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An Empirical Assessment of Onion value Chain in India for Domestic and Export Market

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Abstract

There are generally wide fluctuations in monthly prices of onion, which lead to seasonality and which cause a perpetual concern to producers. Fluctuations in annual prices, which are generally cyclical in nature, also affect the export performance. These facts make it necessary to understand nature of these fluctuations and the present study is an attempt in this direction. The study assesses the relationship of prices of onion at the farm level as well as at wholesale, retail and export level with a view to understand price mechanism involved in the marketing of onion. It and also addresses problems faced by stakeholders in the marketing of their onion. The study showed highly profitable nature of onion crop cultivation since cultivation of kharif onion generated 68-91 percent per quintal net returns over per quintal variable cost. Rabi onion generated 60-81 percent per quintal net returns over per quintal variable cost. The study showed that the producer's share in consumer's rupee for onion varied from 49 percent to 52 percent in domestic market for various varieties, and this share in export channel varied from 30 percent to 35 percent. Further, the study revealed that onion 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 was the higher cumulative marketing margins cornered by various market functionaries. The situation is unlikely to be altered unless various regulative measures are brought in place to check practices of these functionaries involved in the marketing of high value crops. One of the major recommendations of this study is in favour of announcement of MSP for rabi onion, which has shelf life of 4-5 months. The government support for rabi onion will not only protect farmers but also consumers.

Keywords: Onion, Value, Chain, India

JEL Classification: F14, Q10, Q13, Q17, Q18

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Rationale

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 other sectors, resulting in high inflation in the economy (Chengappa, et. al., 2012). 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; Singh et. al., 2004).

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 R. 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 miss-match between demand and supply not only spatially but also over time (Subbanarasiah, 1991; Singh, 1985).

Horticultural commodities are also subjected to high price volatility due to lack of storage, transportation and processing facilities, aside from weather and institutional risks. There are generally wide fluctuations in monthly prices of onion, which lead to seasonality and which cause a perpetual concern to producers. Fluctuations in annual prices, which are generally cyclical in nature, also affect the export performance. It deserves mention that the spectre of rising prices of onion during 2013 had adversely affected food inflation. It has been argued that an increase in price of onion affects the consumer by way of increase in food consumption budget, while a decrease in onion prices below the cost of cultivation affects the producer (Chengappa, et. al., 2012). In the light of this background, this study attempts to examine divergence among farm harvest prices, wholesale prices, retail prices and export prices and the relationship between these movements for onion crop in the state of Maharashtra of India. The study also addresses problems faced by stakeholders in the marketing of their onion produce.



Objectives

The major objectives of this study are to: (a) assess the relationship of prices of onion at the farm level as well as at wholesale, retail and export level with a view to understand price mechanism involved in the marketing of onion, and (b) address problems faced by stakeholders in the marketing of their onion produce.

Methodology

The study was conducted in three districts belonging to Western Maharashtra region of India, which account for bulk of onion cultivation of India. Based on higher allocation of area under onion, the districts of Pune, Ahmednagar and Nasik were selected for primary data collection. 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. Therefore, a complete enumeration of the six selected villages was done with view to further categorization 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 selected from six villages of Pune, Ahmednagar and Nasik districts encompassed 113 in small category, 25 in medium and 12 in large category with a sum of 150 farmers drawn from three selected districts. 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 onion crop. In this study, 10 wholesalers and 10 retailers were selected from Pune. Apart from wholesalers and retailers, 10 exporters of onion 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 onion 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.

Key Findings

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

Cropping Pattern of Onion Farmers

The cropping pattern of sampled onion farmers was seen to be in favour of cultivating onion, bajra, mung, and maize in kharif season and onion, jowar, wheat, gram and maize in rabi season (Table 1). Various other crops like pomegranate, sugarcane, grape, orange, mango, etc. were cultivated as perennial crops by the sampled onion farmers. All the categories of sampled onion farmers put together showed a net sown area of 224.51 hectares in kharif season, which encompassed 49.29 hectares of area under kharif onion, 69.18 hectares under bajra, 51.64 hectares under mung, and 54.40 hectares under other kharif crops like jowar, maize, tur, udid, groundnut, green pea, fodder crops, etc. (Table 1). The net sown area with all the sampled onion growing farmers put together was estimated at 196.04 hectares in rabi season, which encompassed 111.48 hectares under rabi onion, 45.08 hectares under jowar, 17.79 hectares under wheat, and 21.69 hectares under other rabi crops like maize, gram, groundnut, sunflower, potato, Lucerne, etc. The area under perennial crops with all the sampled farmers put together was estimated at 55.69 hectares, which encompassed 33.68 hectares under pomegranate, and 22.00 hectares under other perennial crops like sugarcane, grape, orange, mango, etc.

The foregoing observations show that onion crop predominated the cropping pattern of onion farmers during both rabi and kharif seasons since the average category of onion farmer showed 22 percent of net sown area under onion crop in kharif season and as high as 57 percent in rabi season. The area under onion crop as proportion of GCA was also high and the average category of onion farmers showed 10 percent of GCA under onion crop in kharif season and 23 percent of GCA under onion crop in rabi season.

Area under Onion Crop – Variety-wise

The sampled onion farmers were seen to cultivate large number of varieties of onion on their farms. The variety of onion cultivated during kharif and rabi seasons differed across various categories of sampled farmers. However, the sampled onion farmers cultivated some of the varieties during both kharif and rabi seasons. Estimates relating to variety-wise area under onion crop for different categories of onion farmers are provided in Table 2.

