

A STUDY ON BEHAVIOUR OF ARRIVALS AND PRICES OF CITRUS IN NARWAL MARKET OF JAMMU, INDIA

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ABSTRACT

Citrus occupies a place of importance in the horticultural wealth and economy of the country. The present study was conducted in Narwal market of Jammu district. The average monthly arrivals and prices for the period of last 5 years i.e. 2005-06 to 2009-10 were collected from Narwal market of Jammu and it was found that the market arrivals and prices of orange, kinnow and lemon were inversely related to each other. The analysis shows that the prices move contrary to arrivals. It has been found that the seasonal nature of citrus creates glut in the market which leads to sharp fall in prices during the post harvest season and affects the orchardists adversely. The highest market arrivals in the Narwal mandi of Jammu commensurate with the harvesting date of the produce and it was found that orange (12339.40 qtls), kinnow (10116 qtls) and lemon (7293 qtls) arrivals were highest in February, December and June, respectively, which resulted a decreasing trend in prices. It was also noticed during the survey that the major portion of the farmers' produce was sold at the lower price in the post harvest period thereby lowering their incomes.

Key words: Arrivals, Citrus, Prices.

INTRODUCTION

India is the world's second largest producer of fruits (57.73 million tonnes, contributes 10.0 per cent of the world's production (Economic Survey, 2008-09) and by the year 2020-21, it is projected that India will touch 98 million tonnes (Banerjee, 2009). Among the fruit crops, citrus is one of the major commercial fruit crop widely consumed both as fresh fruit and juice. Its global demand is attributed to its high vitamin C content and its antioxidant potential (Gorinstein *et al.*, 2001). It is rich in folic acid, a good source of fiber, fat free, sodium free and cholesterol free with additional quality of containing potassium, calcium, folate, thiamin, niacin, vitamin B₆, phosphorus, magnesium and copper. It may help to reduce the risk of heart diseases and some types of cancer and is also helpful to reduce the risk of pregnant women to have children with birth diseases (Economos *et al.*, 1999). Even essential and volatile oils are obtained from the citrus fruits peel sacks. So much so, it is used by the food industry to give flavor to drinks, foods and also acts as a component for the pharmaceutical industry for the preparation of medicines, soaps, perfumes and other cosmetics, as well as for home cleaning products. At the same time, the perishability and

seasonality of fruit crops is very high as compared to other crops. Due to these, the produce has no control over price which leads to price uncertainty and ultimate burden on the orchardist (Singh *et al.*, 2010). The remedy for such is the regulated market, which helps in reduction of costs of marketing, brings improvements in standardization of goods, stabilization of market prices, arrivals and has significant bearing on increasing competitive environment in the market (Reddy, 2002).

Similarly, seasonal variation in the arrivals and prices of citrus fruits like orange, kinnow and lemon in the secondary and terminal markets is a well known phenomenon, which is influenced mostly by climatic conditions as well as human and institutional factors. The most prominent problems associated are very low bargaining power of the orchardists, lack of credit and storage facilities, pressing demand for ready cash and ignorance of the market information which force the orchardists to sell their produce immediately after harvest. All this results into either low prices or price instability, ultimately affecting the income levels of the orchardists as well as tempo of agricultural production. The lot of orchardists can be improved if there are regulated markets. A regulated market is

started under the law either for any specific commodity or for a group of commodities with a purpose to eliminate unhealthy market practices, reduce market charges and ensure fair prices. The expansion of regulated markets has brought a number of improvements in the system of agricultural marketing. In response to the fears of inadequacy of food production, a number of programmes for "intensive agricultural development" were introduced. The Agricultural Produce and Marketing Committee (APMC) Act and the Essential Commodities Act were passed in States to regulate the marketing of farm produce by minimizing distortions in exchange. Under the APMC Act, a number of regulated markets were set up across the country. The regulated market is administered by a market committee which consists representatives of the state government, legal bodies, traders, commission agents and the farmers.

