
Analysing Farm Profitability and Horizontal and Vertical Integration of Supply Chain for Grapes in Maharashtra

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ABSTRACT

The major concern of the farmers is the extent of profit derived from cultivation of crops irrespective of the final price paid by the consumers. The market functionaries take the advantage of farmer's lack of knowledge of demand supply situation and make substantial margin money while integrating the produce in domestic and export markets. Therefore, the paper evaluates the extent of profit involved for major varieties of grapes cultivated in Maharashtra, apart from examining divergence among farm harvest prices, wholesale prices, retail prices and export prices and the relationship between these movements. The study also addresses problems faced by the farmers and various other stakeholders in marketing of their grape produce. Grape cultivation was found to be highly profitable since cultivators generated more than 100 per cent per quintal net returns over per quintal variable cost. However, producer's share in consumer's rupee for grapes varied from 43 per cent to 46 per cent in domestic market for various varieties, whereas this share in export channel hovered at around 30 per cent. One of the major factors responsible for lower share of producer in retail and export prices of grapes was the higher cumulative marketing margins cornered by various market functionaries within the channel. Further, due to lack of pre-cooling and cold storage facilities for grapes, most of the farmers preferred to dispose of their produce immediately after harvest, which resulted in low prices on offer. There is, therefore, a need to develop adequate post-harvest infrastructure facilities for these high value crops in order to protect farmers from undue low prices for their produce. Introduction of appropriate market regulatory framework to check the practices of various market functionaries involved in the marketing of high value crops will lead to reduced marketing margins of these market intermediaries, resulting in higher share of producer in retail and export price. Further, public and private sector investment initiatives towards creation of adequate post-harvest infrastructure facilities like storage, transportation, pre-cooling units, cold storages, refrigerated vans for the transportation of highly perishable fruits and vegetables, etc. will certainly boost horticulture crop production and marketing, both in domestic and export markets.

Keywords: Farm profitability, Market functionaries, domestic and export markets

JEL: Q12, Q17

I

INTRODUCTION

Agricultural commodities in general and horticulture in particular are beset with high price fluctuations due to their unstable production. Among various agricultural commodities, fruits and vegetable prices are more volatile due to low price and income elasticity. Weak supply chain and market inefficiencies also influence prices of these high value commodities. It is to be noted that high price variability in case of primary products not only affects producers but also consumers, which in turn affect the other sectors, resulting in high inflation in the economy (Chengappa *et al.*, 2012).

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The involvement of large number of market functionaries in the supply chain lead to lower share of producer in consumer rupee. The producers are also seen to be exposed to market risk due to lack of market intelligence regarding demand, supply and price prevailing in various market centres. It is also observed that though many commodities generate good amount of marketable surplus, the producers do not get reasonable price for their produce because of deficiencies in the present agricultural marketing system. Many researchers in the past have raised the issue of availability of adequate market intelligence system for agricultural commodities (Kalloo and Pandey, 2002).

The fruits and vegetable cultivators generally have exposure to numerous alternative marketing channels. A market or combination of markets to use depends on a few factors like volume of produce grown, location of the grower, time available for marketing activities and quality of the produce (Charles *et al.*, 2011). However, the efficiency of marketing of fruits and vegetables in India is always a matter of concern since inadequate market infrastructure coupled with lack of marketing efficiency not only lead to high and fluctuating consumer prices but also lower share of producer in consumer prices (Gandhi and Namboodiri, 2002). Fruits and vegetables also show high proportion of wastage, quality deterioration due to high perishability and frequent mis-match between demand and supply not only spatially but also over time (Subbanarasiah, 1991, Singh *et al.* 1985).

