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## Investigating the Efficiency of Various Marketing Models and Problems of Kinnow Growers of Punjab<sup>§</sup>

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### Abstract

Several marketing models are in practice in the Punjab state for marketing of kinnow, which vary in efficiency. In this study, the potential of marketing of kinnow in south-western districts of Punjab has been reported. It has used multistage random sampling consisting of six blocks, 12 villages, 120 farmers and different market functionaries at different stages of sample selection in three local markets, viz. Abohar, Malout and Maur and big kinnow-consuming markets of Delhi and Ludhiana. The seasonal indices signified that kinnow prices show negative response to arrivals and positive response to lagged prices. The study has shown that the kinnow growers suffered a loss by selling produce to pre-harvest contractors as their share in consumer rupee was low. It has been brought out in the study that kinnow growers would gain financially by selling their produce themselves in the markets. The lack of market information and marketing infrastructure, inadequate processing and post-harvest facilities and frequent price fluctuations have been identified as the major factors which inhibit expansion of kinnow cultivation in the state.

**Key words:** Marketing models, kinnow, problems of kinnow-growers, Punjab

**JEL Classification:** Q13

### Introduction

The Government of India had identified horticultural crops as a means of diversification in agriculture for optimum utilization of natural resources in the late 20<sup>th</sup> century. It has also become clear that cultivation of horticultural crops is an ideal method of achieving sustainability of smallholdings, increasing employment, improving environment, providing enormous export potential and above all, achieving nutritional security (Hall *et al.*, 2001).

In the post-green revolution era, the area under cereal crops, particularly under wheat and rice has

increased significantly in the Punjab state, but this has led to the emergence of many ecological problems like fall in water table, decline in soil fertility and soil air, and rise in water and soil pollution. Agricultural diversification from foodgrains to alternative crops, particularly fruits and vegetables, has emerged as one of the solutions to these problems. Moreover, the peculiar topography and agro-climate of the Punjab state offer suitable conditions for the cultivation of horticultural crops.

Kinnow mandarin occupies a prominent position in citrus fruits with respect to popularity, acreage and production due to higher productivity and good processing potential. It held first position in area as well as production of fruits in Punjab in the year 2006-07. The area under total fruits in the year 1999-2000 was about 30 thousand ha, out of which kinnow

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§ This paper is part of the PhD study completed in 2009 by the first author "Kinnow cultivation as an economic alternative for diversification in south-western districts of Punjab state".

covered about 9930 ha. Over the years, the area under total fruits in Punjab increased and it was 57 thousand ha in 2006-07, of which kinnow alone occupied about 27 thousand ha. The production of kinnow also increased from 1.49 lakh tonnes to 4.14 lakh tonnes during the same period.

Marketing is as important as production in ensuring expansion in the acreage of any commodity, particularly of perishable commodities like kinnow. Multiple marketing models are in practice in the Punjab state for kinnow marketing which vary in efficiency. Under the existing marketing system, before reaching the consumer, kinnow passes through a long chain of intermediaries, with the result that the producers get a small share of consumer's rupee (Kaur and Singh, 2007; Bhat *et al.*, 2011).

The study was carried out with the following specific objectives:

- To examine various marketing practices, and channels being followed by the kinnow growers in Punjab and to estimate market margins and cost involved in these channels, and
- To identify the major problems associated with the marketing of kinnow fruit in Punjab

For the study conducted in 2007, the south-western region comprising the districts of Ferozpur, Mukatsar and Bathinda and covering about 70 per cent of the area under kinnow in the state was purposively selected. The kinnow growers were categorized in three orchard size groups, small (up to 3.1 ha), medium (3.1-7.8 ha) and large (> 7.8 ha), using cumulative cube-root frequency method. A sample size of 120 farmers (40 from each district) was selected by proportional allocation (Singh and Mangat, 1996). To investigate different marketing practices and channels, three local markets near the producing areas (villages) namely Abohar, Malout and Maur, one each from the selected districts of Ferozpur, Mukatsar and Bathinda respectively, were selected. In total, thirty commission agents/wholesalers and 30 retailers were selected at random from the selected markets to study the marketing channels and price spread in kinnow. Separate interview schedules for growers, commission agents/wholesalers, pre-harvest contractors and retailers were designed and the information was recorded through the personal interview method.

