

International Journal of Agriculture Extension and Social Development

Volume 8; SP-Issue 12; December 2025; Page No. 37-39

Received: 17-10-2025
Accepted: 19-11-2025

Indexed Journal
Peer Reviewed Journal

Seasonal variation of arrival and prices of Pigeon pea in Akola district of Maharashtra

¹Prafulla L Solanke, ²Digamber S Perke and ³Vishakha A Chopade

¹M.Sc. Scholar, Department of Agricultural Economics, VNMKV, Parbhani, Maharashtra, India

²Associate Dean and Principal, College of Agriculture, Dharashiv, VNMKV, Parbhani, Maharashtra, India

³M.Sc. Scholar, Department of Agricultural Economics, VNMKV, Parbhani, Maharashtra, India

DOI: <https://doi.org/10.33545/26180723.2025.v8.i12Sa.2750>

Corresponding Author: Prafulla L Solanke

Abstract

Cajanus cajan is a leguminous browse plant, the common names is Pigeon pea, red gram, Congo pea, Gungo pea, No eye pea. *Cajanus cajan* is cultivated on large scale in twenty-two countries of the world and it is the sixth most important legume food crop. The forage of *Cajanus cajan* is a fodder taste by ruminants and it is of high nutritive value and serves as vegetable for human consumption and the protein content of the seeds correspond favorably with those of soybean meal and groundnut cake. Production of *Cajanus cajan* in Africa was accounted to be 9.3 per cent of world production but this is small, when compared to the 74 per cent contribution from India. The normal productivity was about 907 kg/ha. Highest production of Pigeon pea is from Maharashtra which is around 30 per cent of national production. The Akola district was purposely selected for present study, as it has a major proportion of the area under Pigeon Pea crop. The research is based on trends in arrival and prices of Akola, Murtijapur, and Akot APMC's. The arrivals and prices data for selected Pigeon pea crop year wise data were collected from the official records of APMC. Based on availability of data, latest 20 years data from 2001 to 2020 were collected. For analyzing the trend in arrival and prices of agricultural commodities the compound growth rates of chosen agricultural commodities arrival and prices of seasonal indices were calculated through simple average method and coefficient of variation in arrivals and prices computed in order to assess variability. The selected markets under annual study of Akola, Murtijapur and Akot markets showed increasing trend in arrivals and prices. Among the selected markets the highest arrivals were in the year 2018-2019 (286.79 per cent), in Akot APMC market followed by Murtijapur APMC market (269.16 per cent), whereas the lean period of arrival in the year 2013 - 2014 (15.52 per cent) in Akot APMC. The highest indices of prices of Pigeon pea were registered in the year 2015-16 (241.13 per cent) in Murtijapur market, followed in 2015-16 (239.78 per cent) in Akola market. The lowest indices of arrivals were registered in the year 2001-02 (29.72 per cent) in Akot market.

Keywords: Seasonal variation, APMC, index, arrivals and prices

Introduction

Cajanus cajan is a leguminous browse plant, the common names are Pigeon pea, red gram, Congo pea, Gungo pea, No eye pea. *Cajanus cajan* is cultivated on large scale in twenty-two countries of the world and it is the sixth most important legume food crop. The cultivation of the Pigeon pea goes back at least 3,500 years. The forage of *Cajanus cajan* is a fodder taste by ruminants and it is of high nutritive value and serves as vegetable for human consumption and the protein content of the seeds correspond favorably with those of soybean meal and groundnut cake. Production of *Cajanus cajan* in Africa was accounted to be 9.3 per cent of world production but this is small, when compared to the 74 per cent contribution from India. Area and production of Pigeon pea in India has been more or less stable at 16.56 lakh ha and 4.43 million tonnes, respectively during the year 2019-2020. India is the major producer of Pigeon pea accounting 90 per cent of total production and 80 per cent of total area of the world. In India Pigeon pea is mainly grown in Maharashtra, Madhya Pradesh, Uttar

Pradesh, Jharkhand, Andhra Pradesh and Karnataka. Maharashtra is the leading producer. Pigeon pea is grown in region of Maharashtra on 1195.50 (000'ha), with a production of 1084.32 (000'Tonnes) during 2019-20. The normal productivity was about 907 kg/ha. Highest production of Pigeon pea is from Maharashtra, which is around 30 per cent of national production. (Ministry of Agriculture and Farmers Welfare, Government of India.)

