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RESEARCH PAPER

Market arrivals and price behaviour of cumin in mandor market of Jodhpur district of Rajasthan

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ABSTRACT

The study was under taken in Jodhpur district of Rajasthan. The district was selected purposively, as production under cumin crop was maximum in this district. Secondary data were used to compute the correlation co-efficient between arrivals and prices. Monthly data on arrivals and prices were taken for the period 2005-06 to 2009-10. It was noted that 63 per cent cumin produce arrived in the first quarter (March-May) of the year. The arrivals were 17.93, 8.54 and 10.02 per cent in the second, third and fourth quarters, respectively. Farmers got 10.36 per cent higher price by selling cumin in the second quarter over the post harvest season (peak season or first quarter). Sale of cumin in the third and fourth quarters of the year was not found advantageous. The correlation co-efficient between monthly wholesale prices and arrivals of cumin in the corresponding months and in the subsequent months were -0.578 and -0.588, showing that there existed inverse relationship between the two. The value of correlation co-efficient was estimated to be higher for the subsequent months than for the corresponding months. The value of correlation co-efficient between yearly arrivals and prices of cumin were negative in four years and positive only in one year out of the five years study period. This indicated that prices of cumin were not only affected by arrivals, but were also affected by factors such as demand, export-potential and seasonality of the crop.

KEY WORDS : Cumin, Market arrivals, Price behaviour of cumin

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Cumin (*Cuminum cyminum*) is an important spice mainly cultivated for flavouring vegetables, pickles, soups, sauces, cheese and for pleasant aroma. Cumin is one of the important ingredients of human diet throughout the world. It is used in a large number of processed foods as well as in daily food recipes due to its agreeable flavour and aroma. It is also used in seasoning bakery products such as bread and cake. Besides, it has some medicinal importance for human and livestock, and acts as an antioxidant. The cumin oil is used in perfumery as well as for flavouring liquors and cordials.

In India, cumin is mainly cultivated in the states of Gujarat, Rajasthan, Uttar Pradesh, M.P., Karnataka and Tamil Nadu. Rajasthan and Gujarat together account for over 90 per cent of the total cumin production of the country. Rajasthan state with 13.15 per cent production stands second in the production of cumin in the country. Cumin in Rajasthan is mainly grown in the districts of Jodhpur, Jalore, Barmer, Nagour, Pali, Ajmer, Sirohi, Bhilwara and Tonk. The arrivals of cumin in the markets are not uniform throughout the year. Generally, their arrival (supply) is more in the peak season of production and lesser in other parts of the year. The prices of cumin also fluctuate widely from season to season and within the season from month to month. There also occurs deterioration in quality, colour, flavour etc. in the process of storage in many spices. Farmers and traders get good prices by storage and their sale in the later part of the year in some

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years and *vice-versa* in other years. As such both negative and positive association is there in the prices and arrivals of cumin. Since, cumin is high value crop and price fluctuation occurring in them in absolute terms is also high which causes wide variation in the income of cumin growers from year to year. Hence, the study of relationship between market arrivals and wholesale prices of selected cumin is of importance in guiding the policy planners in making appropriate plans for development of spices markets, creation of infrastructure facilities in markets and in guiding the producer farmers for deciding the optimum time of sale of the cumin crop The present study was conducted in Jodhpur district of Rajasthan state. The investigation was carried out to examine the correlation co-efficient between arrivals and prices of cumin in the selected market of Jodhpur district.

METHODOLOGY

The study was conducted in Jodhpur district of Rajasthan. This district was selected purposively as third place in area (18.21 per cent) and first place in production (31.23 per cent) of the cumin crop in the state in the year 2008-09. Mandor market was selected because of highest arrivals of cumin in this market. The secondary data in respect of monthly wholesale price and arrivals of cumin in Mandor market for the period 2005-06 to 2009-10 were obtained from the records of the Krishi Upaj Mandi Samti, Mandor. The data were analysed using the appropriate statistical tools such as correlation co-efficient.

