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Growth performance of arrivals and prices of tur in APMCs of Amravati district Maharashtra, India

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Abstract
The present investigation was undertaken to study the growth performance of arrivals and prices of Pigeon pea in APMCs of Amravati district with the objective to study the trends in arrivals and prices of Pigeon pea in APMCs of Amravati district. The APMCs of Amravati district was selected purposively for the study. The Pigeon pea commodity was selected for present study. The secondary data were collected from 12 APMC's of Amravati district for the period of 15 years since 2006-07 to 2020-21. The data were analysed with simple statistical tools for fulfilling set objective. Trends in arrivals and prices, was estimated by using appropriate statistical technique for arriving at meaningful conclusions. The analysis of growth performance in arrivals and prices revealed that, arrivals of Pigeon pea had increased during the period under study. The prices of Pigeon pea were found to be increased over entire period.

Keywords: Arrivals, prices, growth performance

Introduction

Red gram (*Cajanus cajan* Lin.) is an important pulse crop originated from India, grown in the tropical and subtropical regions of world. It is also called in different names *viz.* Congo pea, Toovar, Toor, Togary, Glandular, Gungo pea. Red gram contains about 22 percent proteins, which is almost three times that of cereals. Being rich in protein and relatively cheaper, a large section of vegetarian population of the country consumes it as "Dal" in cooking form. Its leaves are an excellent fodder for animal and stems are an important source of fencing fields.

In addition to being an important source of human food and animal feed, every Red gram plant is in itself a mini fertilizer factory as this crop enhances the soil fertility through fixing atmospheric nitrogen. Being a drought resistant crop, it is suitable for dry-land farming and predominantly used as an intercrop with other crops like cotton, sorghum, groundnut, black gram etc., to increasing the yield and maintain soil fertility. Red gram is cultivated in wide range of soil from black clay to sandy soil, but very sensitive to calcareous, saline, alkaline or waterlogged soils with depth exceeding 45 cm with pH between 5 and 7 are ideal. For optimum productivity, it requires 21-25 degree Celsius temperature during vegetative growth phase and less than 30 degree Celsius temperature with low moisture during flowering and pod formation stage.

All India Pulses (Kharif-2021)

Crops	Normal Area	Area Covered		Change Over(+/-) to 2020	
		This Year 2021	Last Year 2020	Actual	%
Arhar (Tur)	45.64	50.499	48.465	2.03	4
Urdbean	37.28	40.048	39.234	0.81	2
Mungbean	33.48	35.409	35.531	-0.12	0
Kulthi	2.20	0.820	0.816	0.00	1
Oth. Kharif Pulses	16.70	15.594	15.296	0.30	2
Total	135.29	142.370	139.343	3.03	2

Normal Area –DES (Ave: 2015-16 to 2019-20)

In Maharashtra state crops are generally marketed in regulated markets, these regulated markets are called as A.P.M.C. (Agricultural Produce Market Committee). Agricultural Produce Market Committee helps the farmer in disposing of their produce in the market smoothly by reducing the exploitation level and to promote fair trade by providing infrastructural facilities to farmers.

It is necessary to study the role played by regulated markets to sustain the agri-business in India, Maharashtra and particularly in vidarbha region of Maharashtra.

Methodology
This chapter includes the materials and methods used for the present study. It deals with the source of data, type of, data utilized, selection of period and statistical tools used for data analysis to achieve the objective of the study.

The present study has based on the data of arrivals and prices of pulse crop pigeon pea in APMCs of Amravati district for the period of last 15 years i.e. from 2006-07 to 2020-21.

Selection of market
The study was based on arrival and prices of pigeon pea in total 12 APMCs, of Amravati district *viz.*, 1) Amravati 2) Dhamangaon railway 3) Daryapur 4) Anjangaon surji 5) Chandur railway 6) Warud 7) Morshi 8) Tiosa 9) Dharni 10) Achalpur 11) Chandur bajar 12) Nandgaon khandeshwar so that the APMCs, of Amravati district was selected purposively.

Selection of Commodities
Pigeon pea commodity was selected for present study.

Sources of data
The data required for this investigation were collected from the office records of APMCs, of Amravati District.

Method of data collection
The month wise data in respect of arrivals and prices of pigeon pea were collected from the records maintained by 12 APMCs of Amravati district for the period of last 15 years i.e. from 2006-07 to 2020-21.

Analytical techniques
Data were analysed statistically to achieve the objective of the study. The simple tabular method was used.

