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Marketing pattern of FPO members and non-members in radish cultivation

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Abstract
Vegetable crop marketing is challenging, because of its perishability, seasonality, and volume. The establishment of a linkage between farmers and markets can be improved greatly on Farmers Producer Organizations (FOs). A research study was conducted to examine the marketing strategies used by FPO members and non-member farmers. According to a comparison of the various channels, Channel-A (Producer-Consumer) gives farmers the largest percentage of the consumer's rupee, and Channel-A also has the highest marketing efficiency. In the research area, Channel-C (Producer-Commission agent/Forwarding agent-Retailer-Consumer) is the most significant marketing channel, and members spend less for marketing through this channel than non-members.

Keywords: FPO members, non-members, radish cultivation

Introduction
The production of vegetables is crucial to Indian agriculture. Marketing of vegetables are extremely complicated due to their perishability, seasonality, and bulkiness. About 54.6 percent of the workforce in India is employed in agriculture, which is predominantly production-oriented and characterized by a significant number of unequal small holdings. However, because of the highly dispersed, fragmented, and heterogeneous nature of their landholdings, small and marginal farmers must deal with a number of issues including low marketable surplus, frequent crop failures, a lack of guaranteed markets, income security, a drawn-out and fragmented supply chain, rising cultivation costs, limited access to markets, etc. Due to this scenario, farmers are heavily reliant on unscrupulous middlemen and local moneylenders [1]. FPOs are typically described as "membership-based organisations with elected leaders obligated to their constituents" with the intention of expanding and organising the mechanism for farmers to aggregate their resources to form a group and work together to address a variety of farming-related issues, such as credit, input sourcing, the use of farm technology and good agricultural practises, post-harvest handling, or the forward sale of agricultural products [6]. Over 10,000 FPOs (including FPCs) were established in the nation over the past 8-10 years under various incentives from the Indian government (including SFAC), state governments, NABARD, and other organisations [7]. With shareholders ranging from 100 to over 1000 farmers, the majority of these FPOs are still in the early stages of development and require not just technical assistance but also sufficient funding, infrastructural services, and market connections to continue operating [1]. From very tiny and localised to very massive efforts, "linking farmers to markets" can refer to a wide range of endeavours [6]. According to a study of FPOs conducted by Tata Trusts, they should strengthen market ties in order to guarantee higher returns for their produce. The paper recommended concentrating on agricultural value chains, which include making sure that infrastructure and credit are accessible and dealing with information asymmetry. Over 200 FPOs with 2.5 lakh farmer members traded on the NCDEX in 2020, and between February 2017 and February 2019, the traded volume of FPOs increased by 66 percent yearly to 30,000 tonnes. Using the Ministry of Agriculture and Farmers' Welfare eNAM portal, around 653 FPOs were also registered, trading, and networking with existing APMC mandis [9]. Farmers' Organizations (FOs) are vital entities for the growth of rural poor people and farmers and the empowerment and reduction of poverty [8]. Farmers associations can strengthen their bargaining position with buyers, reduce the transaction costs and production risks they face, and bring farmers closer to the market, allowing them to take advantage of comparative advantages and even connecting

them to the global market s[5]. So, it is crucial to compare the vegetable marketing strategy for FPO members and non-members. In order to analyse the value chain of the radish crop, a study was thus carried out in the Jammu region.

Material and Methods

Three districts were purposefully selected for the research because they have vegetable-based FPOs in the Jammu region. The sample was chosen using the multistage simple random sampling method. Then, a list of FPO members was compiled for each of the three districts in the Jammu region *viz*. Reasi, Udhampur, and Doda. From that list, a random sample of 100 members was chosen at random using proportional allocation, without replacement, and an equal number of non - members were chosen to make a total sample size of 200 farmers. The survey information was gathered specifically for the radish crop. To acquire data on vegetable crop marketing, arrivals, and pricing, the five most significant marketplaces of the selected districts *viz.* Narwal Mandi-Jammu, Udhampur, Chenani, and Reasi, were specifically chosen purposively. To create a total of 36 intermediaries, 4 forwarding agents/local traders were chosen from each market, along with 4 retailers from Jammu, Chenani, Udhampur, Reasi, and Doda markets.