Correlation co-efficient was worked out by using the formula :

$$r = \frac{\dot{g}XY - \dot{g}X.\dot{g}Y/N}{\sqrt{[\dot{g}X^2 - (\dot{g}X)^2/N][\dot{g}Y^2 - (\dot{g}Y)^2/N]}}$$

where,

r = Correlation co-efficient between arrivals (x) and prices (y).

x = arrivals in quintals

y = Prices in rupees per quintal and

N = Number of observations

ANALYSIS AND DISCUSSION

The most important single factor responsible for wide fluctuations in prices of agricultural commodities is the uncertainty of their supply. The extent of variation in prices of crops brings effect on their production and in tarn market arrivals. The study of behaviour of market arrivals and prices is important to know the effect of market arrivals of the crop on prices of the crop in different seasons of the year. Such studies are advantageous for the producer-farmers in taking decisions regarding time of sale of their output in the years to come. This also helps the market planners in planning the size of the market and in creation of the necessary market infrastructures for an efficient marketing in the area.

The chapter has been divided in three sub- selection as under :

- Pattern of market arrivals and price behaviour of cumin in Mandor market indifferent seasons of the year.
- Relationship between monthly arrivals and wholesale price of cumin.
- Relationships between yearly arrivals and wholesale prices of cumin.

Seasonal pattern of market arrivals and prices of cumin crop in mandor market :

Seasonal pattern of market arrivals **:**

The arrivals of cumin in different seasons of the year *viz.*, peak, mid, lean and off marketing seasons during the study period 2005-06 and 2009-10 in Mandor market is given in Table 1.

Arrivals of cumin were 58.33 to 71.25 per cent of total arrivals in the peak seasons of the year during the study years. Arrivals in the peak season were highest in year 2007-08 (71.25 per cent) and lowest in year 2006-07 (58.33 per cent) with overall arrivals of 63.51 per cent. Arrivals ranged between 15.80 to 21.69 per cent in the second season (mid season), highest arrivals in this season being in year 2005-06 (21.69 per cent) and lowest arrivals in 2007-08 (15.80 per cent) with overall arrivals of 17.93 per cent. In the lean period, arrivals ranged between 5.00 to 10.67 per cent with an overall of 8.54 per cent. In the fourth season (off season), arrivals were 5.53 to 12.90 per cent of the total arrivals with an overall of 10.02 per cent. The pattern of arrivals of cumin in different season indicated that about 63.51

Table 1 : Pattern of market arrival of cumin in different seasons during 2005-06 to 2009-10 **(In quintals)**

Year	I season (Peak) (March-May)	II season (Mid) June-Aug.	III season (Lean) (Sept-Nov.)	IV season (Off) Dec-Feb	Total
2005-06	16496.17 (65.21)	5486.92 (21.69)	1264.85 (5.00)	2049.06 (8.10)	25297 (100)
2006-07	18028.05 (58.33)	5686.89 (18.40)	3297.78 (10.67)	3894.28 (12.60)	30907 (100)
2007-08	15680.07 (71.25)	3477.26 (15.80)	1632.99 (7.42)	1217.68 (5.53)	22008 (100)
2008-09	18817 (62.30)	4862.84 (16.10)	3114.03 (10.31)	3410.04 (11.29)	30204 (100)
2009-10	6228.43 (61.79)	1738.80 (17.25)	812.45 (8.06)	1300.32 (12.90)	10080 (100)
Overall	75249.81 (63.51)	21252.71 (17.93)	10122.10 (8.54)	11871.38 (10.02)	118496 (100)

Figures in parentheses are the percentages of the total arrivals in the respective year

per cent of the total arrivals were in the first season or peak season *i.e.* immediately after the harvest of the crop within a period of 3 months. Arrivals decreased in the subsequent season's *viz.,* in second and third seasons of the year. Arrivals were less in the fourth season compared to second and third seasons. More than 70 per cent quantity of cumin arrived in the first two seasons (within six months) and only 30 per cent cumin arrived in the other two seasons of the year.