Trends in arrivals and prices
The time series data pertaining to monthly arrivals and prices of pigeon pea commodity were collected from 12 APMCs of Amravati district. The growth rate were estimated by using exponential Function.

$$Y = ab^t$$

Where,
Y = Yearly arrivals and prices, respectively.
a = Intercept/constant
b = Trend coefficient / Regression coefficient
t = Time variable.

From the estimated function, the Annual compound growth rate (CGR) was calculated by CGR = [Antilog (log b)-1] x 100

Result and Discussions
The trend is effective to tool to judge the behavior of any agricultural in relation to arrivals and prices. For the present study compound growth rates for 15 years (during 2006-07 to 2020-21) were estimated for Pigeon pea and results of the same are presented in Table 1 and discussed for twelve APMCs of Amravati district for Pigeon pea pulse crop.

Table 1: Trends in arrivals and prices of pigeon pea in APMCs of Amravati District. (2006-07 to 2020-21)

APMCs	Arrivals		Prices	
	CGR (%)	't' value	CGR (%)	't' value
Amravati	-6.40[NS]	-0.96	6.98***	4.09
Dhamangaon Railway	4.29***	2.81	7.51***	5.26
Daryapur	9.08***	3.57	8.36***	4.97
Anjangaon Surji	-6.34**	-2.52	5.59***	3.74
Chandur Railway	0.08[NS]	0.05	7.42***	4.86
Warud	-1.67[NS]	-0.88	7.72***	5.23
Morshi	1.09[NS]	0.59	7.60***	5.08
Tiosa	1.08[NS]	0.57	7.11***	4.68
Dharni	6.01**	2.56	7.05***	4.39
Achalpur	6.24***	3.65	6.87***	4.12
Chandur Bajar	2.12[NS]	1.03	7.64***	5.08
Nandgaon Khandeshwar	0.91[NS]	0.90	6.53***	4.18

(***, **, * indicates significance at 1,5,10 percent level and 'NS' denoted as non- -significant)

Amravati
From the table revealed that, in Amravati tahsil the annual arrivals of Pigeon pea increased during the period under study because the magnitude of compound growth rate was found to be negative and non-significant (-6.40). Whereas prices has been increased by 6.98 percent per annum during the study period.

The increase in arrivals of Pigeon pea may be increase in production of Pigeon pea in the market due to increase in productivity (from 33005-33243 qtls) of Pigeon pea and many of the cotton growers taking Pigeon pea as intercrop.

Dhamangaon railway
The magnitudes of annual compound growth rate of arrivals of Pigeon pea was found to be positive and significant (4.29). Whereas prices has been increased by 7.51 percent and significant at its respective level.

Daryapur
The magnitudes of annual compound growth rate of arrivals and prices of Pigeon pea were 9.08 and 8.36 respectively. It was observed as significant at 1 percent level and 1 percent level indicating that the arrivals of Pigeon pea increased by 9.08 percent per annum and prices increased 8.36 percent per annum during period under study.

APMC, Daryapur is a producer market for Pigeon pea. The markets showed the increased arrivals in the period under study which may be due to the increased demand for the Pigeon pea for processing and consumption purpose.

Anjangaon surji
The annual compound growth rate of arrivals (-6.34) and prices (5.59) of Pigeon pea. The arrivals was found that the negative and significant. In case of prices observed that the positive and significant. The arrivals of Pigeon pea decreased by -6.34 percent per annum and prices increased by 5.59 percent per annum during period under study.

Chandur railway
The annual compound growth rate of arrivals of Pigeon pea were found positive and non-significant. It indicates that through magnitude of CGR was 0.0086. The result cannot used for prediction as the ('t'- test) turned out non-significant. The CGR for prices were positive and significant and the magnitude was 7.42. It indicated that the prices of Pigeon pea

increased by 7.42 percent per annum during period under study.

The markets showed the increased arrivals study which may be increase in area under crop and also total production of Pigeon pea being purchased by local traders for the dal processing units in the markets.

Warud

The annual compound growth rate of arrivals of Pigeon pea were found negative and non-significant. The magnitude of CGRs for arrivals were -1.67 and prices of Pigeon pea were 7.72 found positive and significant. The result cannot used for prediction as the t'-test turned out non-significant in case of arrival.

Morshi

It can be revealed from the table that, the annual arrivals of Pigeon pea increased during the period under study because the magnitude of compound growth rate was found to be positive but non-significant (1.09). Whereas prices has been increased by 7.60 percent per annum during the study period.

Tiosa

The annual compound growth rate of arrivals and prices of Pigeon pea. The arrivals was found that the positive but non-significant. In case of prices observed that the positive and significant. The arrivals of Pigeon pea increased by 1.08 percent per annum and prices increased by 7.11 percent per annum during period under study.