Analysis of Marketing

Using the concepts and techniques below, the obtained data were tabulated and evaluated to look at the marketing cost, margins, price spread, and marketing efficiency.

Net Farmer's Price (a)

The difference between the gross price paid and the total of marketing costs plus value lost during harvesting, grading, transport, and marketing has been calculated as the farmer's net price. Hence, the following formula was used to express the net farmer's price:

$NP_F = GP_F – \{C_F + (L_F \times GP_F)\}$ or
$NP_F = \{GP_F\} – \{C_F\} – \{L_F \times GP_F\}$

Where,
NP_F is net price received by the farmers (Rs/quintal),
GP_F is gross price received by the farmers or wholesale price to farmers (Rs./ quintal),
C_F is the cost incurred by the farmers during marketing (Rs./quintal),
L_F is physical loss in produce from harvest till it reaches assembly market (per quintal or percent).

b) Marketing Margins

After accounting for the marketing loss resulting from handling, the margins of market intermediaries included profit and returns that accrued to them for storage, capital interest, and establishment. The following generic formulation is used for estimating the margin for intermediaries:

Intermediaries Margin = Gross price – Price paid – Cost of marketing during wholesale – Loss in value {i.e. (sale price) - (cost price)}
Total marketing margin of the market intermediaries (MM) is calculated as

$MM = MM_W + MM_R$

Where,
MM is the marketing margin,
MM_W is marketing margin of wholesaler,
MM_R is marketing margin of retailer.

c) Marketing Cost

The total marketing cost (MC) incurred by the producer/seller and by various intermediaries is calculated as

$MC = C_F + C_W + C_R$

d) Marketing Efficiency

$$ME = \frac{\text{Net price received by farmer}}{MM + MC + ML}$$

Where,
NP_F is net price received by the farmers (₹/kg),
MM is the marketing margin,
MC is marketing cost,
ML is marketing loss.

Marketing refers to the operations carried out to move a product from its production point to its consumer. The concepts of vegetable marketing that guided this research suggested that a marketing channel is the route that goods traverse from the producer to the consumer and it is very is very essential. FPOs were established to increase farmers access to markets and financial success. Several marketplaces and market functionaries were investigated to evaluate the vegetable marketing methods employed by members and non-members in the study area. The results are discussed below.

Results and Discussion

The manufacturer, the final customer, and any marketing intermediaries are always included in the channels in the transfer of ownership of the product. The chain of various middlemen or functionaries, such as producers, wholesalers, retailers, and occasionally direct sales of produce to customers, determines the length of the marketing channel. When the length of the marketing channel increases margins of the marketing system also increases along with the cost and profit, however, the producer's share of the consumer's rupee falls. According to the analysis, the following marketing channels were active in the study area:

Channel-A: Producer —›Consumer
Channel-B: Producer—›Retailer—›Consumer
Channel-C: Producer—›Comission agent/ Forwarding agent—›Retailer—›Consumer

Table 1 shows the price spread for radish in marketing through Channel-A. Packing materials, transportation costs and loading and unloading fees, were all included in the Radish marketing expenditures. The producer's per-quintal marketing costs for packing materials, loading, and transportation were lower for members than for non-members since the product was sold directly to consumers. As a result, members received better overall prices than non-members. Averaging between 24.43 and 30.26 for non-members and members, respectively, marketing efficiency in Channel-A showed that farmers held more than 95 percent of the

consumer rupee. Similar findings were made by Barwal *et al.* (2022), who looked at the producers share of customers rupees and found the highest marketing efficiency in Channel-A. The absence of market intermediaries was the primary cause of the higher producer's share in consumer rupee.

Table 2 shows price spread of the radish product, which was sold through Channel-B from producer to retailer to consumer, revealed that member farmers received higher price ranges than non-members because of the clear difference and lower cost of packing material, loading and unloading, and transportation fees. Non-members had a higher gross marketing margin, but members' total marketing costs per quintal were lower than non-members marketing cost in the channel. Marketing efficiency was also higher for members (5.07) than for non-members (4.47) and producers' share in consumers' rupees was also higher for members 83.52 percent and than non-members 82.61 percent. These findings agreed with those of Bhat *et al.* (2017)