The varieties of onion cultivated by sampled onion farmers during kharif season encompassed Bajra 258, Chandwad, Fursungi, Lonand, Mahabij, Malav, N.53, Nashik Lal, Panchganga, and Prema. On the other hand, the major varieties of onion cultivated by sampled onion farmers during rabi season included Bhagwa, Chandwad, Double Pati, Fursungi, Halwa, Lasalgaon, Mahabij, N.53, Nashik Lal, Panchganga, and Sinnor Ghavti. Thus, the sampled onion farmers cultivated more varieties of onion during rabi season as against kharif season. However, the general trend showed major area allocation under Nasik Lal and Panchganga varieties of onion during kharif season and Fursungi and Nashik Lal varieties of onion during rabi season.

A critical evaluation of area allocation under various varieties of onion further revealed that the sampled onion farmers allocated much larger area under rabi season as against kharif

season. This was mainly due to much longer shelf life of rabi onion as against kharif onion. The onion crop cultivated during rabi season is of much better quality with 4-5 months of shelf life, which lead to much higher prices on offer for rabi onion as against kharif onion. The average category of onion farmers allocated 43 percent of the total kharif onion cropped area under Nashik Lal variety and 36 percent under Panchganga variety. Similarly, the average category of onion farmers allocated 60 percent of their total rabi onion cropped area under Fursungi variety and 19 percent under Nashik Lal variety. Due to significantly higher allocation of onion cropped area under Nasik Lal and Panchganga varieties in kharif season and Fursungi and Nasik Lal varieties in Rabi season, the study is confined to value chain analysis for these varieties of onion.

Production, Consumption and Marketed Surplus

The production, consumption and marketed surplus estimates of sampled onion farmers are evaluated only for Nasik Lal and Panchganga varieties in kharif season and Fursungi and Nasik Lal varieties in Rabi season since major area allocation stood under these four varieties. The estimates relating to area, production, consumption, quantity retained for future use, wastage, quantity sold along with price for Nasik Lal and Panchganga varieties of onion cultivated during kharif season are brought out in Table 3.

The average category of sampled onion farmer showed 1.35 percent of total production of Nasik Lal variety of onion as family consumption, 1.05 percent as quantity retained for future use, 2.22 percent as wastage and 95.38 percent as quantity sold in the market at an average price of US\$ 13.95 per quintal. The average per farm area under kharif Nasik Lal variety of onion as well as production, consumption, retention, wastage and sale of produce increased with the increase in land holding size of onion farmers. The average price for the Nasik Lal variety of onion produced during kharif season was noticed to be higher for medium category as against small category of onion farmers. The large category of sampled onion farmers did not cultivate Nasik Lal variety of onion during Kharif season.

As for Panchganga variety of onion, the average category of sampled onion farmer showed 1.12 percent of total production as family consumption, 1.04 percent as quantity retained for future use, 2.39 percent as wastage and 95.45 percent as quantity sold in the market at an average price of US\$ 13.24 per quintal. The average per farm area, production, consumption, retention, wastage and sale of Panchganga variety of onion also increased with the increase in land holding size of onion farmers. In case of Panchganga variety of onion, the medium category of sampled farmers received higher price, followed by small and large category.

The estimates relating to area, production, consumption, quantity retained for future use, wastage, quantity sold along with price for Fursungi and Nasik Lal varieties of onion cultivated during rabi season are brought out in Table 4. The average category of onion farmer showed 2.28 percent of total production of Fursungi variety of onion as family consumption, 1.78 percent as quantity retained for future use, 2.50 percent as wastage and 93.44 percent as

quantity sold in the market at an average price of US\$ 15.10 per quintal. In case of Fursungi variety of onion cultivated during rabi season, the medium category of farmers received higher price, followed by large and small category.

During rabi season, the average category of sampled onion farmer showed 1.88 percent of total production of Nasik Lal variety of onion as family consumption, 1.58 percent as quantity retained for future use, 2.04 percent as wastage and 94.50 percent as quantity sold in the market at an average price of US\$ 15.45 per quintal. The price of Nasik Lal variety of onion produced during rabi season increased with the increase in land holding size of farmers. In general, during rabi season, wastage as well as retention of Nasik Lal variety of onion as proportion of production increased with the increase in land holding size of farmers, whereas small category showed higher proportion of production as consumption as against large and medium category of farmers.

The longer shelf life and better quality of produce were the major reasons for higher prices on offer for rabi onion as compared to kharif onion. The productivity of rabi onion is also significantly high as against kharif onion. The sampled onion farmers, therefore, allocated higher per farm area under rabi as against kharif onion. In general, the sampled farmers received 14 percent higher prices for rabi as against kharif onion.

Farmer's Percentage Profit for Onion

The estimates relating to proportion of profit involved in the cultivation of Nasik Lal and Panchganga varieties of onion grown during kharif season for various categories of farmers are brought out in Table 5. Similar estimates for Fursungi and Nasik Lal varieties of onion grown during rabi season for various categories of farmers are shown in Table 6.

The onion farming was found to be reasonably profitable proposition. The estimates showed that the return over variable cost (ROVC) for Nasik Lal variety of onion grown during Kharif season varied significantly across land holding size categories, and variation was seen from US\$ 5.27/quintal for medium category to US\$ 7.01/quintal for small category with an average of US\$ 6.66/quintal for the average category of farmers. In general, the average category of sampled onion farmer generated 91.38 percent of per quintal net returns/profit over per quintal variable cost in the cultivation of Nasik Lal variety of onion during kharif season.

As for Panchganga variety of onion grown during Kharif season, the ROVC decreased with the increase in land holding size of sampled farmers with a decline in the same from US\$ 5.81/quintal for small category to US\$ 4.67/quintal for large category. The average ROVC for Panchganga variety of onion was estimated at US\$ 5.36/quintal. The proportion of per quintal profit over per quintal variable cost for Panchganga variety of onion varied across land holding size categories. The average proportion of per quintal profit over per quintal variable cost for Panchganga variety of onion grown during kharif season was estimated at 67.96 percent, which stood at lower as against Nasik Lal variety of onion.