### Seasonal Index

The data about arrival and prices for the selected four markets were taken for six years (1999-00 to 2006-07). Seasonal indices were worked out for all the selected markets (Ludhiana, Abohar, Malout and Maur) by using six-month moving averages. The price elasticity was worked out to find the effect of arrival (supply) on prices of kinnow in different markets. The affect of lagged prices on prices of kinnow was estimated by using formula (1):

$$\text{Elasticity of price} = \frac{\bar{Y}}{\bar{X}_i} \times \text{Regression coefficient of } X_i \quad \dots(1)$$

where,

$\bar{X}_i$  = Average of arrival (quintals) or lagged prices (₹/q), and

$\bar{Y}$  = Average of prices (₹/q)

Regression ( $p < 0.05$ ) was calculated to examine the relationship between two independent variables as arrival and lagged prices and prices of kinnow in different markets as dependent variable using SPSS:

$$Y = a + b_1X_1 + b_2X_2 \quad \dots(2)$$

where, Y is the prices in ₹/q,  $X_1$  is the arrival of kinnow (in q) and  $X_2$  is the lagged prices (in ₹/q),  $b_i$  is the regression coefficient, and a is the constant-term.

### Price Spread

Price spread refers to the difference between price paid by the consumer and price received by the producer for a unit quantity of farm produce. It consists of marketing costs and margins of the intermediaries. The producer's share in the consumer rupee was worked out as per Equation (3) (Acharya and Agarwal, 2005):

$$P_s = \frac{P_f}{P_c} \times 100 \quad \dots(3)$$

where,

$P_s$  = Producer's share in consumer's rupee,

$P_f$  = Price of the produce received by the farmer, and

$P_c$  = Price of the produce paid by the consumer.

### Seasonality and Supply

The marketing season of kinnow starts from October and closes by March-end. The market arrivals during the months of October and November were low

**Table 1. Seasonality of kinnow fruit in the selected districts of Punjab: 2007**

Market	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Abohar	Peak	Peak	Peak	Lean	Lean	Lean	Lean	Lean	Lean	Peak	Peak	Peak
Maur	Peak	Peak	Peak	Lean	Lean	Lean	Lean	Lean	Lean	Lean	Lean	Peak
Malout	Peak	Peak	Peak	Lean	Lean	Lean	Lean	Lean	Lean	Peak	Peak	Peak
Ludhiana	Peak	Peak	Peak	Peak	Lean	Lean	Lean	Lean	Lean	Peak	Peak	Peak

**Table 2. Effect of arrival on the prices of kinnow in different markets of Punjab: 2007**

Market	Elasticity of price		R-square
	Arrival	Lagged prices	
Maur	-43.495	1.332	0.76*
Malout	-0.186	1.779	0.96*
Abohar	-0.014	1.832	0.67*
Ludhiana	0.0004	0.666	0.55*

\* Significant at  $p < 0.05$

and peaked during the period December to February. Since kinnow is a perishable commodity, its shelf life is limited and it cannot be stored for a longer period. Hence, the arrival of kinnow was over in the period of six months only. The arrivals were low when the harvest season began, peaked in the months of December and January, when bulk of the fruits mature and then arrivals dipped at the end of the maturity season when only left-over fruits were picked and marketed. However, in the case of prices, there were relatively small variations from month to month.