It was evident from Table 3 that farmers who were members in Channel-C had earned different net prices than non-members. Members earned quite high rates in the most popular Channel-C since the key marketing costs *viz.* transportation costs, loading and unloading fees, and packing materials costs were minimized in case of members. Most crucially, FPO members do not pay the forwarding agents 7 percent commission to forwarding agent. Also, the data showed that the wholesaler's marketing expenses were greater for non-members than for members, which may be ascribed to the higher miscellaneous cost that wholesalers have to cover for things like spoilage, storage, and repairing of the packing. The wholesaler's marketing cost therefore rise when dealing with non-members. Also, the retailer's margin was higher for non-members than it was for members. Non-members had a net marketing margin that was comparable to that of members. Members had a 75.75 percent producer's share in the consumer rupee, compared to only 66.88 percent for non-members. The efficiency of marketing was also greater for members (3.14 percent) than for non-members (2.03 percent) at the overall level and across all the districts. These outcomes agreed with those of Bhat *et al.* (2017)

Following a comparison of the total cost, margins, and efficiency of marketing radish through various channels for FPO members and non-members it was discovered that overall farmers had the highest share in the price paid by consumers in Channel-A (96.44 percent), followed by Channel-B (83.06 percent), and Channel-C (71.32 percent). The analysis also revealed that Channel-B had the second-highest marketing costs after the longest channel Channel-C. In Channel-C, members total marketing cost and gross marketing margin made up about 13.69 percent and 24.29 percent, of the consumer price, respectively, compared to non-members contributions of 21.59 percent and 33.18 percent, respectively. It can be concluded marketing through FPOs, reduced the gross marketing margin and marketing costs and improves market links of members. Moreover, Channel-A had the highest total marketing efficiency (27.08 percent), followed by Channel-B (4.88 percent) and Channel-C (2.47 percent). In terms of radish marketing, it can be said that Channel-A was the best channel in the research area, followed by Channel-B and Channel-C. These outcomes agreed with those of Bhat *et al.* (2017).

Table 1: Price spread in marketing of Radish through Channel-A

(RS/Quintal)													
Sr. No	**Particulars**	**Udhampur**			**Reasi**			**Doda**			**Overall**		
		Members	**Non Members**	**Overall**	**Members**	**Non Members**	**Overall**	**Members**	**Non Members**	**Overall**	**Members**	**Non Members**	**Overall**
	Price received by farmer	1546.00	1495.00	1520.50	1542.00	1461.00	1501.50	1574.00	1563.00	1568.50	1548.19	1493.19	1520.69
I.	**Marketing cost incurred by producers**												
i)	Packing material	22.00	30.00	26.00	25.00	30.00	27.50	20.00	20.00	20.00	22.64	28.80	25.72
ii)	Loading / unloading	14.00	15.00	14.50	10.00	10.00	10.00	10.00	10.00	10.00	12.35	12.93	12.64
iii)	Transportation	17.00	20.00	18.50	15.00	20.00	17.50	15.00	15.00	15.00	16.17	19.40	17.79
2	Total Marketing cost incurred by producers	53.00	65.00	59.00	50.00	60.00	55.00	45.00	45.00	45.00	51.16	61.13	56.15
3	Selling price	1599.00	1560.00	1579.50	1592.00	1521.00	1556.50	1619.00	1608.00	1613.50	1599.35	1554.32	1576.83
4	Total Marketing Cost	53.00	65.00	59.00	50.00	60.00	55.00	45.00	45.00	45.00	51.16	61.13	56.15
5	Consumer' Purchase Price	1599.00	1560.00	1579.50	1592.00	1521.00	1556.50	1619.00	1608.00	1613.50	1599.35	1554.32	1576.83
6	Producers' share in consumers' rupee (%)	96.69	95.83	96.26	96.86	96.06	96.47	97.22	97.20	97.21	96.80	96.07	96.44
7	Marketing efficiency	29.17	23.00	25.77	30.84	24.35	27.30	34.98	34.73	34.86	30.26	24.43	27.08

