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Marketed surplus and marketing cost and price spread analysis of mandarin orange in Amravati district of Maharashtra through different channels

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Abstract
This study examines the marketing dynamics of mandarin oranges in Amravati district, Maharashtra, focusing on production metrics, marketable surplus, and the costs associated with different marketing channels. The average garden size is 1.09 hectares, yielding approximately 149.8 quintals of mandarin oranges per garden. After minimal retention for family consumption (1.5 quintals), the marketable surplus stands at 148.3 quintals. Distribution occurs through two primary channels: Channel-I (Producer - Wholesaler - Retailer - Consumer), accounting for 29.61% of the marketed surplus, and Channel-II (Producer - Pre-harvest Contractor - Wholesaler - Retailer - Consumer), handling 70.53%.
In Channel-I, producers incur a marketing cost of ₹176.4 per quintal, with transportation (34.01%), picking (17.29%), and labour charges (14.17%) being the major components. Conversely, in Channel-II, producers sell their produce to pre-harvest contractors at the farm gate, incurring no marketing costs themselves. The pre-harvest contractors bear the marketing expenses, amounting to ₹144.7 per quintal, with transportation (41.47%) being the predominant cost.
Wholesalers in Channel-I incur marketing costs of ₹243.41 per quintal, with commission charges (50.53%) and the cost of baskets (18.03%) being significant expenses. In Channel-II, the wholesaler's marketing cost is ₹210.79 per quintal, with commission charges (57.36%) and mandi taxes (15.29%) as the primary components.
The findings suggest that while Channel-II offers a cost advantage to producers by eliminating their direct marketing expenses, it transfers the cost burden to pre-harvest contractors and wholesalers. This study underscores the importance of selecting appropriate marketing channels to optimize profits and reduce costs, thereby enhancing the profitability and sustainability of mandarin orange cultivation in Amravati district.

Keywords: Citrus, marketing cost, price spread, marketing efficiency, producer, retailer, consumer

Introduction

India ranks 3rd in production of mandarin orange in the world after Brazil and U.S.A. which ranked 1st and 2nd, respectively. In India orange is grown in several states but leading states are Karnatka, Maharashtra, Tamilnadu, Madhya pradesh, Assam, Punjab etc. In India area under orange was 311.0 thousand hectares with annual production of about 2906.00 thousand MT in the year 2012-2013 and productivity was 9.34MT/ha. (Anonymous 2012)
In Maharashtra state maximum area under mandarin orange was covered by Amravati, Nagpur, Wardha and Akola districts of Vidharbha. The area under mandarin orange in Maharashtra was about 128.00 thousand hectare with production and productivity of 500 thousand MT and 3.9 MT/ha, respectively. (Source:India Stat.) While in Amravati district area under orange was about 53662.39 ha with production of 375.63 MT. The Productivity of orange in Amravati was 7.00 MT/ha during the year 2012-2013. (Source: SAO Office, Amravati). In Vidharbha, oranges are grown for over 150 years. It is learnt that at close of 19th century Maharaja Rahuji Bhosale 2nd, brought few plants of loose skinned orange from Aurangabad & planted them in his garden at Nagpur. Nagpur Santra was reported to be finest mandarin grown in world. Area under Vidharbha is 73,150 hectare, out of which Amravati, Akola, Nagpur and Wardha contributed near about 80 per cent area of orange cultivation (NHB.2011) Hence this area was known as *'Callifornia of Maharashtra'*.
Further, citrus fruits are among the important commercial fruit crops and evaluating their marketing will help the fruit growers of the study area to a greater extent as how to make their cultivation and marketing more profitable.

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Keeping in view the above, the present investigation has been undertaken with the objective as to study its marketing channels, marketing cost, price spread and marketing efficiency.

Materials and Methods
Collection of data
The primary data were collected with the help of well-structured pretested schedule by personal interview method. Using well-designed and pre-tested schedules. This paper is based on primary data collected from a survey of citrus producers, market intermediaries and fruit markets in citrus production and consumption areas. The data were collected during the year 2012-2013 from 1st July, 2012 to 30th June 2013.