The effect of market arrivals and lagged prices on kinnow prices was worked out by calculating price elasticity (Table 2), which clearly indicated that kinnow prices showed inelastic response to arrivals. As the demand remains stable throughout the season due to transportation of kinnow to distant markets of the country as well as due to increase in the juice consumption in wake of marriage season from December to February in the Punjab state, prices did not fall much even when supplies went up. The prices were largely affected by the quality of fruit and size of the market. In the case of lagged prices, kinnow prices showed a positive and elastic relation in all the markets. The elasticity of arrival of kinnow in the Maur market was higher as compared to other markets because Maur being a relatively small market, high arrivals of kinnow can have a negative effect on the prices of kinnow.

### Marketing of kinnow in Study Area

In the study area, the marketing of kinnow is done by adopting several marketing channels involving different intermediaries such as pre-harvest contractors, wholesaler, commission agents and retailers. Generally, leasing the kinnow orchards to the pre-harvest contractors or selling the fruit by themselves in the local or distant markets were the common marketing practises adopted by the growers in the area. About 63 per cent of the selected growers had leased out their kinnow orchards to the pre-harvest contractors who formed an important link in the production system and distribution channels of kinnow in the area. Such types of contracts are usually undertaken only for a season and are determined by several factors like condition of the orchard, expected yield, price in the previous season, etc. The farmers are paid for contracting their orchards in instalments during the growing season. The contracts are generally preferred by the farmers to avoid the risk of price fluctuations, theft of the fruit and other marketing-related responsibilities like picking, grading, packing and transportation during the growing season.

To ensure a higher share in consumer's rupee to the kinnow growers, the choice lies in the selection of a channel which is most remunerative amongst the existing marketing channels. Therefore, the study of marketing margins and costs assumes special significance in countries where marketing infrastructure is less-developed and the market is not perfect. Such studies are useful for understanding the market deficiencies and for suggesting measures for their improvement. Hence, five markets were studied for this purpose. The Delhi market was selected because the majority of the pre-harvest contractors of kinnow sold the fruit in this market. Another important kinnow consuming market in Punjab, namely Ludhiana, was also included in the study. Three local markets, viz. Abohar, Malout and Maur from Ferozpur, Mukatsar and Bathinda districts, respectively, which

represented producing areas' markets, were also selected. Kinnow marketing is a complex process due to its perishable and bulky nature. The problems of marketing begin from the time of picking itself. Therefore, it becomes important where, when, how and how much to sell. The marketing channels for the distribution of kinnow in the study area were identified as under:

**Channel I:**

Producer → Pre-harvest Contractor → Wholesaler (through Commission Agent) → Retailer → Consumer (Delhi market)

**Channel II:**

Producer → Pre-harvest Contractor → Wholesaler (through Commission Agent) → Retailer → Consumer (Ludhiana market)

**Channel III:**

Producer → Wholesaler (through Commission Agent) → Retailer → Consumer (Delhi market)

**Channel IV:**

Producer → Wholesaler (through Commission Agent) → Retailer → Consumer (Ludhiana market)

**Channel V:**

Producer → Wholesaler (through Commission Agent) → Retailer → Consumer (Local market)

**Channel VI:**

Producer → Retailer (through Commission Agent) → Consumer (Local market)

**Marketing Costs and Margins in Kinnow**

The kinnow reach the consumers through different market intermediaries who exploit the farmers to a great extent. The cost incurred by each intermediary is included in the ultimate price, which also varies considerably. Moreover, it also includes costs of marketing for rendering market services such as grading, packing, transportation, storage, retailing, etc. Therefore, the share of producer in consumer rupee depends on the channel followed by the producer in marketing his produce. The consumer in the local kinnow-producing areas was getting the produce at a lower price as compared to the prices paid by the consumers in Delhi and Ludhiana markets. The consumers of Delhi market paid a price of ₹ 2250/q on

an average (Channels I and III). The consumer price was ₹ 1915/q in Ludhiana (Channels II and IV), while it was around ₹ 1500/q in the local producing markets (Channels V and VI) (Table 3). The consumers in Delhi and Ludhiana markets were paying a higher price for kinnow mainly due to higher marketing costs and margin of the middlemen. The pre-harvest contractor did not prefer to sell in the local market, whereas the majority of producers were selling in the local markets. A few innovative farmers had taken their produce to the Delhi market, followed by sales in the local markets. Producer received the lowest price when they leased out their orchards to pre-harvest contractors. Their low share in consumer rupee as compared to in other channels was due to the low prices paid by the pre-harvest contractors (Appendices I and II). Therefore, channels III, V and VI were more remunerative than channels I and II for producers when we looked at the producers' share in consumer rupee (percentage).