Table 2: Price spread in marketing of Radish through Channel-B

(RS/Quintal)													
Sr. No	**Particulars**	**Udhampur**			**Reasi**			**Doda**			**Overall**		
		Members	**Non Members**	**Overall**	**Members**	**Non Members**	**Overall**	**Members**	**Non Members**	**Overall**	**Members**	**Non Members**	**Overall**
	Price received by farmer	1632.00	1546.00	1589.00	1706.00	1608.00	1657.00	1566.00	1511.00	1538.50	1660.45	1559.99	1610.22
I.	**Marketing cost incurred by producers**												
i)	Packing material	25.00	35.00	30.00	20.00	30.00	25.00	36.00	40.00	38.00	24.85	34.13	29.49
ii)	Loading / unloading	20.00	20.00	20.00	20.00	30.00	25.00	20.00	20.00	20.00	20.00	22.93	21.47
iii)	Transportation	30.00	35.00	32.50	20.00	25.00	22.50	35.00	35.00	35.00	27.67	32.07	29.87
2	Total Marketing cost incurred by producers	75.00	90.00	82.50	60.00	85.00	72.50	91.00	95.00	93.00	72.52	89.13	80.83
3	Selling price	1707.00	1636.00	1671.50	1766.00	1693.00	1729.50	1657.00	1606.00	1631.50	1732.97	1649.12	1691.05
II	**Marketing cost incurred by Retailer**												
i)	Loading / unloading	50.00	50.00	50.00	50.00	50.00	50.00	40.00	40.00	40.00	48.80	48.80	48.80
ii)	Transportation	40.00	40.00	40.00	50.00	50.00	50.00	50.00	50.00	50.00	44.13	44.13	44.13
iii)	Packing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
iv)	Spoilage	8.00	14.00	11.00	10.00	18.00	14.00	10.00	15.00	12.50	8.83	15.29	12.06
v)	Miscellaneous charges	10.00	13.00	11.50	15.00	20.00	17.50	10.00	15.00	12.50	11.47	15.29	13.38
3	Total marketing cost incurred by Retailer	108.00	117.00	112.50	125.00	138.00	131.50	110.00	120.00	115.00	113.23	123.52	118.37
4	Retailer Margin	145.00	136.00	140.50	132.00	141.00	136.50	125.00	130.00	127.50	138.79	136.75	137.77
5	Retailer Selling price	1960.00	1889.00	1924.50	2023.00	1972.00	1997.50	1892.00	1856.00	1874.00	1970.32	1909.39	1939.85
6	Gross Marketing Margin	328.00	343.00	335.50	317.00	364.00	340.50	326.00	345.00	335.50	324.53	349.40	336.97
7	Net Marketing Margin	145.00	136.00	140.50	132.00	141.00	136.50	125.00	130.00	127.50	138.79	136.75	137.77
8	Total Marketing Cost	183.00	207.00	195.00	185.00	223.00	204.00	201.00	215.00	208.00	185.75	212.65	199.20
9	Consumer' Purchase Price	1960.00	1889.00	1924.50	2023.00	1972.00	1997.50	1892.00	1856.00	1874.00	1970.32	1909.39	1939.85
10	Producers' share in consumers' rupee (%)	83.27	81.84	82.55	84.33	84.03	84.18	82.77	82.89	82.83	83.52	82.61	83.06
11	Marketing efficiency	4.98	4.51	4.74	5.38	4.42	4.90	4.80	4.38	4.59	5.07	4.47	4.77