The ROVC for Fursungi variety of onion varied across land holding size categories, and variation was seen from US\$ 5.07/quintal for large category to US\$ 6.01/quintal for medium category with an average of US\$ 5.66/quintal for the average category of farmers. The estimates also showed a decline in proportion of per quintal profit over per quintal variable cost for Fursungi variety of onion grown during rabi season. The average category of sampled onion farmer was found to generate 60 percent per quintal net returns/profit over per quintal variable cost in the cultivation of Fursungi variety of onion during rabi season.

The ROVC for Nasik Lal variety of onion grown during rabi season increased with the increase in land holding size of farmers with an increase from US\$ 6.63/quintal for small category to US\$ 9.14/quintal for large category. The average ROVC for Nasik Lal variety of onion was estimated at US\$ 6.89/quintal. The proportion of per quintal profit over per quintal variable cost for Nasik Lal variety of onion cultivated during rabi season varied significantly across land holding size categories. It varied from 77.34 percent for small category to 101.78 percent for medium category of sampled farmers. The average proportion of per quintal profit over per quintal variable cost for Nasik Lal variety of onion cultivated in rabi season was estimated at 80.55 percent, which stood at higher as against Fursungi variety of onion. In general, both kharif and rabi onion showed reasonable margins of profit over variable cost on per quintal basis.

Wholesale Trade Details

The estimates relating to wholesale trade details for Nasik Lal, Panchganga and Fursungi varieties of onion are brought out in Table 7. The overall average monthly quantity of onion traded by a wholesaler was estimated at 1,130 quintals for Nasik Lal variety, 1,905 quintals for Panchganga variety and 719 quintals for Fursungi variety. The quantum of wholesale trade of Nasik Lal variety of onion was found to be the highest in December and lowest in June. The average wholesaler's purchase price for Nasik Lal variety of onion was the highest in October and November and lowest in June. The average sale price of Nasik Lal variety of onion for a wholesaler was the highest in October and lowest in June. The average wholesaler's purchase price for Nasik Lal variety of onion was estimated US\$ 18.64/quintal, whereas average sale price for the same stood at US\$ 23.47/quintal. The percentage mark-up for a wholesaler for Nasik Lal variety of onion was estimated at 25.92 percent, which varied from 18.67 percent in July to 32.41 percent in March. Thus, percentage mark-up for a wholesaler of Nasik Lal variety of onion varied significantly across various months.

The wholesale trade of Panchganga variety of onion was the highest in November and lowest in September. However, the purchase and sale prices of Panchganga variety of onion for a wholesaler were the highest in October and lowest in December. The average purchase price for Panchganga variety of onion for a wholesale was estimated at US\$ 17.04/quintal, whereas average sale price for the same stood at US\$ 21.53/quintal. The average percentage mark-up for a wholesaler for Panchganga variety of onion was estimated at 26.39 percent, which did not vary much across various months.

The quantum of wholesale trade of Fursungi variety of onion was the highest in the month of April and lowest in November. The average wholesaler's purchase price for Fursungi variety of onion was estimated US\$ 17.62/quintal, which turned out to be the highest in the months of November and April and lowest in January. The average sale price of Fursungi variety of onion for a wholesaler was estimated at US\$ 22.16/quintal, which stood at the highest in the months of November and lowest in January. The average percentage mark-up for a wholesaler for Fursungi variety of onion varied significantly across various months, and, on an average, it was estimated at 25.77 percent.

Retail Trade Details

The estimates relating to retail trade details for Nasik Lal, Panchganga and Fursungi varieties of onion are shown in Table 8. The estimates showed that the overall average monthly quantity of onion traded by a retailer was 8.83 quintals for Nasik Lal variety, 3.90 quintals for Panchganga variety and 5.16 quintals for Fursungi variety.

The estimates further showed that the retail trade of Nasik Lal variety of onion was the highest in the month of May and lowest in September. The average purchase price of Nasik Lal variety of onion for a retailer was estimated at US\$ 22.70/quintal, which turned out to be the highest in October and lowest in December. The average sale price of Nasik Lal variety of onion for a retailer was estimated at US\$ 28.91/quintal, which stood at the highest in the month of May and lowest in June. Therefore, the average percentage mark-up for a retailer for Nasik Lal variety of onion was estimated at 27.33 percent, which varied from 19.35 percent in November to 34.21 percent in July, showing significant variation in percentage mark-up for a retailer across various months.

The retail trade of Panchganga variety of onion was the highest in September and lowest in January. The purchase and sale prices of Panchganga variety of onion for a retailer were the highest in October and lowest in September. The average purchase price for Panchganga variety of onion for a retailer was estimated at US\$ 21.02/quintal, whereas average sale price for the same stood at US\$ 26.85/quintal. The average percentage mark-up for a retailer for Panchganga variety of onion was estimated at 27.71 percent, which varied significantly across various months.

The retail trade of Fursungi variety of onion turned out to be the highest in the month of October and lowest in February. The purchase and sale prices of Fursungi variety of onion for a retailer were the highest in the month of August, whereas lowest purchase price stood in the month of January and sale price in November. The average purchase price for Fursungi variety of onion for a retailer was estimated at US\$ 22.89/quintal, whereas average sale price for the same stood at US\$ 28.95/quintal. The average percentage mark-up for a retailer for Fursungi variety of onion was worked out at 26.47 percent, which also varied significantly across various months.



Export Trade Details

Onion is being exported from India to various regions and countries of the world viz. Middle East and Gulf (Dubai, Sharjah, Doha, Muscat, Bahrain, Dammam, Saudi Arabia, Kuwait, etc.), Malaysia, Singapore, Port Kelang and African Ports Globular /Pungent, Sri Lanka, Bangladesh, Pakistan, Nepal, Europe, Japan, etc. The major reason of onion export can be traced to the fact that it is consumed in all the countries of the world, while its cultivation stands limited to some countries.