The proportional share of producers and other market intermediaries in consumer rupee in channels I, II, III, IV, V and VI is given in Appendix III. The variation in prices could be attributed to the forces of demand and supply operating in the local and consuming markets. Delhi and Ludhiana being big consuming and distribution markets of kinnow in the entire north India, the prices were higher in these markets as compared to small markets. Therefore, in absolute terms, when a producer sold his produce by himself rather than selling to pre-harvest contractors, channel III (Delhi market), followed by channels VI and V were the most remunerative channels.

The marketing cost of producers in channel III was highest (16.62%) as the produce was transported to the Delhi market, followed by the Ludhiana market. The total costs on grading, packing, transportation, waxing, etc. for selling the produce in Delhi market were incurred by the growers. It was also brought out in the study that the kinnow growers suffered a loss by selling the produce to pre-harvest contractors as their share in consumer rupee was low, as well as they received a lower prices per unit of output produced. This also indicated that the kinnow growers would gain financially by selling their produce themselves in the market rather than leasing out their orchards to the pre-harvest contractors.

### Share of Pre-harvest Contractors and Marketing Costs in Kinnow

The standing fruit crop of kinnow is contracted to the pre-harvest contractors and all marketing functions and few production-related activities are performed by them. It was found that the pre-harvest contractors sold the major portion of their produce in the distant markets (e.g. Delhi) to take advantage of higher prices. The net margin of pre-harvest contractor in Delhi market was 21.64 per cent of the consumer's price (₹ 481/q) and the marketing costs incurred by contractor in this channel turned out to be 21.04 per cent. The net margin of contractors was ₹ 289/q (14.88% of consumer price) in the Ludhiana market (Table 3).

### Wholesaler's Share and Marketing Costs in Kinnow

Since the wholesalers performed the functions of assembling, grading, repacking and transportation of kinnow to various consuming centres, channel IV was more remunerative to them and they got the highest net share in consumer rupee (16.36% in Ludhiana market), followed by channel III (12.78% in Delhi market). In absolute terms, the wholesalers received net benefit of ₹ 226/q in Delhi market (Channels I and III) and ₹ 260/q in Ludhiana market (Channels II and IV). The net margin of wholesalers was less in channel V (5.98%) (Appendices I, II & III), which represents a producing-area market.

### Retailer's Share and Marketing Costs in Kinnow

The retailer being the final link in the marketing channel, his share in consumer rupee was higher in channel II (12.51%), followed closely by channel VI (12.49%) and channel IV (11.45%). In channel V, representing local market, the retailer earned net margin of only 7.82 per cent. The marketing cost in channel VI in local market was highest (10.96%) among all the channels (Appendices I, II & III). It was due to the fact that in channel VI a retailer directly purchased the produce from the producer. Sharan and Singh (2002) have observed that selling of produce through self-marketing by growers was more profitable than contract sale to pre-harvest contractors.