The government supports organized marketing of agricultural products through a system of regulated markets in India. These physical markets are meant to make sure that farmers get reasonable profits by creating an atmosphere of fair play. This fairness is with regard to the forces of supply and demand, regulation of market practices and transparency in transactions. All transactions relating to the sale and purchase of foodgrains and fruits are undertaken in these regulated markets only. Purchases are made in regulated markets by open auction method with a view to encourage competition, enhance transparency, and give higher returns to farmers. The Market Committees appoint auctioneers and resolve disputes, if they arise. A well-regulated and well-functioning futures market, along with a competitive spot market provides the necessary signals to farmers, traders, consumers and the government to take appropriate decisions on resource allocation for production and marketing and to take appropriate actions to minimize risks associated with temporary shocks to the availability of fruits and foodgrains. For making an in-depth study of growers' production process and marketing of citrus fruits, it was thought better to have an idea of some regulated market of Jammu region so that one could find the amount of citrus fruit supplied by the growers of Jammu region and also imported from other states of India. The objectives of the study were (i) to examine the trends in arrivals and prices of citrus

such as orange, kinnow and lemon into Narwal market, (ii) to examine the seasonal variations in the arrivals and prices of citrus.

MATERIALS AND METHODS

Selection of market: In Jammu region, there is a well organized market named as Narwal market. It occupied a major place in regulation of fruit crops in Jammu district of Jammu and Kashmir. Therefore, Narwal market was purposively selected to have an idea about the supply and prices of citrus (orange, kinnow and lemon). The average monthly arrivals and prices for the period of last 5 years i.e. 2005-06 to 2009-10 were taken for study. The total monthly arrivals for the fresh fruits for the year 2008-09 were found to be 0.07 million tonnes with orange, kinnow and lemon equal to 0.02 million tones. The Fruit and Vegetable Market Narwal is one of the terminal markets of Jammu and Kashmir state. It is situated in the southern area of Jammu city and is well connected with roads and National Highway 1A (Jammu by-pass). It was established in 1980 with an area equal to 374 kanals (approximately). There are 513 shop sites and 298 commission agents in Narwal market. There are two cold storages (Bahu cold storage and K.C. cold storage) within the market complex. The Post Office is also located within the Complex area and all the postal facilities like money order, registration, etc. are available. Three public Call booths with STD/ISD are functioning in the market. The department is also constructing Kissan Ghar to provide lodging facilities to growers and buyers who would visit the market from time to time. The facility of market intelligence will also be available shortly in the Kissan Ghar for the benefit of growers. For the purpose the market has already been connected with the other markets of the country through AGMARKNET (Anonymous, 2008).

Three citrus fruits based on relative importance in the economy of the people of this area. They were orange, kinnow and lemon. The time series data pertaining to the arrivals and prices of citrus were collected from the office of the HPMC (Horticulture Produce and Marketing Corporation). Monthly data on arrivals and prices for the year 2005-06 to 2009-10 were taken from the records maintained by the HPMC. The information regarding the area under fruits and citrus was extracted from published sources such as Statistical Digest of Jammu and Kashmir.

Analytical Tools

Seasonal Variations: In order to estimate the seasonal variation, the twelve month moving average (TMMA) was used which gives us the periodic changes without seasonality. The actual values were divided by calculated values of TMMA to get the seasonal variations.

$$\text{Seasonal Indices} = \frac{Y}{\frac{\sum \text{TxSxCxI}}{12}} \times 100$$

MA(12) = Twelve month moving average
 PI = Market arrivals/ Price indices
 S.I = Seasonal Indices for market arrivals/ prices

RESULTS AND DISCUSSION

Behaviour of market arrivals and prices: Stable prices play an important role in determining the farmer's income. It is true in the case of citrus where farmers cannot retain the produce at the farm for longer periods due to its perishable nature. There are definite periods of high and low production for different commodities due to price fluctuations. The results pertaining to trend and seasonal variation are discussed as under:

Trend in citrus arrivals and prices in Narwal market: The Table 1 indicated the average monthly arrivals and prices of orange, kinnow and lemon in

Narwal market of Jammu for the period 2005-06 to 2009-10. The results pertaining to arrivals of orange in Narwal market indicated that the prices move contrary to arrivals. This showed that there was inverse relationship between arrivals and prices of orange in the sample market. The table also indicated the increase in arrivals and prices of orange over a period of time in the Narwal market. The peak market arrival period was from November with arrivals of 4093.00 qtls to February with arrivals of 12339.40 qtls. It was also observed that the prices were high in the month of May (Rs. 3779.00 per qtl) as compared to other months and that was due to reduction in supply of oranges in relation to demand. These results are in close conformity with Vitonde *et al.* (1991).