It has been noticed that at the farm level price of the produce is much lower than the prevailing market price. This is owing to the fact that various marketing operations involve significant margins in the form of cost of performing marketing functions and the profit of various market functionaries in each marketing function. As a result of this, the consumer's price turns out to be much higher than producer's price. Greater price fluctuations also affect producers' share in consumer rupee. Fluctuations in prices occur when there is either glut in the market due to favourable production or lack of supply of the crop due to poor harvest. Further, notably, the major concern of the farmers is the extent of profit derived from the cultivation of crops irrespective of the final price paid by the consumers. The market functionaries take the advantage of farmer's lack of knowledge of demand supply situation and make substantial margin money while integrating the produce in domestic and export markets. Thus, this paper mainly evaluates the extent of profit involved for major varieties of grapes cultivated in Maharashtra, apart from examining divergence among farm harvest prices, wholesale prices, retail prices and export prices and the relationship between these movements. The study also addresses problems faced by the farmers and various other stakeholders in marketing of their grape produce.

II

DATABASE AND METHODOLOGY

The study was conducted in three districts belonging to Western Maharashtra region, which account for bulk of the grape cultivation of the State. Based on higher

allocation of area under grape crop, the districts of Nasik, Sangli and Solapur were selected for primary data collection for grape crop. From each of the selected sampled districts, one taluka was selected based on higher area allocation under the reference crop. A further stratification included selection of two villages from each taluka/district for canvassing the questionnaire. It was decided to select a sample of 25 farmers from each of the selected six sampled villages belonging to three districts of Maharashtra. Therefore, a complete enumeration of the six selected villages was done with view to further categorisation of farmers into small (less than 2 hectares), medium (2-4 hectares) and large (above 4 hectares). The probability proportion to sample size technique (PPS) was used for further selection of farmers under each of the land holding size category from the selected sampled villages. The number of sampled farmers for grape crop selected from six villages of Nasik, Sangli and Solapur districts encompassed 114 in small category, 30 in medium and 6 in large category with a total of 150 farmers drawn from the districts of Nasik, Sangli and Solapur. The agricultural year 2013-14 was considered as the reference period for data collection on relevant parameters.

The study also covered wholesalers, retailers and exporters of grape crop. In this study, 10 wholesalers and 10 retailers were selected from Nasik. Apart from wholesalers and retailers, 10 exporters of grapes were also selected from Pune and Mumbai. Separate questionnaires were used for the collection of data from farmers, wholesalers, retailers and exporters. The information collected from wholesalers, retailers and exporters of grape chiefly encompassed sources of their supply, their trade details with respect to average purchase price, sale price, markup, etc., and ranking of problems faced by them.

III

EMPIRICAL FINDINGS

The empirical findings of this investigation revolve around cropping pattern of sampled farmers, variety-wise area under grape crop on sampled farms, production, consumption and marketed surplus of grapes for sampled farmers, percentage profit for grapes for major varieties, wholesale, retail and export trade details of grapes, price spread in domestic and export market for major varieties of grapes, and perceptions regarding problems faced by farmers and other stakeholders in the marketing of their grape produce.

Cropping Pattern of Grape Growers

The information on area allocation under different crops grown under different seasons by the grape farmers is provided in Table 1. The grape farmers showed their cropping pattern in favour of cultivating maize, various leafy vegetables, and onion in *kharif* season and jowar, wheat and maize in *rabi* season. The perennial crops

cultivated by grape growing farmers included grape, betel, banana, ber, chiku, pomegranate and sugarcane. The proportion of area under different crops showed 10.34 per cent of the gross cropped area (GCA) of the average category of grape farmers under *kharif* maize, 3.70 per cent under leafy vegetables, 1.78 per cent under *kharif* onion, 6.03 per cent under other *kharif* crops, 6.41 per cent under *rabi* jowar, 4.99 per cent under wheat, 4.37 per cent under other *rabi* crops, 49.67 per cent under grapes, 10.01 per cent under sugarcane and 2.69 per cent under other perennial crops. The general trend further showed that the average category of grape farmers had 21.85 per cent of GCA under *kharif* crops, 15.77 per cent under *rabi* crops, and as much as 62.38 per cent under perennial crops.