Table 3: Price spread in marketing of Radish through Channel-C

(RS/Quintal)													
Sr. No	**Particulars**	**Udhampur**			**Reasi**			**Doda**			**Overall**		
		Members	**Non Members**	**Overall**	**Members**	**Non Members**	**Overall**	**Members**	**Non Members**	**Overall**	**Members**	**Non Members**	**Overall**
	Price received by farmer	1580.25	1428.37	1504.31	1626.80	1487.54	1557.17	1583.10	1464.84	1523.97	1594.25	1450.10	1522.17
I.	**Marketing cost incurred by producers**												
i)	Packing material	30.00	35.00	32.50	30.00	40.00	35.00	30.00	30.00	30.00	30.00	35.87	32.93
ii)	Loading / unloading	40.00	44.00	42.00	40.00	40.00	40.00	45.00	50.00	47.50	40.60	43.55	42.07
iii)	Transportation	44.75	44.43	44.59	47.20	48.38	47.79	39.90	40.91	40.40	44.89	45.16	45.03
iv)	Commission received by forwarding agent @7%	0.00	116.80	58.40	0.00	121.63	60.81	0.00	119.36	59.68	0.00	118.52	59.26
v)	Miscellaneous charges	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Total Marketing cost incurred by producers	114.75	240.23	177.49	117.20	250.01	183.60	114.90	240.26	177.58	115.49	243.10	179.29
3	Selling price	1695.00	1668.60	1681.80	1744.00	1737.55	1740.78	1698.00	1705.10	1701.55	1709.73	1693.21	1701.47
II	**Marketing cost incurred by Wholesaler**												
i)	Loading / unloading	20.00	20.00	20.00	50.00	50.00	50.00	20.00	25.00	22.50	28.80	29.40	29.10
ii)	Transportation	30.00	30.00	30.00	75.00	100.00	87.50	20.00	20.00	20.00	42.00	49.33	45.67
iii)	Packing	20.00	30.00	25.00	20.00	25.00	22.50	10.00	10.00	10.00	18.80	26.13	22.47
iv)	Miscellaneous charges	15.00	32.00	23.50	20.00	40.00	30.00	28.00	36.00	32.00	20.29	30.59	25.44
4	Total marketing cost incurred by Wholesaler	85.00	112.00	98.50	165.00	215.00	190.00	78.00	91.00	84.50	109.89	135.45	122.67
5	Wholesalers Margin	100.00	130.00	115.00	116.00	125.00	120.50	132.00	136.00	134.00	130.00	130.00	130.00
6	Wholesaler Selling price/ Retailer purchase price	1880.00	1910.60	1895.30	2025.00	2077.55	2051.28	1908.00	1932.10	1920.05	1949.63	1958.66	1954.14
III	**Marketing cost incurred by Retailer**												
i)	Loading / unloading	24.00	30.00	27.00	20.00	35.00	27.50	25.00	25.00	25.00	22.95	30.87	26.91
ii)	Transportation	20.00	20.00	20.00	15.00	20.00	17.50	20.00	20.00	20.00	18.53	20.00	19.27
iii)	Packing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
iv)	Spoilage	10.00	20.00	15.00	8.00	18.00	13.00	10.00	10.00	10.00	9.41	18.21	13.81
v)	Miscellaneous charges	15.00	18.00	16.50	14.00	16.00	15.00	12.00	12.00	12.00	14.35	16.69	15.52
7	Total marketing cost incurred by Retailer	69.00	88.00	78.50	57.00	89.00	73.00	67.00	67.00	67.00	65.24	85.77	75.51
8	Retailer Margin	110.00	118.00	114.00	125.00	134.00	129.50	112.00	113.00	112.50	114.64	122.09	118.37
9	Retailer Selling price	2059.00	2116.60	2087.80	2207.00	2300.55	2253.78	2087.00	2112.10	2099.55	2105.77	2170.02	2137.90
10	Total Marketing Margin	478.75	688.23	583.49	580.20	813.01	696.60	503.90	647.26	575.58	511.53	719.92	615.72
11	Net Marketing Margin	210.00	248.00	229.00	241.00	259.00	250.00	244.00	249.00	246.50	223.17	251.35	237.26
12	Total Marketing Cost	268.75	440.23	354.49	339.20	554.01	446.60	259.90	398.26	329.08	288.35	468.57	378.46
13	Consumer' Purchase Price	2059.00	2116.60	2087.80	2207.00	2300.55	2253.78	2087.00	2112.10	2099.55	2105.77	2170.02	2137.90
14	Producers' share in consumers' rupee (%)	76.75	67.48	72.12	73.71	64.66	69.19	75.86	69.35	72.60	75.75	66.88	71.32
15	Marketing efficiency	3.30	2.08	2.69	2.80	1.83	2.32	3.14	2.26	2.70	3.14	2.03	2.58

Conclusion

In Channel-I (Producer-consumer) farmers marketed their produce to customers or at roadside markets. In order to get larger margins for the crop, it was lucrative for the farmer to handle the marketing operations himself. Members paid a lower per-quintal marketing cost for packing materials, loading, and transportation than non-members. At the producer and retailer levels, the majority of marketing cost was caused by transportation cost. So, if farmers are connected to FPOs, they can sell in distant large markets for lesser cost.

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