The results pertaining to arrivals of kinnow in Narwal market (Table 1) indicated that the marketing season of kinnow started from the month of November every year and closed by the end of March. The arrivals were found to be highest (10116.00 qtls) in the month of December and lowest in the month of March (2545.00 qtls) while as the prices per quintal were lowest in the month of December (Rs.1308.60) and highest in the month of March (Rs.1829.20) thus depicted the inverse relationship between arrivals and prices of kinnow in the sample market during the period under reference. It can be inferred from above discussion that the increase of arrivals and prices of kinnow was lower as compared to orange.

TABLE 1: Average monthly arrivals and prices of orange, kinnow and lemon in Narwal market of Jammu (2005-06 to 2009-10)

Particulars	Fruit wise Arrivals (qtls)			Fruit wise Prices (₹ /qtl)		
	Orange	Kinnow	Lemon	Orange	Kinnow	Lemon
April	4916.60	-	1833.33	3002.50	-	2562.33
May	2383.33	-	3788.80	3779.00	-	2274.40
June	2735.00	-	7293.00	3400.00	-	1707.75
July	-	-	4430.40	-	-	1515.20
August	-	-	2980.20	-	-	1929.60
September	3778.67	-	2115.80	2441.67	-	2498.40
October	2593.40	-	2601.00	2323.50	-	2312.00
November	4093.00	3010.25	1759.00	2435.50	1422.00	1710.00
December	8895.40	10116.00	1695.80	2266.75	1308.60	1413.80
January	7005.80	6671.00	1947.00	2499.75	1487.00	1897.60
February	12339.40	7679.00	6460.00	2601.75	1604.20	1960.20
March	5930.40	2545.00	2328.00	2832.75	1829.20	2565.60

Note: 1. The months with no arrivals were excluded from the calculation
 2. Simple average was used to find out monthly arrivals and prices

Source: Directorate of Horticulture, Planning and Marketing, Narwal, Jammu

The arrivals and prices of lemon (Table 1) in Narwal market indicated that the lemon remained available throughout the year and highest were recorded during the month of June (7293 qtls) and lowest in December (1695.80 qtls) whereas the prices were found to be lowest in December (Rs.1413.80 per qtl) and highest in March (Rs.2565.60 per qtl). The price of lemon changed in respect of its demand in the market and were lowest in December due to less demand. These findings are supported by Autkar *et al.* (1994). The average monthly arrivals and prices of orange, kinnow and lemon are also shown graphically in Fig. 1.

Seasonal variations in citrus arrivals and prices

: It could be seen from the results of seasonal indices of arrivals and prices of orange, kinnow and lemon (Table 2) that a lean period in case of orange existed from May to June and September to November in Narwal market. The arrivals started picking up after November. During period from December to February arrival indices showed increasing trend (162.71 to 225.70) leading to glut in the market. Consequently the price index was lowest in the

month of December (82.18). Thus, more supply was responsible for less price due to distress sale. It has been noticed that the prices started recovering from the month of January and reached the highest point during the month of May (137.00) and thus indicated the increase in the price index with the decrease in the arrival index. These results are in close conformity with Vitonde *et al.* (1991). The table also indicated that the situation in Narwal market for kinnow was slightly different as compared to orange as the kinnow in Narwal market came mainly during the months of November to March. There were no arrivals of kinnow during the month of April to October. It was found that the prices (85.52) slump in the Narwal market due to higher volume of market arrivals (168.48) during the month of December. This shows that there was inverse relationship between arrivals and prices of kinnow in the sample market.