TABLE 1. CROPPING PATTERN OF GRAPE GROWING FARMERS – OVER ALL SEASONS

(area in ha)

Category	Area sown												G. Total	
	Kharif season					Rabi season				Perennial crops				
(1)	Maize	Vegetable	Onion	Others	Total	Jowar	Wheat	Others	Total	Grape	Sugar-cane	Others	Total	(15)
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
Small	12.20 (7.04)	7.07 (4.08)	1.82 (1.05)	13.5 (7.79)	34.59 (19.95)	12.34 (7.12)	6.28 (3.62)	8.76 (5.05)	27.38 (15.79)	89.7 (51.73)	17.71 (10.21)	4.01 (2.31)	111.42 (64.26)	173.39 (100.0)
Medium	13.34 (17.44)	2.63 (3.44)	3.24 (4.24)	2.61 (3.41)	21.82 (28.53)	5.26 (6.88)	6.28 (8.21)	2.43 (3.18)	13.97 (18.27)	32.99 (43.14)	4.66 (6.09)	3.03 (3.96)	40.68 (53.20)	76.47 (100.0)
Large	3.85 (11.25)	0.81 (2.37)	-	1.01 (2.95)	5.67 (16.57)	0.61 (1.78)	1.62 (4.74)	1.21 (3.54)	3.44 (10.06)	18.42 (53.84)	6.07 (17.74)	0.61 (1.78)	25.10 (73.37)	34.21 (100.0)
Total	29.38 (10.34)	10.52 (3.70)	5.06 (1.78)	17.12 (6.03)	62.08 (21.85)	18.21 (6.41)	14.17 (4.99)	12.41 (4.37)	44.79 (15.77)	141.11 (49.67)	28.44 (10.01)	7.65 (2.69)	177.20 (62.38)	284.07 (100.0)

Note: In *kharif* season, 'Others' include crops, viz., jowar, bajra, tur, mung, groundnut, soybean, lucerne, kadwal and grass. In *rabi* season, 'Others' include crops, viz., maize, gram, groundnut, turmeric, onion, vegetables and kadwal. Under perennial crops 'Others' include crops, viz., betel, banana, ber, chikku, and pomegranate.

The foregoing observations bring us closer to the fact that the average category of farmers allocated 50 per cent of their GCA under grape crop. The other crops that predominated the cropping pattern of grape farmers were maize and leafy vegetables in *kharif* season, jowar and wheat in *rabi* season, and sugarcane among perennial crops. The sampled grape farmers showed lowest area in *rabi* season as proportion of GCA.

Area under Grape Crop – Variety-Wise

The sampled grape farmers cultivated large number of varieties of grape on their farms. The varieties of grapes cultivated by sampled farmers encompassed Thomson, Sonaka, Ganesh, Jumbo, Sharad, Nanasaheb Purple, Clone 2 and Manik chaman. Estimates relating to variety-wise area under onion crop for different categories of onion farmers are provided in Table 2.

The major area allocation of sampled grape farmers was noticed to be under Thomson and Sonaka varieties of grapes since the average category of farmers allocated 68 per cent of their total grape cropped area under Thomson variety and 15 per cent under Sonaka variety.

TABLE 2. AREA UNDER GRAPE CROP – VARIETY-WISE

Category (1)	Variety-wise area under grape crop (ha)								Total (10)
	Thomson (2)	Sonaka (3)	Ganesh (4)	Jumbo (5)	Sharad (6)	Nanasaheb purple (7)	Clone 2 (8)	Manik chaman (9)	
Small	62.08	16.45	1.21	0.81	3.56	0.61	2.70	2.28	89.70
Medium	22.16	4.66	0.81	-	0.81	-	2.23	2.33	32.99
Large	12.15	-	-	-	3.04	-	-	3.24	18.42
Total	96.38	21.11	2.02	0.81	7.41	0.61	4.93	7.85	141.11
	Share in total area (per cent)								
Small	69.21	18.34	1.35	0.90	3.97	0.68	3.01	2.54	100.0
Medium	67.17	14.11	2.45	-	2.45	-	6.75	7.07	100.0
Large	65.94	-	-	-	16.48	-	-	17.58	100.0
Total	68.31	14.96	1.43	0.57	5.25	0.43	3.49	5.56	100.0

Production, Consumption and Marketed Surplus

The production, consumption and marketed surplus estimates of sampled grape farmers are evaluated only for Thomson and Sonaka varieties of grapes since the major area allocation seems to be under these two varieties. The estimates relating to area, production, consumption, quantity retained for future use, wastage, quantity sold along with price for Thomson and Sonaka varieties of grapes are brought out in Table 3.