The estimates relating to export trade details for Nasik Lal, Panchganga and Fursungi varieties of onion are shown in Table 9. The estimates showed that the overall average monthly quantity of onion traded by an exporter was 790.10 quintals for Nasik Lal variety, 641.67 quintals for Panchganga and 408.00 quintals for Fursungi variety.

The export trade of Nasik Lal variety of onion was the highest in January and lowest in July. However, the average purchase and sale prices of Nasik Lal variety of onion for an exporter were the highest in October and lowest in January. The average purchase price for Nasik Lal variety of onion for an exporter was estimated at US\$ 29.07/quintal, whereas average sale price for the same stood at US\$ 45.21/quintal. Thus, the average percentage mark-up for an exporter of Nasik Lal variety of onion was worked out at 55.55 percent, which varied significantly from 40.51 per cent in June to 64.00 per cent in July. The higher quantity of export trade of Nasik Lal variety of onion in January was associated with lower purchase and sale prices.

The Panchganga variety of onion was exported only during the months of January, October and December. The quantity of Panchganga variety of onion traded by an exporter remained by and large same during various months. However, the average purchase and sale prices of Panchganga variety of onion for an exporter were the highest in October and lowest in January. The average purchase price for Panchganga variety of onion for an exporter was estimated at US\$ 28.22/quintal, whereas average sale price for the same stood at US\$ 44.85/quintal. Therefore, the average percentage mark-up for an exporter of Panchganga variety of onion was estimated at 58.92 percent, which varied significantly across various months.

The export trade of Fursungi variety of onion was the highest in March and lowest in January. The purchase price of Fursungi variety of onion for an exporter was the highest in May and lowest in January. The sale price of Fursungi variety of onion for an exporter was the highest in July and lowest in January. The average purchase price for Fursungi variety of onion for an exporter was estimated at US\$ 28.91/quintal, whereas average sale price for the same stood at US\$ 43.08/quintal. The average percentage mark-up for an exporter of Fursungi variety of onion was, therefore, estimated at 49.04 percent, which varied significantly across various months.

Vertical Price Spread for Onion

The sampled onion farmers diverted their produce in the domestic market through regulated market (to the wholesaler) and in the export market through wholesaler and exporters. Therefore, two marketing channels for onion were prevalent in the study area.

Channel I: Farmer – Wholesaler – Retailer – Consumer

Channel II: Farmer – Wholesaler – Exporter

The difference between price paid by the consumer and the price received by the producer for a commodity is known as price spread. There is a significant variation in price spread in domestic and export market. The price spread of onion in domestic market encompassing marketing cost and margins of various intermediaries for Nasik Lal and Panchganga varieties of Kharif onion and Fursungi and Nasik Lal varieties of Rabi onion is brought out in Table 10. In case of onion, there is significant expense borne by the farmer on account of losses, particularly in kharif season, apart from bearing other expenses relating to transportation, storage, etc.

The sale prices of onion for farmers were worked out at US\$ 17.61/quintal for kharif Nasik Lal variety, US\$ 17.03/quintal for kharif Panchganga variety, US\$ 17.62/quintal for rabi Fursungi variety and US\$ 19.66/quintal for rabi Nasik Lal variety. The farmer's marketing costs, including expenses towards losses, for the respective varieties were estimated at US\$ 3.67/quintal, US\$ 3.79/quintal, US\$ 2.53/quintal and US\$ 4.22/quintal. The kharif onion generally shows relatively larger loss of quantity during various handling, transportation, storage operations as against rabi onion, which is of much better quality with higher shelf life. The higher loss for rabi Nasik Lal variety is mainly due to the fact that it is actually late kharif onion, though treated as rabi onion. The farmer's share in retail price/consumer's purchase price of onion was estimated at 49.65 percent for kharif Nasik Lal variety, 49.33 percent for kharif Panchganga variety, 52.16 percent for rabi Fursungi variety and 50.50 percent for rabi Nasik Lal variety, showing not much variation in producer's share in consumer rupee for various varieties of onion grown during kharif and rabi season. The net margin of wholesaler of onion in consumer's price turned out to be 13.18 percent for kharif Nasik Lal variety, 11.56 percent for kharif Panchganga variety, 15.14 percent for rabi Fursungi variety and 10.27 percent for rabi Nasik Lal variety. On the other hand, the net margins of retailer of onion in consumer's price were worked out at 19.07 percent for kharif Nasik Lal variety, 19.73 percent for kharif Panchganga variety, 19.09 percent for rabi Fursungi variety and 20.82 percent for rabi Nasik Lal variety.

The retailer of onion not only showed higher share of net margin in consumer's price but also lower share of marketing cost in consumer's price than wholesalers for various varieties of onion. In general, the producer's share in consumer's rupee varied from 49 percent to 52 percent in domestic market for various varieties of onion.

The intermediaries involved in the marketing of produce in domestic and export market differ. While presence of retailers is seen in domestic market, the exporters predominantly



appear in export channel. The exporters of onion generally buy their produce from the wholesalers. The price spread of onion in export channel encompassing marketing cost and margins of wholesalers and exporters, and expenses borne by the farmer for Nasik Lal and Panchganga varieties of Kharif onion and Fursungi and Nasik Lal varieties of Rabi onion is brought out in Table 11.

It could be readily discerned from Table 11 that the net sale price received by the farmer in the export trade did not differ for various varieties of onion in domestic and export market. However, the farmer's share in export price reduced for all the varieties of onion due to higher export price as against retail price of onion in domestic market.