### Problems Faced by Growers in Marketing of Kinnow

Increase in area and production of kinnow in Punjab has brought in many problems with regard to

its marketing. The various marketing facilities, necessary for economic disposal of produce, have, however, not been able to keep pace with the fast expanding kinnow industry. In the absence of any planned marketing programme, the producers are often deprived of getting good returns and face multiple problems as highlighted below:

**Poor Market Intelligence**—Lack of sufficient market information affects operational and market efficiency of the agricultural markets (Verma and Singh, 2005). About 54 per cent of sample farmers and about 57 per cent of pre-harvest contractors reported that the market intelligence system in providing information on market prices of kinnow in important markets of the Punjab was not sound (Table 4). Farmers could not get the latest information on market prices, change in demand and supply pattern and forecast prices of various fruits and vegetables including kinnow. No government agency or private organization was engaged in this process. Whatsoever little information farmers had about the prices in the markets, it was obtained through their personal contacts. Thus, they missed the opportunities to sell their produce at the right time and the right place so as to obtain remunerative prices.

**Inadequate Post-harvest Infrastructure**—Of the total sample farmers, 38 per cent reported that perishability of kinnow alone contributed to heavy losses and made kinnow cultivation risk-prone (Table 4). The post-harvest management accounted for 20-40 per cent of the losses at different stages of grading, packing, storage, transportation and marketing of kinnow (Ali, 2005). Therefore, adequate infrastructure for post-harvest management would help the farmers in getting high profits by selling the produce during off-seasons and in the distant high-paying markets.

**Inadequate Processing Facilities**—The weak processing infrastructure as it exists today in Punjab has been one of the contributing factors for ineffective utilization of the kinnow fruit. It was reported by about 65 per cent of sample farmers (Table 4). Lack of kinnow juice making facilities on a commercial scale is a big handicap in adding value to the produce and ensuring better returns to kinnow growers.

**Poor Marketing Infrastructure**—The kinnow markets are not vertically integrated and therefore results in low share of producer in the consumer rupee, as reported by 67 per cent of sample farmers. Formation

**Table 3. Marketing costs margins of different functionaries in the different kinnow marketing channels in Punjab**

Particulars	Channel			Channel			Channel			Channel			Channel			Channel				
	IA	IB	IC	IIA	IIB	IIC	IIIA	IIIB	IIIC	IIIA	IIIB	IIIC	IVB	IVC	IVA		VB	VC	VIA	VIB
Net price received by producer/ purchase price of contractor	689	671	638	675	661	647	1123	1141	1140	923	937	931	1067	1026	1089	1023	1026	1089	1080	1069
Total cost incurred by pre-harvest contractor/ producer	455	464	489	276	270	297	387	370	373	197	193	188	48	45	49	45	48	49	47	46
Net margin of contractor/ producer	474	479	494	276	300	290														
Sale price of contractor or producer/ purchase price of wholesaler or retailer	1618	1614	1622	1227	1231	1234	1510	1511	1514	1120	1130	1121	1115	1068	1138	1068	1074	1138	1127	1108
Total cost incurred by wholesaler	134	134	134	189	189	190	129	129	131	178	180	179	173	168	168	168	168	168	168	168
Net margin of wholesaler	149	177	164	217	215	198	294	282	293	335	320	273	99	101	72	101	72	99	101	72
Sale price of wholesaler/ purchase price of retailer	1900	1925	1920	1633	1635	1623	1933	1923	1938	1632	1620	1573	1388	1338	1315	1338	1315	1388	1338	1315
Total cost incurred by retailer	81	84	81	68	68	67	81	82	84	67	67	66	52	51	163	51	51	163	162	158
Net margin of retailer	119	292	299	300	247	185	286	196	279	175	213	262	136	111	249	111	109	249	161	145
<b>Sale price of retailer/ purchase price of consumer</b>	2100	2300	2300	2000	1950	1875	2300	2200	2300	1875	1900	1900	1575	1500	1450	1500	1475	1550	1450	1410

Note: A, B and C denote producer districts of Ferozepur, Bathinda and Muksar, respectively