Selection of mandarin orange markets
In regard to marketing, Amravati market was purposely selected because most of mandarin orange produce from area was marketed in Amravati market. Commission agents and wholesalers dealing in citrus and the retailers from different localities of the area were also interviewed. From these areas, different middlemen were selected for the study of marketing of mandarin orange. Ten each of wholesalers, traders and retailers were selected.

Analysis of Marketing
The data collected were tabulated and analysed for examining the marketed surplus and marketable surplus, marketing cost, margins, price spread and the marketing efficiency.

The Marketed and Marketable surplus
Marketed surplus is the amount of a crop that a farmer sells in the market, while marketable surplus is the amount of a crop that is available for sale after meeting on-farm needs. Whereas the amount of a crop that is available for sale after meeting on-farm needs. It is the quantity of current production left after on-farm use and payments in kind.

Marketing cost and market margin
Market cost and market margin was worked out from actual data collected from market intermediaries; marketing costs incurred by producers were estimated from the data collected from selected cultivators for the present study.
Marketing margin is the difference between the consumers' price and the farmers' price. Components of this parameter consist of the costs incurred by each marketing agency in carrying out marketing functions and the profits to be obtained by the marketing agency. Therefore, size of the marketing margin is basically sum of the costs and profits received by the marketing agency.

Marketing margin is calculated by the formula:
$Mp = Pr - Pf$
Mp = Marketing Margin
Pf = Farmers' price
Pr = Retailers' price
Thus, the total marketing margin of the market intermediaries (MM) was calculated as
$MM = MMW + MMR$
Similarly, the total marketing cost (MC) incurred by the producer/ seller and by various intermediaries was calculated as
$MC = CF + CW + CR$
Price spread of the produce show the difference between net price received by the producer in the assembling market and price paid by ultimate consumer to produce in the retail market. It includes all the market charges incurred by producer, wholesaler and retailer as well as profit margin at wholesaler and retailer.

Producer's share in consumer rupee is important to decide the appropriate strategies for reducing the marketing cost. In the present study producers shares in consumer's rupee is the actual price received by the producer. It is the price received by the farmer expressed as a percentage of the retail price, i. e. price paid by the consumer. If price is the retail price, the producer's shares in consumer's rupee (Ps) can be expressed as follows.

$$Ps = \frac{\text{Net price received by producer}}{\text{Price paid by consumer}} \times 100$$

Results and Discussion
Marketed surplus and marketing of mandarin orange
Production, retention, marketed surplus and marketing of mandarin orange through different channels were calculated and presented in Table 1 the results revealed that garden size was 1.09 hectares.
It was clear that production of Mandarin orange was 149.8 quintals. Share of marketed surplus of mandarin orange production was 29.61 per cent through channel - I, and 70.53 per cent through channel - II. It implied that the highest quantity of mandarin orange production was marketed through channel - II. Mandarin orange quantity for home consumption was negligible. Thus the marketable surplus of mandarin orange quantity is 148.3 quintal.

Table 1: Per garden production, retention, marketed surplus and marketing of Mandarin orange through different channels (q/garden)

Particular	Quantity	Percentage
1. Garden size (ha)	1.09	-
2. Production of Mandarin orange	149.8	100
3. Retentions for family consumption	1.5	1
4. Marketable surplus	148.3	-
5. Marketed surplus in channel-I (producer - wholesaler - retailer - consumer)	44.36	29.61
6. Marketed surplus in channel-II (producer - pre-harvester wholesaler - retailer - consumer)	105.44	70.53

Per quintal cost incurred by producer/pre-harvest contractor regarding Mandarin orange
Per quintal cost of marketing of mandarin orange with respect to various items incurred by producer in different marketing channels were calculated and presented in Table 2. The results revealed that the marketing cost incurred by producer in Channel-I (Producer - Wholesaler - Retailer - Consumer) was ₹176.4. In channel-II (Producer - Pre-harvester wholesaler - Retailer - Consumer) the produce was sold through farmers to pre-harvest contractor on the farm, hence producer do not incur any marketing cost in channel-II. These marketing costs were incurred by pre-harvest

contractor. Thus the marketing cost incurred by pre-harvest contractor was 144.7 per quintal. In regard to the share of expenditure on individual items, transportation cost was predominant item of expenditure in all the marketing Channels. In Channel-I, (Producer - Wholesaler - Retailer - Consumer) proportionate expenditure on transportation cost was 34.01 per cent followed by picking cost (17.29 per cent) and labour charge (14.17 per cent) of the total marketing costs. The other items of expenditure of marketing costs were, packaging material cost, grading cost and loading and

unloading expenses constituted 14.17, 8.73 and 5.67 per cent of the total cost of marketing, respectively.