The farmer's share in export price of onion was estimated at 30.86 percent for kharif Nasik Lal variety, 29.53 percent for kharif Panchganga variety, 35.03 percent for rabi Fursungi variety and 34.11 percent for rabi Nasik Lal variety, showing higher share of farmer in export price for rabi as against kharif onion. It is to be noted that the wholesaler's sale price of onion for retailer in domestic market and exporter in export market differed significantly and turned out to be higher in export market due to better quality of produce diverted to exporter as against retailer. Generally, retailer buys lower quality of produce from wholesaler, which fetches lower price in domestic market. On the other hand, the exporter buys the best quality of produce from wholesaler in order to meet international standards. The shares of net margin of wholesaler in export price of onion were estimated at 23.55 percent for kharif Nasik Lal variety, 22.98 percent for kharif Panchganga variety, 24.13 percent for rabi Fursungi variety and 18.36 percent for rabi Nasik Lal variety. The shares of net margins of exporter in export price of onion were worked out at 16.76 percent for kharif Nasik Lal variety, 18.16 percent for kharif Panchganga variety, 13.24 percent for rabi Fursungi variety and 17.55 percent for rabi Nasik Lal variety. Thus, in the export trade of onion, the shares of net margins of wholesalers were even higher than exporters for various varieties.

The foregoing observations clearly underscore the fact that the producer's share in consumer's rupee varied from 49 per cent to 52 per cent in domestic market for various varieties of onion, and this share in export channel for the same varied from 30 per cent to 35 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 onion was in turn due to better quality of produce diverted in the export channel, which fetched better prices.

Problems Faced by Stakeholders

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/retailers, completion due to imports, poor road network, erratic supply/ production, mixing of different varieties, non-remunerative prices due to lower demand, government intervention in price, competition from large organized retail chains, higher perishability of produce, etc.

There were numerous problems faced by the sampled exporters of onion, 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, lengthy government procedures, export policy uncertainty, problem of chemical residue, high port charges/taxes, etc.

Conclusion and Recommendations

The study showed highly profitable nature of onion crop cultivation since cultivation of onion generated 68-91 percent per quintal net returns over per quintal variable cost for kharif season and 60-81 percent per quintal net returns over per quintal variable cost for rabi season. The study also showed that the producer's share in consumer's rupee for onion varied from 49 percent to 52 percent in domestic market for various varieties, and this share in export channel varied from 30 percent to 35 percent. Further, the study revealed that onion 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 onion was the higher cumulative marketing margins cornered by various market functionaries within the channel. The situation is unlikely to be altered unless various regulative measures are brought in place to check practices of these functionaries involved in the marketing of high value crops.

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 for them, resulting in higher share of producer in retail and export price. In fact, most of the farmers preferred to dispose of their produce immediately after harvest, which resulted in low prices on offer.

The study emphasized upon the need to develop adequate post harvest infrastructure facilities for 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 will certainly boost horticulture crop production and marketing, both in domestic and export markets. One of the major recommendations of this study is in favour of announcement of MSP for rabi onion, which has shelf life of 4-5 months. The government support for rabi onion will not only protect farmers but also consumers.

References

- Chengappa, P.G., Manjunatha, A.V., Dimble, Vikas and Shah, Khalil. (2012). *Competitive Assessment of Onion Markets in India*. Agricultural Development and Rural Transformation Centre Institute for Social and Economic Change, Bangalore, India.
- Gandhi, Vasant P. and Namboodiri, N.V. (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.
-

- Charles, Hall R., Hodges, Alan W. and Palma, Marco A. (2011). Sales, Trade Flows, and Marketing Practices within the U.S. Nursery Industry. *Journal of Environmental Horticulture*. 29 (1), 14–24.
- Kaloo, G and Pandey, A.K. (2002). Vegetable Production – Commendable Progress in Research. *The Hindu Survey of Indian Agriculture*, 159-163.
- Singh, Maheshkumar (1985). Price Spread of Vegetables Marketing. *Indian Journal of Agricultural Economics*. 40 (3).
- Singh, H.P., Nath, N., Dutta, O.P. and Sudha, M. (2004). *State of the Indian Farming: A Millennium Study*. Vol. 11. Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India, Academic Foundation, New Delhi.
- Subbanarasaiah, N. (1991). *Marketing of Horticultural Crops in India*. Anmol Publishing Company, Delhi.

Table 1 Cropping Pattern of Onion Growing Farmers – Over All Seasons

(Area in Hectares)

Category	Area Sown													G. Total
	Kharif Season					Rabi Season					Perennial Crops			
	Onion	Bajra	Mung	Others	Total	Onion	Jowar	Wheat	Others	Total	Pomegranate	Others	Total	
Small	33.10 (12.33)	42.06 (15.67)	29.07 (10.83)	22.53 (8.39)	126.76 (47.22)	74.23 (27.65)	20.45 (7.62)	8.79 (3.27)	13.47 (5.02)	116.94 (43.56)	17.87 (6.66)	6.88 (2.56)	24.75 (9.22)	268.44 (100.0)
Medium	10.32 (9.87)	12.75 (12.19)	11.66 (11.14)	13.95 (13.33)	48.68 (46.52)	18.02 (17.22)	10.96 (10.48)	4.35 (4.16)	4.82 (4.61)	38.15 (36.46)	10.96 (10.48)	6.84 (6.54)	17.81 (17.02)	104.64 (100.0)
Large	5.87 (5.69)	14.37 (13.93)	10.91 (10.58)	17.91 (17.37)	49.07 (47.57)	19.23 (18.64)	13.66 (13.25)	4.66 (4.51)	3.40 (3.30)	40.95 (39.70)	4.86 (4.71)	8.28 (8.03)	13.14 (12.74)	103.16 (100.0)
Total	49.29 (10.35)	69.18 (14.53)	51.64 (10.84)	54.40 (11.42)	224.51 (47.14)	111.48 (23.41)	45.08 (9.47)	17.79 (3.74)	21.69 (4.55)	196.04 (41.16)	33.68 (7.07)	22.00 (4.62)	55.69 (11.69)	476.23 (100.0)

Note: In Kharif Season, ‘Others’ include crops viz. Jowar, Maize, Tur, Udid, Groundnut, Green Pea, Hulga, Moth Bean, Lucerne, Kadwal and Grass. In Rabi Season, ‘Others’ include crops viz. Maize, Gram, groundnut, sunflower, potato, Kadwal, Lucerne, etc. Under Perennial crops ‘Others’ include crops viz. Grape, Orange, Sugarcane, Chiku, and Mango.

