facing competition from other private players, price fluctuations, high transportation costs, high packaging material costs, high labour costs, and quality variation. These challenges highlight the need for strategies to enhance competitiveness and mitigate financial pressures within the agricultural sector.

Table 10. Problems Faced by Wholesalers Cum Commission Agents

Problems	Average score	Rank
Quality Variation	70.55	1
Price fluctuation	52.77	2
High labour cost	48.88	3
Loss during handling and transportation	39.44	4
Lack of storage facility	37.33	5

Table 10 represented Quality variation ranks as the most critical challenge for Wholesalers Cum Commission Agents, followed by price fluctuation, high labour costs, losses during handling and transportation, and lack of storage facilities. These challenges underscore the importance of improving quality control measures, stabilizing prices, reducing labour expenses, and enhancing infrastructure to ensure the efficiency and profitability of agricultural operations.

Table 11. Problems Faced by Retailers

Problems	Average score	Rank
Price fluctuation	55.91	1
High transportation cost	55.33	2
Lack of market information	49.66	3
Loss during handling and transportation	46.66	4
Lack of storage facility	43.41	5

Table 11 provides The major challenges for retailers are price fluctuation and high transportation costs, ranked first and second, respectively. Following closely are the lack of market information, losses during handling and transportation, and the absence of storage facilities, which round out the top five

challenges. These hurdles emphasize the importance of addressing marketing chain inefficiencies and enhancing access to information and infrastructure for sustainable agricultural practices.

4. CONCLUSION

The management of the marketing channels is critical in fruits and vegetables due to their perishable nature and seasonality. In India, huge investment and development is required in forwarding linkages of agricultural produce through the development of efficient marketing channels, infrastructures, technologies and removal of intermediaries from channels to reduce the lead time and post-harvest losses. The study found that mainly four marketing channels were found namely Channel-I (Farmer – Village trader- Wholesalers cum commission agents - Retailer - Consumer), ChannelII (Farmer – Pre-harvest contractor- Wholesalers cum commission agents - Retailer - Consumer), Channel III (Farmer - Wholesaler cum commission agent - Retailer – Consumer) and Channel-IV (Farmer - Company CC - Company DC - Consumer. Channel III stands out with the highest producer's share in the consumer's rupee (62.43%) and the most efficient marketing channel (1.66). Most farmers face the challenge of high input costs and high transportation costs. Quality variation is a major problem faced by village traders. Price fluctuation is a major problem faced by preharvest contractors. Face competition from other private players is a major problem faced by private companies. Quality variation is a major problem faced by the wholesaler cum commission agent. Retailers have major problems is Price fluctuation followed by high transportation costs. it is suggested to focus on Channel III due to its high producer share (62.43%) and marketing efficiency (1.66). Further, it is suggested that the government must invest in infrastructure and technology to develop efficient marketing channels and reduce post-harvest losses. Also, Government should provide financial assistance for inputs, educate farmers on integrated pest management, and offer technical support and training to improve Grape quality and yields. Additionally, informing farmers about market price fluctuations, and encouraging partnerships will help to enhance overall efficiency.

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