

# Price behavior of Turmeric in Sangali APMC

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# Abstract

Prices of Agricultural commodity fluctuates time to time, in Sangali turmeric is one of the major crop grown, the prices of Turmeric are inversely related with arrivals. After harvesting arrivals are more in AMPC And prices are less. Seasonal indices and growth rate are used for study purpose.

## Introduction

A price of Agricultural commodity varies from time to time, season to season. As being agricultural commodity turmeric also leads larger fluctuations in arrivals and which ultimately leads to price instability. This fluctuation affects the farmer's capacity to development in agriculture. So this fluctuation became an important factor that influences the agricultural economy of our country. The prices are the mirror of the economy of a country. It is important from producer as well as from consumer's point of view to study price behavior of turmeric.

The market information relating to market prices and arrivals over a period of time helps the farmers to take decision about the future production pattern and sale of agricultural commodities in the market during specific period. The objective of present study was to examine the price behavior and fluctuation in prices and arrivals of turmeric in Sangali APMC because the Sangali has larger production of turmeric.

## Methodology

The present study has taken into consideration the arrivals and prices of turmeric from APMC of Sangli district for the period of 2010-2011 to 2014-2015. Data were analyzed to achieve the objectives of the study. After compilation of data, functional analysis such as seasonal indices, S.D., C.V. (%) and correlation were computed for precision in conclusion. The computation procedure, of these analytical tools is given in the following section.

**Seasonal indices:** To examine the peak slack period, monthly seasonal indices were worked out by simply average method.

$$\text{Seasonal index} = \frac{\sum Xi}{\bar{x}} \times 100$$

$\bar{x}$  := The mean of  $i^{\text{th}}$  months for  $n^{\text{th}}$  years

$$\bar{x} = \frac{\sum_{i=1}^{12} Xi}{12}$$

The irregular fluctuations were estimated by averaging the figures of data.

### Coefficient of variation:

Coefficient of variation is “percentage variation in the mean as the standard deviation being stated as the total variation in the mean.” The coefficient of variations of each market arrivals and prices were worked out for comparing the variability present in market arrivals and prices.

$$C.V. = \frac{SD}{Mean} \times 100$$

Where,

CV = Coefficient of variation

SD = Standard deviation

S.D. is Standard deviation which is the measure of dispersion. This measure of dispersion was calculated by securing the deviation of each observation from the mean, adding the square dividing by number of (n-1) observations less one and extracting the square root.

$$S.D. = \sqrt{\sum_{i=1}^n \frac{d^2}{n-1}}$$
$$S.D. = \sqrt{\sum \frac{(Xi - \bar{x})^2}{n-1}}$$

Where,

Xi = Arrivals / prices

$\bar{x}$  = Mean of arrivals / prices

n = Number of years / months

### Relationship between arrivals and prices:

In order to know the relationship between arrivals (x) and prices (y), the simple linear correlation was estimated by using Karl Pearson's method:

$$r = \frac{\text{Covariance (X,Y)}}{\sqrt{\text{variance (X),variance(Y)}}} = \frac{\text{covariance (X,Y)}}{SD(X), SD(Y)}$$

### Compound Annual growth rate:

In order to know instability and growth in turmeric arrivals and price growth rate is estimated by using following formula

$$\text{CAGR} = \frac{\text{END value}^{1/n}}{\text{start value}} - 1 \times 100$$

### Analysis and interpretation:

Findings and relevant discussion on present study have been summarized under following heads.

### Arrivals prices and seasonal fluctuation:

**Table No. : 1 Arrivals, Prices and seasonal fluctuation**

Months	Arrival index	Mean arrivals (T)	C.V. (%)	Price index	Mean prices (Rs/q)	C.V. (%)
April	240.43	185691.6	58.39	106.74	8979.6	33.12
May	193.29	149287.6	39.69	110.95	9333.4	42.90
June	110.07	85014.4	40.44	100.83	8482.6	50.43
July	87.55	67620	66.20	100.81	8480.8	46.07
August	55.02	42490.6	65.03	95.35	8021.2	48.56
September	42.00	32436.6	55.73	84.78	7132.6	46.64
October	36.56	28239.4	75.98	86.87	7308.4	55.76
November	25.46	19660.2	60.67	91.42	7690.8	54.06
December	36.72	28362	60.46	93.94	7902.6	51.71
January	43.65	33715.8	68.81	105.06	8838.2	48.01
February	122.41	94543.2	32.51	107.29	9026	38.76
March	206.84	159752.8	18.93	115.96	9755.2	32.28
Total	1200.00	926814.2	642.86	1200.00	100951.4	548.31

The result of the seasonal indices for arrivals and prices of turmeric in Sangli market are presented in Table 1. The maximum arrival index was in the month of April 240.43 per cent followed by March and May and it was 206.84 and 193.29 per cent and arrival index was minimum in the month November (25.46%). The price index was maximum in the month of March (115.96%). The price index was minimum in the month of September (84.87%). The instability in arrivals ranged from 18.93to 75.98 per cent in all months, while the instability in prices ranged from 32.28 to 55.76 per cent in all months.

### Relationship between Arrivals and prices :

**Table no: 2 Correlation between arrivals and prices in Sangali Market for the year 2010-2011 to 2014-2015**

Months	Correlation r
April	-0.5639829
May	-0.8997759
June	-0.7033451
July	-0.7698024
August	-0.7321856
September	-0.9572841
October	-0.613494
November	-0.6775763
December	-0.7680825
January	-0.711169
February	-0.7529369
March	-0.2285364

Relationship between arrivals and prices of turmeric are presented in Table 2. It indicates correlation coefficient between arrivals and prices of turmeric was negative and non-significant in Sangli market. The negative sign indicates inverse relationship between arrivals and prices in Sangli market.

#### **Growth and Instability in turmeric in Sangli market:**

The information of compound growth rates in annual arrivals and prices of Turmeric showed in Table no 3. It can be revealed from the table that, the annual compound growth rate of arrivals in case of Turmeric (5.57) were found positive and prices were negative (-5.20). It indicates that arrivals of turmeric increased by 5.57 per cent per annum, prices decreased 5.20 per cent per annum during period under study. The markets showed the increased arrivals and decreased prices in the period under study which may be due to the increased demand for the turmeric; also increased the production of turmeric in area under study.

**Table no : 3 Growth and Instability in turmeric in Sangli market**

Sr.No	Year	Arrivals (Q)	Prices (Rs./Q)
1	2010-11	42731.33	14737.5
2	2011-12	83194.33	7052.417
3	2012-13	109373.6	5862.417
4	2013-14	68710.25	6672.333
5	2014-15	82163.08	7738.417
6	CAGR %	5.57	-5.20

## **Conclusion**

The following general conclusion emerged from the present study. The monthly seasonal indices for turmeric arrivals were higher immediately after harvest in Sangli market. The price indices of turmeric were lower during peak arrival months and vice versa.

# Declarations

**Competing interests:** The authors declare no competing interests.

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