Table 2 Area under Onion Crop in Kharif Season – Variety-wise

Category	Variety-wise Area Under Onion Crop (Hectare)										Total
	Baju 258	Chandwad	Fursungi	Lonand	Mahabij	Malav	N.53	Nashik Lal	Panchganga	Prema	
Small	0.40	-	2.95	-	-	0.40	2.23	17.57	8.74	0.81	33.10
Medium	-	0.40	-	0.40	-	1.01	-	3.85	4.66	-	10.32
Large	-	-	-	-	1.62	-	-	-	4.25	-	5.87
Total	0.40	0.40	2.95	0.40	1.62	1.42	2.23	21.42	17.64	0.81	49.29
	Share in Total Area (%)										
Small	1.21	-	8.91	-	-	1.21	6.74	53.08	26.40	2.45	100.0
Medium	-	3.88	-	3.88	-	9.79	-	37.30	45.15	-	100.0
Large	-	-	-	-	27.60	-	-	-	72.41	-	100.0
Total	0.81	0.81	5.98	0.82	3.29	2.88	4.52	43.46	35.79	1.64	100.0

Table 2 (a) Area under Onion Crop in Rabi Season – Variety-wise

Category	Variety-wise Area Under Onion Crop (Hectare)											Total
	Bhagwa	Chandwad	Double Pati	Fursungi	Halwa	Lasalgaon	Mahabij	N.53	Nashik Lal	Panchganga	Sinnor Ghavti	
Small	0.61	0.51	0.57	44.67	2.43	1.62	0.81	1.62	17.56	1.62	2.23	74.23
Medium	-	-	-	14.57	-	-	-	-	2.83	-	0.61	18.02
Large	-	-	-	14.37	-	-	-	-	0.81	4.05	-	19.23
Total	0.61	0.51	0.57	73.62	2.43	1.62	0.81	1.62	21.21	5.67	2.83	111.48
Share in Total Area (%)												
Small	0.82	0.68	0.76	60.17	3.27	2.18	1.09	2.18	23.66	2.18	3.00	100.0
Medium	-	-	-	80.90	-	-	-	-	15.73	-	3.37	100.0
Large	-	-	-	74.74	-	-	-	-	4.21	21.05	-	100.0
Total	0.55	0.46	0.51	66.03	2.18	1.45	0.73	1.45	19.02	5.08	2.54	100.0

Table 3 Area, Production, Consumption and Marketed Surplus for Kharif Onion

(Per farm)

Category	Area (Hectare)	Production (Quintals.)	Consumption (Quintals.)	Retained for Future Use (Quintals.)	Wastage (Quintals)	Sold (Quintals.)	Price (US \$/ Quintal)
Nasik Lal Variety							
Small	0.63	69.36 (100.00)	0.93 (1.34)	0.73 (1.05)	1.62 (2.33)	66.08 (95.28)	13.91
Medium	0.77	92.05 (100.00)	1.26 (1.37)	0.93 (1.01)	1.62 (1.75)	88.24 (95.87)	14.18
Large	-	-	-	-	-	-	-!
Average	0.65	72.80 (100.00)	0.98 (1.35)	0.76 (1.05)	1.62 (2.22)	69.44 (95.38)	13.95
Panchganga Variety							
Small	0.73	88.95 (100.00)	1.01 (1.13)	0.91 (1.02)	2.14 (2.40)	84.89 (95.45)	13.25
Medium	1.16	144.70 (100.00)	1.50 (1.03)	1.51 (1.04)	2.74 (1.89)	138.95 (96.04)	13.91
Large	1.42	181.22 (100.00)	2.17 (1.20)	1.95 (1.08)	5.23 (2.89)	171.87 (94.83)	12.29
Average	0.93	115.26 (100.00)	1.29 (1.12)	1.20 (1.04)	2.75 (2.39)	110.02 (95.45)	13.24

Note: Figures in parentheses are percentages to total production

Quintal = 100 kg

Table 4 Area, Production, Consumption and Marketed Surplus for Rabi Onion (Per farm)

Category	Area (Hectare)	Production (Quintals)	Consumption (Quintals)	Retained for Future Use (Quintals)	Wastage (Quintals)	Sold (Quintals)	Price (US \$/ Quintal)
Fursungi Variety							
Small	0.79	147.92 (100.00)	3.55 (2.40)	2.27 (1.53)	4.35 (2.94)	137.75 (93.13)	14.95
Medium	0.91	172.09 (100.00)	3.49 (2.03)	3.16 (1.83)	3.60 (2.10)	161.84 (94.04)	15.52
Large	1.80	356.24 (100.00)	7.79 (2.19)	8.78 (2.46)	5.65 (1.59)	334.02 (93.76)	15.29
Average	0.91	173.27 (100.00)	3.96 (2.28)	3.09 (1.78)	4.33 (2.50)	161.89 (93.44)	15.10
Nasik Lal Variety							
Small	0.68	114.02 (100.00)	2.20 (1.93)	1.82 (1.59)	2.19 (1.92)	107.81 (94.56)	15.20
Medium	0.94	170.26 (100.00)	2.82 (1.66)	2.25 (1.32)	4.22 (2.48)	160.97 (94.54)	16.54
Large	0.81	140.05 (100.00)	2.51 (1.80)	3.30 (2.36)	4.19 (2.99)	130.05 (92.85)	18.50
Average	0.71	120.51 (100.00)	2.27 (1.88)	1.91 (1.58)	2.46 (2.04)	113.87 (94.50)	15.45