Seasonal pattern in prices of cumin **:**

The average seasonal prices and the percentage change over the seasons have been presented in Table 2. The inter-seasonal variation in prices of cumin showed that prices decreased in the second season (June-August) over the first season (March-May) in one year and increased in four years out of a total of five years study period. The increase in prices of cumin from first to second season was maximum in year 2008-09 *i.e.* by 16.07 per cent. The lowest increase in price from first to second season was there in year 2007-08 *i.e.* 12.25 per cent on the whole, prices were higher in the second season over the first season by 10.36 per cent price were higher in the third season (September to November) over the second season (June to August) in two years and low in three years. The highest increase in prices from second to the third season has been there in year 2006-07 by 16.19 per cent. In three years *viz.,* 2005-06, 2007-08 and 2008-09 prices were lower in the third season over the second season. On the whole, prices were lower in the third season over the second season by only 0.69 per cent. Price has shown increase in one year and decreases in four years in the fourth season over the third season. The magnitude of increase in prices from third to fourth season was (6.55) per cent in year 2006-07 in four year prices were lower in the fourth season over the third season. From the results presented in this section, it is infurred that farmers got 10 per cent higher price by sale of cumin in the second over the sale in the post harvest season. The carrying of cumin to the third and fourth season of the year is not advantageous.

Table 2 : Price of cumin in different season in Mandor market **(Rs./Quintal)**

Year	I season (March-May)	II season (June-Aug.)	III season (Sept.-Nov.)	IV season (Dec.-Feb.)
2005-06	6566.67	73339.38 (+13.29)	7068.44 (-11.60)	6399.07 (-2.70)
2006-07	7666.67	7441.74 (-2.93)	8646.56 (+16.19)	8953.51 (+6.55)
2007-08	9866.67	11075.34 (+12.25)	10487.24 (-5.31)	9656.65 (-7.92)
2008-09	9333.33	10833.20 (+16.07)	9666.54 (-10.76)	9440.92 (-2.34)
2009-10	10400	11684.40 (+12.35)	12170.47 (+4.16)	11533.95 (-5.23)
Overall	8766.67	9674.81 (+10.36)	9608.05 (0.69)	9196.74 (-4.28)

Figures in parentheses are the percentage change during the season over the previous season

Table 3 : Monthly market arrivals and monthly wholesale prices of cumin in Mandor market during 2005-06 to 2009-10

Months	Arrivals (in quintals)	Average wholesale prices (Rs. /quintal)
March	4191.42	8937.88
April	5258.20	8670.98
May	5600.34	8640.00
June	1518.96	8725.00
July	1236.78	9020.00
August	1494.80	9427.88
September	1065.00	9827.88
October	513.49	10376.01
November	446.78	9823.87
December	638.00	9547.94
January	828.33	9452.35
February	907.94	9300.00

Table 4 : Correlation co-efficient between monthly arrivals and wholesale prices of cumin during the period 2005-06 to 2009-10

Sr. No.	Particulars	Correlation co-efficient (r)
1.	Correlation co-efficient between wholesale prices and arrivals of cumin in the corresponding months	-0.578*
2.	Correlation co-efficient between wholesale prices and arrivals of cumin in the subsequent months	-0.588*

* indicate significance of values at P=0.05

Relationships between monthly arrivals and wholesale prices of cumin :

The monthly arrivals and average monthly wholesale prices of cumin during the period 2005-06 to 2009-10 is presented in Table 3. The monthly arrivals data showed that there has been continuous decrease from June to Feb. months and increase from March till May month. Arrivals were higher in April to May due to arrivals of new crops. Prices have shown on increase during May to August and decrease from September to February but increase in March. The relationship between arrivals and average monthly wholesaler prices is depicted through Fig. 1 and 2.The relationship between market arrivals and wholesale prices of cumin in different months of the year was also examined by working out the sample correlation co-efficients.

The correlation co-efficients were worked out firstly between wholesale prices and arrivals of the crop in the corresponding months and secondly between wholesales prices and arrivals of the crop in the subsequent months. The correlation co-efficients between average wholesale prices and market arrivals in the corresponding months and also between the prices and arrivals in the subsequent months has been presented in Table 4.