For lemon, the lean period existed from September to January and the arrivals started picking up after January. In the month of February and during period from May to July arrivals were the highest leading to glut in the market. Consequently, the prices were at their lowest ebb in

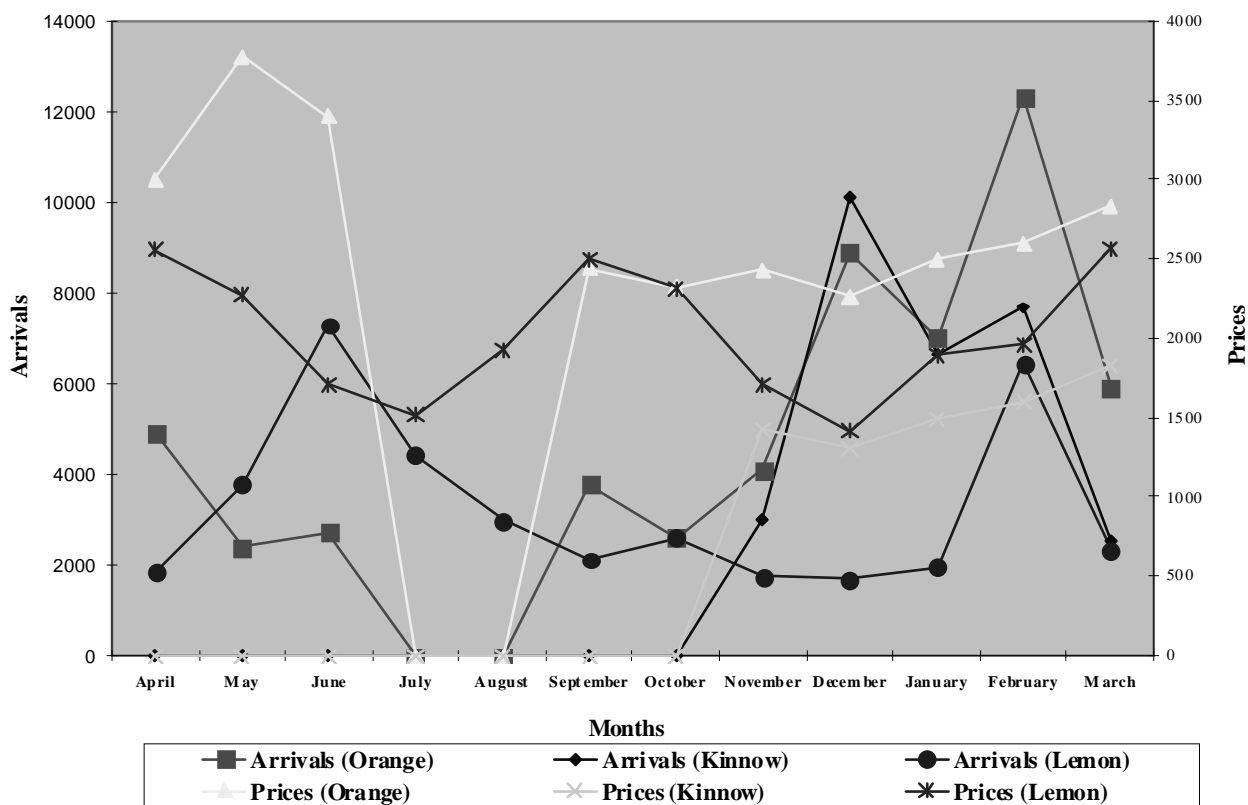


FIGURE 1: Trends in arrivals and prices of orange, kinnow and lemon in Narwal market. (2005-06 to 2009-10)

TABLE 2: Seasonal Indices of arrivals and prices of orange, kinnow and lemon in Narwal market of Jammu (2005-06 to 2009-10)

Particulars	Fruit wise Seasonal Index of Anivals			Fruit wise Seasonal Index of Price		
	Orange	Kinnow	Lemon	Orange	Kinnow	Lemon
April	89.93	-	56.08	108.85	-	126.29
May	43.59	-	115.89	137.00	-	112.10
June	50.03	-	223.07	123.26	-	84.17
July	-	-	135.51	-	-	74.68
August	-	-	91.16	-	-	95.11
September	69.12	-	64.72	88.52	-	123.14
October	47.44	-	79.56	84.24	-	113.95
November	74.87	50.14	53.80	88.30	92.93	84.28
December	162.71	168.48	51.87	82.18	85.52	69.68
January	128.14	111.10	59.55	90.63	97.18	93.53
February	225.70	127.89	197.59	94.32	104.84	96.61
March	108.47	42.39	71.21	102.70	119.54	126.45

Note: The months with no arrivals were excluded from the calculation

the month of December (69.68). It was noticed that the prices started recovering from the month of January and reached the highest point during the month of March (126.45). It was also found that the prices slump in Narwal market due to higher volume of market arrivals during the month of June and July. These results are in close conformity with Anwarul Haq *et al.* (2006). The seasonal indices for orange, kinnow and lemon are also shown graphically in Figure 2.