In Channel-II, (producer - pre-harvester wholesaler - retailer - consumer) the proportionate share of expenditure on transportation cost was 41.47 per cent followed by labour charges (12.44 per cent) and packaging material (12.44 per cent) of the total marketing costs. The other items of expenditure were picking cost, grading cost and loading and unloading expenses constituted 12.09, 8.64 and 6.50 per cent of the total cost of marketing, respectively.

Table 2: Per quintal cost of marketing incurred by pre-harvest contractor/ Producer (₹ / qtl)

	Particular	Channel-I	Percentage	Channel-II	Percentage
1	Picking cost	30.5	17.29	17.5	12.09
2	Grading cost	15.4	8.73	12.5	8.64
3	Labour charges	25	14.17	18	12.44
4	Packaging material	25	14.17	18	12.44
5	Loading	10.5	5.95	9.4	6.50
6	Transportation	60	34.01	60	41.47
7	Unloading	10	5.67	9.4	6.50
	Total Cost incurred by pre-harvest contractor/producer	176.4	100	144.7	100

Cost incurred by wholesaler in Mandarin orange marketing

Per quintal cost of marketing of mandarin orange with respect to wholesaler in channel-I and channel-II was calculated and presented in Table 3. As regards to wholesaler (Channel-I), per quintal cost of mandarin orange marketing was found to be ₹ 243.41 in which proportionate share of commission charges was highest as 50.53 per cent followed by cost of basket (18.03 per cent), mandi taxes

(13.48 per cent), quantity losses (8.42 per cent) and loading and unloading charges (2.05 per cent).

As regards to wholesaler (Channel-II), per quintal cost of mandarin orange marketing was found to be ₹ 210.79 in which proportionate share of commission charges was highest as 57.36 per cent followed by mandi taxes (15.29 per cent), cost of basket (10.20 per cent), quantity losses (9.73 per cent) and loading and unloading charges (2.37 per cent).

Table 3: Cost of marketing incurred by wholesaler (Rs/qtl)

	Particular	Channel-I	Percentage	Channel-II	Percentage
1	Mandi taxes (@ 1.60%	32.8	13.48	32.24	15.29
2	Commission (@ 6%	123	50.53	120.9	57.36
3	Loading	5	2.05	5	2.37
4	Unloading	5	2.05	5	2.37
5	Weighing	1	0.41	1	0.47
6	Cost of basket	43.89	18.03	21.5	10.20
7	Quantity loss @1%	20.5	8.42	20.5	9.73
8	Other expenses as room	12.22	5.02	5	2.37
	Total cost incurred by wholesaler	**243.41**	**100**	**210.79**	**100**

Cost incurred by retailer

Per quintal cost of mandarin orange marketing incurred by retailer (Channel-I), retail shop owner (Channel-II) were calculated and presented in Table 4. The results revealed that the marketing cost incurred in channel-I by retailer was ₹ 99.44 in which share of storage cost was highest as 45.25 per cent. Proportionate expenditure on other charge and transportation charges was 34.63 per cent, 10.06 per cent followed by labour charges and shop tax (5.03 per cent

each) to the total cost of mandarin orange marketing, respectively.

Per quintal cost of mandarin orange marketing incurred by retail shop owner in Channel-II was ₹ 100.8 in which proportionate expenditure on storage was 44.64 per cent. Proportionate expenditure on other charge and transportation charges was 38.09 per cent and 7.24 per cent followed by labour charges and shop tax (4.96 per cent each) to the total cost of marketing, respectively.