TABLE 3. AREA, PRODUCTION, CONSUMPTION AND MARKETED SURPLUS FOR GRAPES

Category (1)	Area (ha) (2)	<i>(per farm)</i>					
		Production (qtl.) (3)	Consumption (qtl.) (4)	Retained for future use (qtl.) (5)	Wastage (qtl.) (6)	Sold (qtl.) (7)	Price (Rs./qtl.) (8)
Thomson variety							
Small	0.64	102.31 (100.00)	0.49 (0.48)	0.36 (0.36)	1.95 (1.90)	99.51 (97.26)	3245.15
Medium	1.38	208.57 (100.00)	1.19 (0.57)	0.68 (0.33)	4.77 (2.29)	201.93 (96.81)	3699.06
Large	2.11	361.70 (100.00)	1.20 (0.33)	1.22 (0.34)	8.29 (2.28)	350.99 (97.05)	3370.00
Average	0.81	127.93 (100.00)	0.62 (0.48)	0.44 (0.35)	2.60 (2.04)	124.27 (97.13)	3312.56
Sonaka variety							
Small	0.57	87.39 (100.00)	0.45 (0.52)	0.24 (0.27)	2.14 (2.45)	84.56 (96.76)	3427.24
Medium	0.56	65.01 (100.00)	0.50 (0.77)	0.18 (0.28)	1.38 (2.13)	62.95 (96.82)	4205.00
Large	-	-	-	-	-	-	-
Average	0.57	82.55 (100.00)	0.46 (0.56)	0.23 (0.27)	1.97 (2.39)	79.89 (96.78)	3595.40

Note: Figures in parentheses are percentages to total production.

The estimates also showed that the average per farm production, consumption, retention and marketed surplus of grapes increased with the increase in land holding size of sampled grape farmers, especially for Thomson variety. The consumption and

retention of grapes as proportion of production was quite low among sampled grape farmers, whereas the wastage of grapes as proportion of production stood at relatively high level. In general, all the categories of farmers showed about 97 per cent of total production of grapes as quantity sold in the market as marketed surplus.

Farmer's Percentage Profit for Grapes

The estimates relating to proportion of profit involved in the cultivation of Thomson and Sonaka varieties of grapes for various categories of farmers are brought out in Table 4. The grape farming was found to be highly profitable proposition. The estimates showed that the return over variable cost (ROVC) for Thomson variety of grapes varied significantly across land holding size categories, and variation was seen from Rs.1624/qlt for small category to Rs.1870/qlt for medium category with an average of Rs.1663/qlt for the average category of farmers. The estimates further showed an increase in proportion of per quintal profit over per quintal variable cost for Thomson variety of grapes. The average category of sampled grape farmer was found to generate 101.56 per cent per quintal net returns over per quintal variable cost in the cultivation of Thomson variety of grapes.

TABLE 4. VARIETY-WISE PERCENTAGE PROFIT FOR GRAPES – ESTIMATES BASED ON FIELD LEVEL SURVEY

Farm category (1)	Value of main product (Rs./qlt) (2)	Variable cost (Rs./qlt) (3)	ROVC (Rs./qlt) (4)	Per cent profit* (ROVC/VC)*(100) (5)
Thomson variety				
Small	3245	1621	1624	100.19
Medium	3699	1830	1870	102.19
Large	3370	1640	1730	105.53
Average	3313	1669	1695	101.56
Sonaka variety				
Small	3427	1638	1790	109.30
Medium	4205	2096	2109	100.59
Large	-	-	-	-
Average	3595	1719	1844	107.27

Note: VC – Variable cost; ROVC – Returns over variable cost; * - For computing farmer's percentage profit, only variable costs have been considered.