**Table 4. Problems faced by selected kinnow orchardists during marketing of produce**

Problem	Farmers				Pre-harvest contractor Number
	Small	Medium	Large	Total	
Poor market intelligence	37 (57)	18 (46)	10 (63)	65 (54)	17 (57)
Inadequate post-harvest infrastructure	29 (45)	16 (41)	1 (6)	46 (38)	15 (50)
Inadequate processing facilities	41 (63)	26 (67)	11 (69)	78 (65)	22 (73)
Poor market infrastructure	53 (82)	19 (48)	9 (56)	81 (68)	19 (63)
Price fluctuations	58 (89)	31 (80)	12 (75)	101 (84)	18 (60)
Malpractices	36 (55)	15 (38)	5 (31)	56 (47)	12 (40)

*Note:* Figures within the parentheses indicate the percentage to the total sample farmers.

of a cooperative society or producer group for the sale of kinnow to have a better share in the consumer price was also not seen in the study area.

**Price Fluctuations** — The wide fluctuations in price of kinnow was reported to act as a deterrent, particularly for small farmers to expand kinnow cultivation in a big way. According to Singh (1996), citrus growers face a number of problems in the marketing of their produce such as price fluctuations, cheating in the hands of traders, lack of storage facilities, high perishability, seasonality, absence of market intelligence, lack of credit facilities, etc. This needs reviewing and rationalization of market behaviour whereby the small and marginal farmers are not exploited by the pre-harvest contractors and traders.

**Malpractices** — Malpractices in buying and selling affect the distributive justice and efficiency of the kinnow marketing system (Verma and Singh, 2005). Main functionary in the markets, the commission agents, are generally in league with the buyers, and cheat the farmers by making several unauthorized deductions. Malpractices become more frequent when farmers are poor, less-educated and have small volumes to sell. The commission for kinnow marketing has been fixed at 6 per cent by the Government of Punjab, whereas the commission agents charge between 6 to 8 per cent, whereby causing economic loss to the farmers. About 47 per cent of sample farmers reported this malpractice in the markets.

## Policy Implications

Keeping in view the problems of kinnow marketing in the state of Punjab and likely future production, the following strategies have been suggested for an efficient marketing system:

- There is need of a sound market intelligence system so that farmers can sell their produce at favourable prices.
- Packaging plays an important role in determining the overall value of product. According to Kaur and Singh (2007), kinnow packed in corrugated fibreboard boxes get higher net prices as compared to baskets or jute fibre. Hence, to meet the domestic as well as international quality standards, upgradation of post-harvest infrastructure is necessary.
- There is urgent need to establish sufficient processing (juice) plants in kinnow-growing areas so as to provide higher and stabilized prices to the growers. Setting up of waxing plants in the producing areas would enhance the shelf-life of the produce and would help the farmers to take their produce to the distant markets for better prices without incurring any heavy cost. Gangwar *et al.* (2007) and Sidhu (1993) have also reported the need of establishing more processing units to ensure better returns to kinnow growers.

- The government should take necessary steps to strengthen the cooperative marketing system/ forming of self-help groups for value-addition and marketing of produce in the distant markets for realizing better prices.
- The Government of Punjab should fix minimum support price (MSP) for kinnow as has been done by the Government of Himachal Pradesh for apple, to expand kinnow area and save farmers from price variability and ensuring variable profitability. Mallareddy and Kumar (1990) and Sharma and Tewari (1997) have also emphasized the need of MSP for the horticultural crops for minimizing their price instability.

### Acknowledgements

Authors thank the anonymous referee for his helpful suggestions on the earlier version of this paper.