Note: Figures in parentheses are percentages to total production

Table 5 Variety-wise Percentage Profit for Kharif Onion- Estimates Based on Field Level Survey

Farm Category	Value of Main Product (US \$/ Quintal)	Variable Cost (US \$/ Quintal)	ROVC (US \$/ Quintal)	% Profit* (ROVC/VC)*(100)
Nasik Lal Variety				
Small	13.91	6.90	7.01	101.48
Medium	14.18	8.91	5.27	59.18
Large	-	-	-	-
Average	13.94	7.28	6.66	91.38
Panchganga Variety				
Small	13.26	7.45	5.81	78.04
Medium	13.91	8.96	4.95	55.30
Large	12.29	7.62	4.67	61.30
Average	13.24	7.88	5.36	67.96

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

Table 6 Variety-wise Percentage Profit for Rabi Onion- Estimates Based on Field Level Survey

Farm Category	Value of Main Product (US \$/ Quintal)	Variable Cost (US \$/ Quintal)	ROVC (US \$/ Quintal)	% Profit* (ROVC/VC)*(100)
Fursungi Variety				
Small	14.95	9.15	5.80	63.32
Medium	15.52	9.51	6.01	63.29
Large	15.30	10.23	5.07	49.57
Average	15.09	9.43	5.66	60.06
Nasik Lal Variety				
Small	15.21	8.58	6.63	77.34
Medium	16.54	8.20	8.34	101.78
Large	18.51	9.37	9.14	97.66
Average	15.45	8.56	6.89	80.55

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

Table 7 Variety-wise and Overall Wholesale Trade Details of Onion: 2013-14

(US\$/ quintal)

Month	Average price (US \$/Quintal)at which Purchased (PP)	Average Qty Sold (Quintal) per Wholesaler	Average Sale Price (US \$/ Quintal) (SP)	Mark - up (US \$/ Quintal) (SP-PP)	Percentage Mark-up [SP-PP]/PP*100
Nasik Lal Variety					
January	18.00	526.67	23.11	5.11	28.39
February	18.25	2050.00	23.14	4.89	26.80
March	21.17	205.00	28.03	6.86	32.41
April	18.25	2100.00	23.08	4.83	26.48
May	15.81	1153.33	19.30	3.49	22.07
June	14.60	95.00	17.56	2.96	20.30
July	17.52	1140.00	20.79	3.27	18.67
August	16.06	1420.00	20.28	4.22	26.27
September	16.28	1615.00	20.47	4.19	25.74
October	24.82	577.50	30.25	5.43	21.88
November	24.82	533.33	32.22	7.40	29.82
December	22.26	1850.00	28.95	6.69	30.03
Average	18.64	1129.69	23.47	4.83	25.92
Panchganga Variety					
September	17.52	146.67	22.13	4.61	26.33
October	18.54	1926.00	22.99	4.45	24.02
November	16.25	2700.00	20.96	4.72	29.02
December	15.08	2566.67	19.30	4.22	27.98
Average	17.04	1904.67	21.53	4.50	26.39
Fursungi Variety					
January	15.33	161.67	19.78	4.45	29.05
March	18.25	996.50	23.12	4.88	26.72
April	18.98	1215.00	23.55	4.57	24.08
June	16.54	1020.00	20.01	3.47	21.01
July	16.42	550.00	20.12	3.69	22.49
October	17.52	140.00	21.02	3.50	20.00
November	18.98	160.00	24.92	5.94	31.31
Average	17.62	719.41	22.16	4.54	25.77

Note: SP – Sale Price; PP – Purchase Price

Table 8 Variety-wise and Overall Retail Trade Details of Onion: 2013-14

(US\$/ quintal)

Month	Average price (US \$/Quintal)at which Purchased (PP)	Average Qty Sold (Quintal) per Retailer	Average Sale Price (US \$/Quintal) (SP)	Mark - up (US \$/Quintal) (SP- PP)	Percentage Mark-up [SP-PP)/PP*100
Nasik Lal Variety					
January	21.78	8.93	27.50	5.72	26.27
February	25.07	8.13	32.83	7.77	30.98
March	22.15	10.73	28.03	5.88	26.57
April	21.90	9.25	26.73	4.83	22.07
May	25.07	12.33	33.46	8.39	33.49
June	19.96	8.20	25.42	5.46	27.36
July	22.15	6.93	29.72	7.58	34.21
August	22.63	4.75	27.94	5.31	23.48
September	22.63	3.60	28.58	5.96	26.32
October	25.55	9.73	32.96	7.42	29.03
November	21.65	10.67	25.84	4.19	19.35
December	21.53	9.73	26.77	5.24	24.34
Average	22.70	8.83	28.91	6.20	27.33
Panchganga Varieties					
January	20.44	2.00	25.96	5.52	27.00
September	17.52	8.00	23.47	5.96	34.00
October	26.28	3.00	33.90	7.62	29.00
November	20.44	3.50	24.53	4.09	20.00
December	20.44	3.00	26.36	5.93	29.00
Average	21.02	3.90	26.85	5.82	27.71
Fursungi Variety					
January	21.36	4.90	28.61	7.26	33.97
February	22.63	3.93	29.52	6.89	30.45
March	23.11	4.30	28.69	5.58	24.13
April	24.38	6.98	30.69	6.31	25.87
May	20.55	4.67	27.27	6.72	32.67
June	24.09	4.00	29.80	5.71	23.70
July	21.65	4.60	28.22	6.57	30.34
August	27.01	6.00	32.85	5.84	21.62
September	23.36	4.00	29.11	5.75	24.63
October	21.90	7.00	28.91	7.01	32.00
November	21.53	5.90	26.16	4.63	21.49
December	22.09	5.45	27.47	5.39	24.39
Average	22.89	5.16	28.95	6.06	26.47