In case of Sonaka variety of grapes, the medium category of grape farmer showed higher ROVC as against small category, which was estimated at Rs.1790/qlt for small category and Rs.2109/qlt for medium category with an average of Rs.1875/qlt for the average category of farmers. However, the smallholders generated higher per quintal net returns over per quintal variable cost in the cultivation of Sonaka variety of grapes. The average category of sampled grape farmer generated 107.27 per cent per quintal profit over per quintal variable cost in the cultivation of Sonaka variety of grapes.

Trade Details of Market Functionaries

The estimates relating to details regarding wholesale trade, retail trade and export trade for Thomson and Sonaka varieties of grapes are given in Table 5. The overall average monthly quantity of grapes traded by a wholesaler was estimated at 100 qtl for Thomson variety and 97 qtl for Sonaka variety. The wholesale trade of grapes for a wholesaler was the highest in the month of November/December and lowest in May.

The purchase price of grapes for a wholesaler was the highest in the month of April and lowest in November, whereas sale price for the same stood at the highest in April/May and lowest in November/December. The average purchase price of grapes for a wholesaler was estimated at Rs.3956/qtl for Thomson variety and Rs.4018/qtl for Sonaka variety. On the other hand, the average sale price of grapes for a wholesaler was estimated at Rs.4876/qtl for Thomson variety and Rs.4984/qtl for Sonaka variety. Therefore, the average percentage mark-up of grapes for a wholesaler was worked out at 23.26 per cent for Thomson 24.03 per cent for Sonaka variety.

The estimates further showed that the overall average monthly quantity of grapes traded by a retailer was 3.85 qtl for Thomson variety and 2.59 qtl for Sonaka variety. The purchase price of grapes for a retailer was the highest in the month of April for both Thomson and Sonaka variety. However, the sale price of grapes for a retailer was the highest in January for Thomson variety and in April for Sonaka variety. The average purchase price of grapes for a retailer stood at Rs.5963/qtl for Thomson variety and Rs.6035/qtl for Sonaka variety. The average sale price of grapes for a retailer was estimated at Rs.7730/qtl for Thomson variety and Rs.7863/qtl for Sonaka variety. Thus, the average percentage mark-up of grapes for a retailer turned out to be 29.63 per cent for Thomson variety and 30.27 per cent for Sonaka variety.

Fresh grapes are being exported from India to about 30 countries including U.K., The Netherlands, U.A.E., Bangladesh, Germany, Belgium, Saudi Arabia, Oman, Kuwait, Sri Lanka, and Bahrain. The estimates relating to export trade details for Thomson and Sonaka varieties of grapes are also shown out in Table 5.

The average monthly export trade of grapes for an exporter was estimated at 343 qtl for Thomson variety and 36 qtl for Sonaka variety. The purchase and sale prices of grapes for an exporter were the highest in the month of February/March and lowest in November/December. There was wide difference between purchase and sale price of grapes for an exporter. This was mainly due to vary high element of cost and margin involved between purchase and sale price of grapes in export trade. The overall average purchase price of grapes for an exporter was estimated at Rs.4007/qtl for Thomson variety and Rs.4138/qtl for Sonaka variety. The overall average sale price stood at Rs.11394/qtl for Thomson variety and Rs.12045/qtl for Sonaka variety. Thus, the average percentage mark-up of grapes for an exporter was estimated as high as 184.38 per cent for Thomson variety and 191.12 per cent for Sonaka variety. The average percentage mark-up of grapes for an exporter varied significantly across months.