Table 4: Cost incurred by retailers in marketing of mandarin orange (Rs/qtl)

	Particular	Channel-I	Percentage	Channel-II	Percentage
1	Shop tax	5	5.03	5	4.96
2	Transportation	10	10.06	7.3	7.24
3	Labour charges for loading	5	5.03	5	4.96
4	Storage	45	45.25	45	44.64
5	Other Cost	34.44	34.63	38.40	38.09
6	Total cost incurred by retailers	99.44	100	100.8	100

Price spread in Mandarin orange marketing: Per quintal marketing cost, marketing margin and price spread in mandarin orange marketing with respect to different Channels were calculated and presented in Table 5. The results revealed that price paid by consumer was the highest (₹3200.00) in Channel-I and (₹ 3015.00) in Channel-II, per quintal. Price received by producer from wholesaler was ₹2050 while, cost incurred by producer was ₹ 176.4 hence, net price received by producer was ₹ 1873.6 that could be considered as farm price. The marketing cost incurred by wholesaler was ₹ 243.41 while margin of wholesaler ₹ 679.82. It inferred that wholesaler had sold the produce at ₹ 2600.00 to retailer. In other words price paid by retailer was the same. The marketing cost incurred by retailer was ₹99.44 while margin of retailer was ₹ 500.56. It implied that retailer had sold that produce to the consumer for ₹3200.00. Thus, in this Channel the total marketing cost was ₹ 499.25 while the total marketing margin was ₹1180.38. In this way price spread was found ₹ 1326.4. In channel-I producer's share in consumer's rupee was found to be 58.55 per cent.

In regard to Channel-II price received by producer was ₹ 1615.00 per quintal while no marketing cost incurred by producer. Thus, net price received by producer was ₹1615.00. Price received by producer from pre-harvest contractor was ₹ 1615 while; marketing cost incurred by pre-harvest contractor was ₹144.7. The price paid by wholesaler to pre-harvest contractor was ₹2015.00. Hence, net margin of pre-harvest contractor was ₹ 255.3 Marketing cost incurred by wholesaler was ₹210.79. The price paid by retailer to wholesaler was ₹2515, thus net market margin of wholesaler was ₹ 289.21. Marketing cost incurred by retailer was ₹100.8 and price received by retailer from consumer was ₹3015.00. Thus, margin of retailer was ₹ 399.2. It is clear that the total marketing cost and total net market margin was ₹ 456.29 and ₹ 943.71, respectively. Thus the price spread was found to be ₹ 1400. In channel-II producer's share in consumer's rupee was found to be 53.57 per cent.

Table 5: Per quintal marketing cost, market margin and price spread in Mandarin orange marketing (Rs / qtls)

	Particular	Channel-I	Percentage	Channel-II	Percentage
1.	Net price received by orange grower	1873.6	58.55	1615	53.56
2.	Marketing cost incurred by orange growers	176.4	5.51	--	--
3.	Price paid by pre-harvest contractor	--	--	1615	53.56
4.	Marketing cost incurred by pre-harvest contractor	--	--	144.7	4.80
5.	Net market margin of pre-harvest contractor	--	--	255.3	8.46
6.	Price paid by wholesaler	2050	64.06	2015	66.83
7.	Marketing cost incurred by wholesaler	243.41	7.61	210.79	6.80
8.	Net market margin of wholesaler	679.82	21.24	289.21	9.60
9.	Price paid by retailer	2600	81.25	2515	83.41
10.	Marketing cost incurred by retailer	99.44	3.11	100.8	3.34
11.	Net market margin of retailer	500.56	15.64	399.2	13.24
12.	Price paid by consumer	3200	100	3015	100
13.	Total marketing cost	499.25	15.60	456.29	15.13
14.	Total marketing margin	1180.38	36.89	943.71	31.30
15.	Price spread	1326.4	41.45	1400	46.43

Conclusion
The price spread in marketing of citrus in Amravati has indicated that producers' share (58.55 per cent) in consumers' rupee worked out to be highest when the produce was sold directly to consumers without the intermediaries i.e., channel II. Price spread analysis revealed that, various market intermediaries were the highest beneficiaries in the marketing channels. However, the price spread was found high in channel II (46.43) followed by channel I (41.45).

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