It was noticed during the survey that the major portion of the farmers' produce was sold at

the lower price in the post harvest period thereby lowering their incomes. None of the orchardists in the study area reported to do storage for citrus. The major reason for that were the perishable nature of the produce and the non-availability of suitable stores and storage techniques.

CONCLUSIONS

It has been found that the seasonal nature of citrus creates glut in the market which leads to sharp fall in prices during the post harvest season and affects the orchardists adversely. The highest market arrivals in the Narwal mandi of Jammu

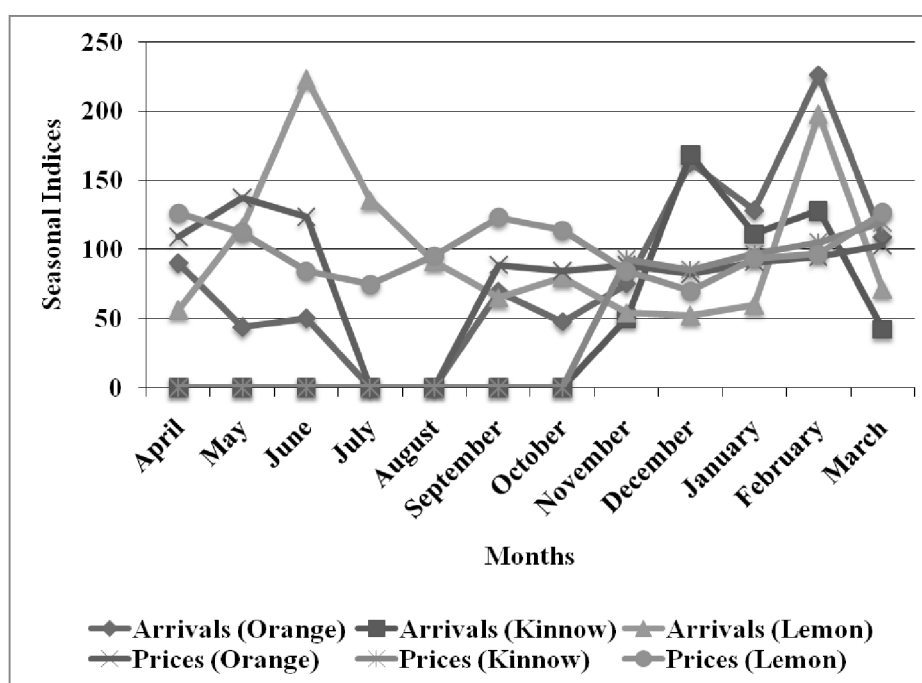


FIGURE 2: Seasonal Indices of arrivals and prices of orange, kinnow and lemon in Narwal market. (2005-06 to 2009-10)

commensurate with the harvesting date of the produce and it was found that orange, kinnow and lemon arrivals were highest in February, December and June, respectively, which resulted a decreasing trend in prices. It was also noticed during the survey that the major portion of the farmers' produce was sold at the lower price in the post harvest period thereby lowering their incomes. The peak market arrival period in case of orange was from November with arrivals of 4093.00 qtls to February with arrivals

of 12339.40 qtls. whereas in case of kinnow, the arrivals were highest (10116.00 qtls) in December and in lemon in the month of June (7293.00 qtls). So the efforts to control the sudden dedine in prices of the fruits and to fetch up the production cost, export of the fruits to other mandies of the country or to other countries are strongly recommended. Besides, there is a need to evolve a price policy to protect the interest of the orchardists as well as that of consumers in order to sustain the production of citrus in the state.

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