TABLE 5. VARIETY-WISE AND OVERALL WHOLESALE, RETAIL AND EXPORT TRADE DETAILS OF GRAPES: 2013-14

Month (1)	Wholesale trade details					Retail trade details					Export trade details					
	Average price (Rs./qtl) at which purchased (PP) (2)	Average price (Rs./qtl) at which sold (SP) (4)	Mark-up (SP-PP) (5)	Percentage mark-up (SP-PP)/PP*100 (6)	Average price (Rs./qtl) at which purchased (PP) (7)	Average price (Rs./qtl) at which sold (SP) (8)	Mark-up (SP-PP) (9)	Percentage mark-up (SP-PP)/PP*100 (10)	Average price (Rs./qtl) at which purchased (PP) (11)	Average price (Rs./qtl) at which sold (SP) (12)	Mark-up (SP-PP) (13)	Percentage mark-up (SP-PP)/PP*100 (14)	Average price (Rs./qtl) at which purchased (PP) (15)	Average price (Rs./qtl) at which sold (SP) (16)	Mark-up (SP-PP) (17)	Percentage mark-up (SP-PP)/PP*100 (18)
January	4050	8425	5034	984	24.30	6163	8104	1942	31.51	3667	21667	10458	6792	18523	6792	18523
February	4083	9250	5091	1008	24.67	5842	7682	1841	31.51	4100	39533	11848	7748	18896	7748	18896
March	3800	124.00	4638	838	22.05	5731	7598	1867	32.57	4200	325.00	11625	7425	17679	7425	17679
April	3983	95.00	4899	916	22.99	6300	7981	1681	26.69	-	-	-	-	-	-	-
May	4250	65.00	5223	973	22.88	-	-	-	-	-	-	-	-	-	-	-
November	3200	140.00	3904	704	22.00	6188	7874	1686	27.25	-	-	-	-	-	-	-
December	3833	120.00	4675	842	21.96	5642	7108	1467	26.00	3500	500.00	10325	6825	195.00	6825	195.00
Average	3956	100.44	4876	920	23.26	5963	7730	1767	29.63	4007	343.13	11394	7387	184.38	7387	184.38
							Thomson Variety									
January	3855	113.00	4800	945	24.51	5775	7394	1619	28.04	4000	15.00	12600	8600	215.00	8600	215.00
February	3500	120.00	4375	875	25.00	6111	7860	1749	28.62	-	-	-	-	-	-	-
March	3950	89.00	4782	832	21.05	6000	7770	1770	29.49	4350	40.00	13050	8700	200.00	8700	200.00
April	4750	110.00	5863	1113	23.42	6113	8152	2040	33.37	-	-	-	-	-	-	-
May	4250	58.33	5285	1035	24.35	5950	7903	1953	32.82	-	-	-	-	-	-	-
November	4050	100.00	5468	1418	35.00	5975	7887	1912	32.00	4200	50.00	11130	6930	165.00	6930	165.00
December	3500	120.00	4375	875	25.00	6000	7681	1681	28.02	4000	40.00	11400	7400	185.00	7400	185.00
Average	4018	96.94	4984	966	24.03	6035	7863	1827	30.27	4138	36.25	12045	7908	191.12	7908	191.12
							Sonaka Variety									

Note: (1) Estimates based on empirical study, (2) SP – Sale Price; PP – Purchase Price.

Horizontal and Vertical Integration of Supply Chain

The grape farmers diverted their produce in the domestic market using on farm sale (through commission agents) and in the export market to the exporters (through commission agents). Therefore, two marketing channels were prevalent in the study area.

Channel I: Farmer – Wholesaler (through commission agents) – Retailer – Consumer

Channel II: Farmer – Exporter (through commission agents)

The price spread for grapes in the domestic and export markets for Thomson and Sonaka varieties is shown in Table 6. In the domestic trade of grapes, the wholesaler