Note: SP – Sale Price; PP – Purchase Price

Table 9 Variety-wise and Overall Export Trade Details of Onion: 2013-14

(US\$/ quintal)

Month	Average price (US \$/Quintal)at which Purchased (PP)	Average Qty Sold (Quintal) Per Exporter	Average Sale Price (US \$/Quintal) (SP)	Mark - up (US \$/Quintal) (SP-PP)	Percentage Mark-up [SP-PP]/PP*100
Nasik Lal Variety					
January	19.34	1123.33	30.26	10.92	56.45
February	29.20	872.50	44.51	15.31	52.45
March	28.19	637.50	44.44	16.25	57.64
April	27.37	550.00	43.21	15.84	57.87
May	31.02	510.00	50.57	19.55	63.01
June	25.55	440.00	35.90	10.35	40.51
July	30.66	420.00	50.28	19.62	64.00
August	36.86	8950	57.17	20.31	55.09
September	32.41	447.50	51.99	19.58	60.41
October	39.66	880.00	61.81	22.15	55.83
November	30.42	873.75	47.04	16.61	54.61
December	27.58	1028.57	41.65	14.07	51.03
Average	29.07	790.10	45.21	16.15	55.55
Panchganga Variety					
January	16.06	625.00	25.30	9.24	57.55
October	43.07	650.00	70.29	27.23	63.22
December	25.55	650.00	38.95	13.40	52.46
Average	28.22	641.67	44.85	16.63	58.92
Fursungi Variety					
January	17.52	150.00	28.91	11.39	65.00
February	30.66	597.50	47.24	16.58	54.10
March	31.14	773.33	46.57	15.43	49.55
April	25.30	316.67	37.30	12.00	47.43
May	32.60	333.33	45.34	12.74	39.10
June	25.30	233.33	37.75	12.45	49.22
July	31.64	216.67	47.65	16.01	50.62
Average	28.91	408.00	43.08	14.18	49.04

Note: SP – Sale Price; PP – Purchase Price

Table 10 Price Spread for Onion in Domestic Market: 2013-14

Sr. No.	Particulars	Kharif Onion				Rabi Onion			
		Nasik Lal		Panchganga		Fursungi		Nasik Lal	
		US \$/ quintal	% share in Consumer's rupee	US \$/ quintal	% share in Consumer's rupee	US \$/ quintal	% share in Consumer's rupee	US \$/ quintal	% share in Consumer's rupee
A	Net price received by the farmer	13.94	49.65	13.24	49.33	15.09	52.16	15.45	50.50
	Expenses borne by the farmer	1.80	6.40	1.90	7.07	2.14	7.40	2.05	6.69
	Expenses towards losses borne by farmer	1.87	6.67	1.89	7.05	0.39	1.33	2.17	7.09
B	Wholesaler's purchase price/ Farmer's sale price	17.61	62.72	17.03	63.45	17.62	60.89	19.66	64.29
	Expenses borne by the wholesaler	0.89	3.16	0.89	3.30	0.89	3.06	0.89	2.90
	Wholesaler's net margin	3.70	13.18	3.10	11.56	4.38	15.14	3.14	10.27
C	Retailer's purchase price/ Wholesaler's sale price	22.20	79.06	21.02	78.31	22.89	79.09	23.69	77.46
	Expenses borne by the retailer	0.53	1.87	0.53	1.96	0.53	1.82	0.53	1.72
	Retailer's net margin	5.36	19.07	5.30	19.73	5.53	19.09	6.37	20.82
D	Consumer's purchase price/ Retailer's sale price	28.08	100.00	26.84	100.00	28.94	100.00	30.58	100.00

Table 11 Price Spread for Onion in Export Market: 2013-14

Sr. No.	Particulars	Kharif Onion				Rabi Onion			
		Nasik Lal		Panchganga		Fursungi		Nasik Lal	
		US \$/ quintal	% share in Consumer's rupee	US \$/ quintal	% share in Consumer's rupee	US \$/ quintal	% share in Consumer's rupee	US \$/ quintal	% share in Consumer's rupee
A	Net price received by the farmer	13.94	30.86	13.24	29.53	15.09	35.03	15.45	34.11
	Expenses borne by the farmer	1.80	3.97	1.90	4.23	2.14	4.97	2.05	4.52
	Expenses towards losses borne by farmer	1.87	4.14	1.89	4.22	0.39	0.89	2.17	4.79
B	Wholesaler's purchase price/ Farmer's sale price	17.61	38.97	17.03	37.98	17.62	40.90	19.66	43.42
	Expenses borne by the wholesaler	0.89	1.96	0.89	1.98	0.89	2.06	0.89	1.96
	Wholesaler's net margin	10.64	23.55	10.31	22.98	10.40	24.13	8.31	18.36
C	Exporter's purchase price/ Wholesaler's sale price	29.13	64.48	28.22	62.94	28.91	67.09	28.86	63.74
	Expenses borne by the exporter	8.47	18.76	8.47	18.90	8.47	19.67	8.47	18.71
	Exporter's net margin	7.57	16.76	8.14	18.16	5.71	13.24	7.95	17.55
D	Export price	45.18	100.00	44.84	100.00	43.09	100.00	45.28	100.00