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Revised Received: October 2011; Accepted: January 2012

## Appendix I

Marketing costs and margins of different functionaries in the marketing channels I and II of kinnow in Punjab  
(₹/q)

Particulars	Channel					
	IA	IB	IC	IIA	IIB	IIC
Net price received by producer/ purchase price of contractor	688.90	670.50	638.30	675.40	661.30	647.20
<b>Cost incurred by pre-harvest contractor/ producer</b>						
Watch and ward	46.20	59.80	72.70	56.10	53.60	75.80
Picking	13.20	15.40	13.10	12.10	13.40	16.00
Grading	20.40	18.80	19.20	20.80	20.00	19.20
Waxing	37.00	31.00	34.00	37.00	35.00	34.00
Filling	43.00	40.00	39.00	38.00	36.00	36.00
Cost of empty boxes	86.0	81.00	86.00	61.00	63.00	66.00
Rough material and nails	4.90	5.20	5.20	4.50	4.80	4.40
Transportation	43.20	52.10	59.90	29.3	17.20	28.93
Unloading	5.40	5.60	5.70	4.50	4.40	4.50
Commission @ 8% <i>ad valorem</i>	129.40	129.10	129.70			
Octroi	10.00	10.00	8.40			
Spoilage @ 1%	16.20	16.10	16.20	12.30	12.30	11.90
Total expenses	454.80	464.30	489.20	275.60	269.70	296.80
Net margin of contractor/ producer	474.20	479.20	494.30	275.90	299.80	289.90
Sale price of contractor or producer/ purchase price of wholesaler or retailer	1618	1614	1622	1227	1231	1234
<b>Cost incurred by wholesaler</b>						
Mandi taxes @ 2.0%	32.40	32.30	32.40	24.50	24.60	24.60
Rural development fund (2.0%)				24.50	24.70	24.40
Commission @ 6%				73.60	73.80	74.00
Loading/unloading	10.00	10.00	10.00	10.00	10.00	10.00
Weighing	0.50	0.50	0.50	0.50	0.50	0.50
Cost of tokri	45.00	45.00	32.40	20.00	20.00	20.00
Quantity loss @ 2%	32.40	32.30	45.00	24.50	24.60	24.60
Other costs as room rent	13.30	13.80	13.50	11.10	11.00	12.00
<b>Total cost</b>	<b>133.50</b>	<b>133.90</b>	<b>133.80</b>	188.80	189.30	190.30
Net margin of wholesaler	148.50	177.10	164.10	216.60	214.70	198.10
Sale price of wholesaler/purchase price of retailer	1900	1925	1920	1632	1635	1622
<b>Cost incurred by retailer</b>						
Transportation	19.00	21.00	19.00	15.00	15.50	15.00
Cost of plastic bags	15.30	15.20	15.20	12.50	12.50	12.50
Spoilage @ 2%	38.00	38.50	38.40	32.60	32.70	32.40
Other costs	8.50	8.50	8.60	7.50	7.50	7.50
<b>Total cost</b>	<b>80.70</b>	<b>83.50</b>	<b>81.30</b>	67.60	68.20	67.40
Net margin of retailer	119.20	291.70	298.70	299.80	246.80	185.00
<b>Sale price of retailer/purchase price of consumer</b>	<b>2100</b>	<b>2300</b>	<b>2300</b>	2000	1950	1875

## Appendix II

## Marketing costs and margins of different functionaries in the marketing channels III, IV, V and VI of kinnow in Punjab

(₹/q)