TABLE 6. PRICE SPREAD FOR GRAPES IN DOMESTIC AND EXPORT MARKETS: 2013-14

Sr. No. (1)	Particulars (2)	Domestic market				Sr. No. (7)	Particulars (8)	Export market			
		Per cent share in consumer's		Per cent share in consumer's				Per cent share in consumer's		Per cent share in consumer's	
		Rs./qtl (3)	rupee (4)	Rs./qtl (5)	rupee (6)			Rs./qtl (9)	rupee (10)	Rs./qtl (11)	rupee (12)
		Thomson		Sonaka		Thomson		Sonaka			
A.	Net price received by the farmer	3313.00	42.86	3595.00	45.72	A.	Net price received by the farmer	3313.00	29.08	3595.00	29.85
	Expenses borne by the farmer	47.40	0.61	35.65	0.45		Expenses borne by the farmer	47.40	0.42	35.65	0.30
	Commission agent's charges	595.15	7.70	387.40	4.93		Commission agent's charges	646.60	5.67	506.85	4.21
B.	Wholesaler's purchase price/ Farmer's sale price	3955.55	51.17	4018.05	51.10	B.	Exporter's purchase price/ Farmer's sale price	4007.00	35.17	4137.50	34.35
	Expenses borne by the wholesaler	1232.50	15.94	1232.50	15.68		Expenses borne by the exporter	2795.00	24.53	2795.00	23.20
	Wholesaler's net margin	775.11	10.03	784.93	9.98		Exporter's net margin	4592.00	40.30	5112.50	42.44
C.	Retailer's purchase price/ Wholesaler's sale price	5963.16	77.14	6035.48	76.76	C.	Export price	11394.00	100.00	12045.00	100.00
	Expenses borne by the retailer	175.50	2.27	175.50	2.23						
	Retailer's net margin	1591.41	20.59	1651.61	21.01						
D.	Consumer's purchase price/ Retailer's sale price	7730.07	100.00	7862.59	100.00						

Note: Estimates are based on field level study conducted for farmers and traders.

procures produce from farmers through commission agents. In fact, farmers of grapes use on-farm sale and commission agents links the farmer to the wholesalers. The farmer bears the charges of commission agents. Therefore, the grape farmers not only bears minor expenses towards transportation of produce from field to road but also charges of commission agents.

The share of farmer in retail price was estimated at 42.86 per cent for Thomson variety and 45.72 per cent for Sonaka variety of grapes, showing higher share for Sonaka as against Thomson variety. The estimates also showed much lower share of net margin of wholesaler in consumer's price as against share of net margin of retailer in the same. The net margin of retailer of grapes in consumer's price was worked out at 20.59 per cent for Thomson variety and 21.01 per cent for Sonaka variety, whereas share of net margin of wholesaler of grapes in consumer's price turned out to be 10.03 per cent for Thomson variety and 9.98 per cent for Sonaka variety. In general, the grape farmers showed reasonable share in consumer's rupee in domestic market.

Although the net price received by the farmer for grapes in export channel and domestic market remained the same, the farmer's share in export price reduced significantly for both Thomson and Sonaka varieties of grapes, which was mainly due to very high export price of grapes in the export channel. The export trade of grapes involves very high element of cost, which are borne by the exporter. The net margins of exporters are also very high in the export channel. The exporter of grapes bears the cost of processing, which encompasses labour expenses for grading, packing, pre-cooling, cold storage, loading, unloading, etc., packing material expenses, viz., boxes, plastic sheets, pouches, tissue papers, air bubble sheets, grape guards, pallets, angle boards, strap and clips, etc., and pre-cooling and cold storage expenses. Apart from these expenses, the exporter also bears inland expenses, viz., inland transport, clearing and forwarding, customs duty, terminal handling charges, etc. Therefore, the expenses borne by the exporter of grapes turn out to be very high. The expenses borne by the exporter coupled with high element of net margin of exporter makes the export price of grapes very high in the export channel.

The shares of marketing cost of exporter in export price of grapes were estimated at 24.53 per cent for Thomson variety and 23.20 per cent for Sonaka variety. The shares of net margin of exporter in export price of grapes turned out to be as much as 40.30 per cent for Thomson variety and 42.44 per cent for Sonaka variety. Due to significantly high shares of marketing costs and net margins in export price, the farmer's share in export price of grapes turned out to be only 29.08 per cent for Thomson variety and 29.88 per cent for Sonaka variety.