Dharni

The magnitudes of annual compound growth rate of arrivals and prices of Pigeon pea were 6.01 and 7.05. It was observed as significant at 5 percent level and 1 percent level indicating that the arrivals of Pigeon pea increased by 6.01 percent per annum and prices increased by 7.05 percent per annum during period under study.

Achalpur

The annual compound growth rate of arrivals of Pigeon pea were found positive and significant. The magnitude of CGRs for arrivals were 6.24 and prices of Pigeon pea were 6.87 found positive and significant. The result can used for prediction as the t'-test turned out significant.

Chandur Bajar

It can be revealed from the table that, the annual arrivals of Pigeon pea increased during the period under study because the magnitude of compound growth rate was found to be positive but non-significant (2.12). Whereas prices has been increased by 7.64 percent per annum during the study period.

Nandgaon Khandeshwar

The annual compound growth rate of arrivals and prices of Pigeon pea the arrivals was found that the positive and non-significant. In case of prices observed that the positive and significant. The arrivals of Pigeon pea decreased by 0.91 percent per annum and prices increased by 6.53 percent per annum during period under study.

Conclusions

In the market Amravati annual arrivals of Pigeon pea increased during the period under study because the

magnitude of compound growth rate was found to be negative and non-significant (-6.40). Whereas prices has been increased by 6.98 percent per annum during the study period.

In the APMC, Dhamangaon railway the magnitudes of annual compound growth rate of arrivals of Pigeon pea was found to be positive and significant (4.29). Whereas prices has been increased by 7.51 percent and significant at respective level.

In Daryapur market the magnitudes of annual compound growth rate of arrivals and prices of Pigeon pea were 9.08 and 8.36 it was observed as significant at 1 percent level and 1 percent level indicating that the arrivals of Pigeon pea increased by 9.08 percent per annum and prices increased 8.36 percent per annum during period under study.

In these APMC, Anjangaon surji the annual compound growth rate of arrivals and prices of Pigeon pea. The arrivals was found that the negative and significant. In case of prices observed that the positive and significant. The arrivals of Pigeon pea decreased by -6.34 percent per annum and prices increased by 5.59 percent per annum during period under study.

In these Chandur railway market the annual compound growth rate of arrivals of Pigeon pea were found positive and non-significant. It indicates that through magnitude of CGR was 0.086 the result cannot used for prediction as the ('t'-test) turned out non-significant. The CGR for prices were positive and significant and the magnitude was 7.42.

In the Warud market annual compound growth rate of arrivals of Pigeon pea were found negative and non-significant. The magnitude of CGR for arrivals were -1.67 and prices of Pigeon pea were 7.72 found positive and significant. The result cannot used for prediction as the t'-test turned out non-significant in case of arrival.

In APMC, Morshi the annual arrivals of Pigeon pea increased during the period under study because the magnitude of compound growth rate was found to be positive and non-significant (1.09). Whereas prices has been increased by 7.60 percent per annum during the study period.

In these Tiosa market the annual compound growth rate of arrivals and prices of Pigeon pea. The arrivals was found that the positive but non-significant. In case of prices observed that the positive and significant. The arrivals of Pigeon pea decreased by 1.08 percent per annum and prices increased by 7.11 percent per annum during period under study.

In these Dharni market the magnitudes of annual compound growth rate of arrivals and prices of Pigeon pea were 6.01 and 7.05. It was observed as significant at 5 percent level and 1 percent level indicating that the arrivals of Pigeon pea increased by 6.01 percent per annum and prices increased by 7.05 percent per annum during period under study.

In these Achalpur market the annual compound growth rate of arrivals of Pigeon pea were found positive and significant. The magnitude of CGR for arrivals were 6.24 and prices of Pigeon pea were 6.87 found positive and significant. The result can used for prediction as the t'-test turned out significant.

In the market of Chandur bajar the annual arrivals of Pigeon pea increased during the period under study because the magnitude of compound growth rate was found to be positive but non-significant (2.12). Whereas prices has been increased by 7.64 percent per annum during the study period.

In the APMC, Nandgaon khandeshwar annual compound growth rate of arrivals and prices of Pigeon pea. The arrivals was found that the positive and non-significant. In case of

prices observed that the positive and significant. The arrivals of Pigeon pea decreased by 0.91 percent per annum and prices increased by 6.53 percent per annum during period under study.

The compound growth rate of Pigeon pea arrivals in all APMCs of Amravati district had shown wide fluctuation and prices in all APMCs were stagnant.

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