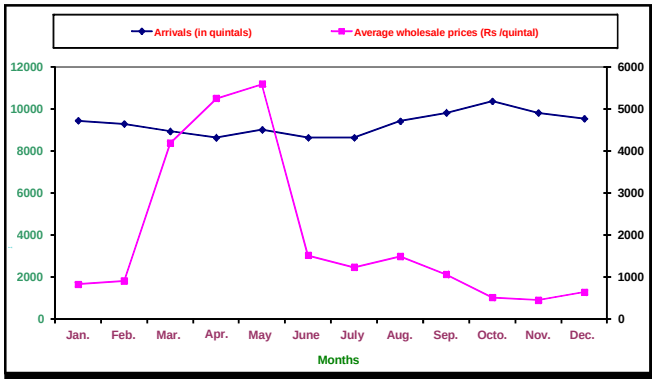

Fig. 1 : Average wholesale prices of cumin and arrivals in the corresponding months in Mandor Market during 2005-06 to 2009-10

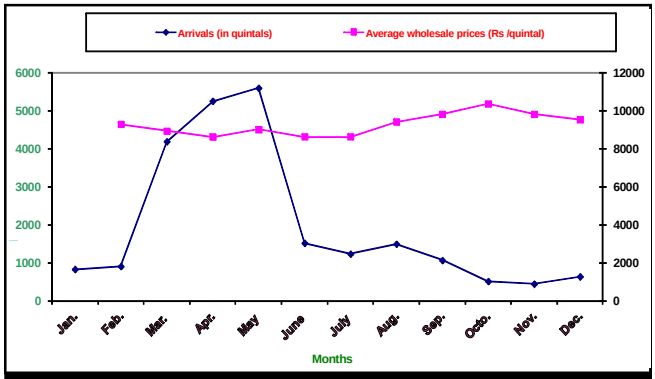

Fig. 2 : Average wholesale prices of cumin and arrivals in the subsequent months in Mandor Market during 2005-06 to 2009-10

The value of correlation co-efficient between monthly wholesale prices and arrivals of cumin in the corresponding months and in the subsequent months were 0.578 and – 0.588, respectively. The negative sign of correlation co-efficient between the arrivals and wholesale prices indicated the existence of inverse relationship in them. Further, the prices prevailing in a month in general luring effect on the arrival of the output in the subsequent months rather than in the same month and thus the second type of relationship is more important in taking of decisions of timing of sale of cumin crop. In decision making, the study of the relationship in prices and arrivals of the crop in the subsequent months has been more useful to the producer-farmers because farmer-producers lake decision for the sale of the crop based on today's price in the market. In respect to the present study, Kasar *et al.* (1996), Kumar *et al.* (2006) have also made same observation on arrivals and prices of different crops.

Relationship between yearly arrivals and wholesale prices of cumin :

The relationship in the monthly arrivals and prices is not a true reflector of the relationship between the two because of the wide variations in arrivals and prices from month to month due to the exogenous factors *i.e.* temporary increase in demand or decrease in supply of the output. The correlation co-efficients between yearly prices and arrivals of cumin during the period 2005-06-2009-10 for Mandor market are presented Table 5. Prices of cumin were negatively correlated with market arrivals in three year and positively correlated in two years out of the five years study period of 2005-06 to 2009-10. Similar results were obtained by Prasad *et al.*, 1988 and Singh *et al.*, 2010.

Table 5 : Correlation co-efficient between yearly wholesale prices and arrivals of cumin during 2005-06 to 2009-10

Years	Correlation co-efficient (r)
2005-06	0.282 NS
2006-07	-0.301 NS
2007-08	-0.177 NS
2008-09	-0.351 NS
2009-10	-0.568 NS

NS – Non-significant

Conclusions :

The results showed that the pattern of market arrivals of cumin in different seasons indicated that the arrivals of cumin have been 63.51 per cent first peak season of total. Arrivals were low in the second, third and fourth seasons.

Prices of cumin were higher in second season by 10.36 per cent, over the first season prices were negative by 4.28 per cent in the fourth season over the third season. There existed inverse relationship between prices and arrivals of cumin in the corresponding as well as in subsequent months. The higher negative value of correlation co-efficient for subsequent months compared to the corresponding months explains that the effect of prices on arrivals has been more pronounced in the subsequent months than that of the corresponding months. The correlation in yearly prices and arrivals of cumin were negative in four years and positive in one year. This relationship reveals that prices of cumin were not only affected by arrivals but were affected by other factors also *viz.*, demand, export potential and seasonality of the crop.

Recommendations :

There existed a definite seasonality in both arrivals and prices of cumin in the selected market leading to low income realization .Hence, it is suggested that the farmers should be encouraged to store their produce in the private/ public warehouses to meet their immediate financial obligation by taking credit from financial institutions against warehouse receipts and dispose of their produce when the prices are favourable.

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