Particulars	Channel			Channel			Channel			Channel		
	IIIA	IIIB	IIIC	IVA	IVB	IVC	VA	VB	VC	VIA	VIB	VIC
Net price received by producer/ purchase price of contractor	1123	1141	1140	923	937	933	1067	1023	1026	1089	1080	1069
<b>Cost incurred by pre-harvest contractor/ producer</b>												
Grading	22.40	21.20	22.20	16.00	18.30	15.00	21.10	20.20	21.80	19.00	18.00	18.50
Waxing	31.20	30.00	30.90	21.00	26.70	20.00						
Filling	40.40	36.6	39.50	31.00	32.50	30.00						
Cost of empty boxes	87.70	78.30	80.90	66.00	65.80	61.20						
Rough material and nails	5.20	5.00	5.30	46.0	4.80	4.50						
Transportation	49.60	48.90	43.80	42.70	28.20	42.20	5.20	3.00	4.50	7.30	5.40	4.3
Unloading	5.10	5.10	5.00	4.40	5.00	4.10	4.90	5.00	5.10	4.70	4.80	5.00
Commission @ 8% <i>ad valorem</i>	120.70	120.80	121.00									
Octroi	8.90	8.60	9.20									
Depreciation of container							6.00	6.40	6.11	6.20	7.20	6.30
Spoilage @1%	15.00	15.10	15.13	11.20	11.30	11.20	11.10	10.60	10.70	11.30	11.30	11.30
Total expenses	386.70	370.00	373.10	196.90	192.70	188.30	48.40	45.40	48.30	48.60	46.80	45.50
Sale price of contractor or producer/ purchase price of wholesaler or retailer	1510	1511	1514	1120	1130	1121	1115	1068	1074	1138	1127	1108
<b>Cost incurred by wholesaler</b>												
Mandi taxes @ 2.0%	30.10	30.20	30.20	22.40	22.40	22.40	22.30	21.30	21.40			
Rural development fund (2.0%)				24.60	24.40	24.40	23.20	23.00	22.50			
Commission @ 6%				67.20	67.20	67.20	66.90	64.00	64.40			
Loading/ Unloading	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00			
Cost of tokri	45.00	45.00	45.00	20.00	20.00	20.00	20.00	20.00	20.00			
Quantity loss @ 2%	30.10	30.20	30.20	22.40	22.40	22.40	22.30	21.30	21.40			
Other costs as room rent	13.30	13.30	14.80	10.30	12.70	11.50	8.00	8.00	8.00			
<b>Total cost</b>	129.20	129.30	130.90	177.50	179.60	178.50	173.20	168.30	168.40			
Net margin of wholesaler	293.70	282.30	292.80	334.90	320.30	272.60	99.20	101.00	72.40			
Sale price of wholesaler/ purchase price of retailer	1932	1922	1937	1632	1620	1572	1387	1337	1315			
<b>Cost incurred by retailer</b>												
Mandi taxes @ 2.0%										22.70	22.30	22.90
Rural development fund (2.0%)										23.00	22.30	22.90
Commission @ 6%										68.20	67.60	66.40
Transportation	19.00	19.50	21.00	14.50	14.50	14.50	9.00	8.00	7.50	9.00	8.50	7.50
Cost of plastic bags	15.2	15.20	15.20	12.50	12.50	12.50	8.20	10.30	10.30	10.30	12.50	10.30
Spoilage @ 2%	38.60	38.40	38.70	32.60	32.40	31.40	27.70	26.70	26.30	22.70	22.50	22.10
Other costs	8.50	8.50	8.50	7.50	7.50	7.50	6.50	6.00	6.50	6.50	6.00	6.00
<b>Total cost</b>	81.40	81.70	83.50	67.10	66.90	65.90	51.50	51.10	50.60	162.60	161.70	158.20
Net margin of Retailer	286.10	195.80	279.00	175.30	213.10	261.50	136.00	111.30	109.30	249.30	161.20	144.70
<b>Sale price of retailer/ purchase price of consumer</b>	2300	2200	2300	1875	1900	1900	1575	1500	1475	1550	1450	1410

**Appendix III****Proportion of share of intermediaries in consumer rupee in different marketing channels**

(in per cent)

Market intermediaries	Channel I	Channel II	Channel III	Channel IV	Channel V	Channel VI
Producer's share	29.90	34.07	50.09	49.22	68.48	73.36
Producer's cost	-	-	16.62	10.18	3.13	3.20
Preharvest contractor's share	21.64	14.88	-	-	-	-
Preharvest contractor's cost	21.04	14.33	-	-	-	-
Wholesaler's share	7.30	10.80	12.78	16.36	5.98	-
Wholesaler's cost	6.00	9.77	5.73	9.44	11.21	-
Retailer's share	10.45	12.51	11.16	11.45	7.82	12.49
Retailer's cost	3.67	3.49	3.63	3.52	3.37	10.96