The foregoing observations clearly underscore the fact that the producer's share in consumer's rupee for grapes varied from 43 per cent to 46 per cent in domestic market for various varieties, and this share in export channel for the same varied from 29 per cent to 30 per cent. The lower share of farmer in export price as against retail price in domestic market was due to higher export price. The higher export price in

export channel for grapes was due to better quality of produce diverted in the export channel, which fetched better prices.

IV

PROBLEMS FACED BY FARMERS AND OTHER STAKEHOLDERS

The farmers were noticed to face several problems in the cultivation of grape crop and these problems mainly encompassed: lower yield, unstable yield, lack of remunerative price, poor road network for transportation, poor refrigeration facilities/Eradiation, other infrastructural problems, erratic electricity supply, labour problem, poor quality of underground water, lack of/poor extension services/lack of technical know how, price fluctuations, lack of market information, collusion among traders/trade malpractices, and disease infestation.

The sampled wholesalers and retailers of grapes faced wide range of problems, which mainly encompassed: lower quantum of supply, poor quality of supply, competition from other wholesalers, completion due to imports, poor road network, erratic supply/ production, mixing of different varieties, poor refrigeration facilities, higher perishability of produce etc.

There were numerous problems faced by the sampled exporters of onion and grapes, and important among these were: lower domestic production, poor quality of supply, lower price due to lower world demand, competition from wholesalers, competition from other exporters, poor road network, poor port facilities, poor facility of refrigeration, lengthy government procedures, export policy uncertainty, problem of chemical residue, high port charges/taxes, etc.

V

CONCLUSION

The study showed highly profitable nature of grape crop cultivation since cultivation of grapes generated more than 100 per cent per quintal net returns over per quintal variable cost. The study also showed that the producer's share in consumer's rupee for grapes varied from 43 per cent to 46 per cent in domestic market for various varieties, and this share in export channel hovered around 30 per cent. Further, the study revealed that grape prices remained at lower ebb during harvesting/peak period and high during lean period. One of the major factors responsible for lower share of producer in retail and export prices of grapes was the higher cumulative marketing margins cornered by various market functionaries within the channel. Further, due to lack of pre-cooling and cold storage facilities for grapes, most of the farmers preferred to dispose of their produce immediately after harvest, which resulted in low prices on offer. There is, therefore, a need to develop adequate post-harvest infrastructure facilities for these high value crops in order to protect farmers from undue low prices for their produce. Public and private sector investment initiatives

towards creation of adequate post-harvest infrastructure facilities like storage, transportation, pre-cooling units, cold storages, refrigerated vans for the transportation of highly perishable fruits and vegetable, etc. will certainly boost horticulture crop production and marketing, both in domestic and export markets.

REFERENCES

- Chengappa, P.G., A.V. Manjunatha, Vikas Dimble and Khalil Shah (2012), *Competitive Assessment of Onion Markets in India*, Agricultural Development and Rural Transformation Centre, Institute for Social and Economic Change, Bangalore.
- Gandhi, Vasant P. and N.V. Namboodiri (2002), *Fruit and Vegetable Marketing and its Efficiency in India: A Study of Wholesale Markets in the Ahmedabad Area*, Research Report, Indian Institute of Management, Ahmedabad, June.
- Hall, Charles R., Alan W. Hodges and Marco A. Palma (2011), "Sales, Trade Flows, and Marketing Practices within the U.S. Nursery Industry", *Journal of Environmental Horticulture*, Vol.29, No.1, pp.14–24.
- Kaloo, G and A.K. Pandey (2002), "Vegetable Production – Commendable Progress in Research", *The Hindu Survey of Indian Agriculture*, pp.159-163.
- Singh, Maheshkumar, P.B. Parthasarthy and Tej Bahadur (1985), 'Price Spread of Vegetable Marketing', *Indian Journal of Agricultural Economics*, Vol. 45, No. 3, July-September.
- Subbanarasaiah, N. (1991), *Marketing of Horticultural Crops in India*, Anmol Publishing Company, Delhi.