This study worked on the peak and slack period in arrival and prices of Pigeon pea. Farmers in India are price conscious and in such case the study of seasonal variation of arrivals and prices assumes primary focus. The market arrival variation is a major factor in the volatility of agricultural prices. To narrow the gap between market arrivals, it is necessary to comprehend the price behavior of various agricultural commodities and the responsiveness of market arrival to price movement.

Methodology

The study was based on secondary data. The time series data

of arrivals and prices were collected from APMCs in Akola district i.e. Akola, Murtijapur and Akot markets during study period 2001 to 2020 i.e. 20 years and in the year 2020 from January to December month wise i.e. one year. The selected market was based on the quantity of arrivals and prices in Pigeon pea of Akola district of Maharashtra state. The data were analyzed with simple statistical tools for fulfilling set seasonal indices of Pigeon pea in Akola district. The peak and slack period, monthly seasonal indices was worked out by using simple average method.

$$\text{Seasonal Indices} = \frac{X_i}{\bar{x}} \times 100$$

Where,

X_i = monthly average for 1 years

$\bar{x}$ = mean of 12-month, average

Similarly, Methodology was also used by Jadhav *et al.* (2011) [4], Benke *et al.* (2016) [1] and sahuo *et al.* (2017) [6].

Results and Discussion

Seasonal indices of selected markets the range of arrivals of Pigeon pea indices increasing and decreasing with ranging for selected APMC's. Seasonal indices are those periodic movements in business activity which occur regularly over period of time and have their origin in the year itself. Since such variations repeats during a period of twelve months, it can be predicted fairly and with higher accuracy level. To obtain a statistical description of pattern of seasonal variation it is desirable to first free the data from the effects of cycles and irregular variations. Once these other components have been eliminated, seasonal index can be calculated in index form as a measure of seasonal variation. Thus specific seasonal index refers to the seasonal changes during a particular year. Seasonal indices are those irregular fluctuations in economic activity that happen every year or month. The results of the computation of the annual seasonal indices of Pigeon pea arrivals and prices in Akola, Murtijapur, and Akot APMC's are shown in Table 1.

It was observed that in Akot APMC, annual seasonal indices of arrivals were highest in the year of 2018-19 (286.79 per cent) followed by 2017-2018 (269.80 per cent), and 2019-2020 (253.17 per cent), whereas lowest arrivals were during the year 2013-2014 (15.52 per cent), 2007-2008 (34.38 per cent) and 2001-2002 (36.80 per cent), respectively. In Akola APMC the seasonal indices of arrivals were highest in the year 2011-12 (165.56 per cent) followed by 2017-18 (162.08 per cent), and 2016-2017 (151.62 per cent), whereas lowest seasonal indices were observed in the year of 2000 - 2001 (51.34 per cent), 2004-2005 (56.57 per cent) and 2006-2007 (59.96 per cent), respectively. In Murtijapur

APMC the seasonal indices of arrivals were highest in the year 2017-2018 (269.16 per cent) followed by 2011-2012 (180.93 per cent) and 2018-2019 (178.62 per cent), whereas lowest seasonal indices were observed in the year of 2007-2008 (27.76 per cent) followed by 2002-2003 (43.52 per cent) and 2009 - 2010 (54.45 per cent), respectively. Among the selected markets the highest arrivals were in the year 2018-2019 (286.79 per cent), in Akot APMC market followed by Murtijapur APMC market (269.16 per cent), whereas the lean period of arrival in the year 2013 - 2014 (15.52 per cent) in Akot APMC market were observed in selected markets.

The monthly seasonal indices of market arrivals and prices of Pigeon pea in the selected Akola, Murtijapur, and Akot markets were presented in Table 2.

The results showed the existence of seasonality in all the markets. Higher indices of market arrivals of Pigeon pea were noticed immediately after harvest in both Akola, and Akot which reached peak, during February (396.80 and 282.81), respectively. Gradually started arrivals decreasing from July and were in October, November and December. The market from February to June was glutted with Pigeon pea produce because mostly the farmers sold their produce immediately after harvest. The higher markets arrivals were found in APMC's (more than 110 per cent) to be significant in the months of February, March, May and June in the selected markets. Among the selected markets the highest arrivals were in the month of February (396.80 per cent) in Akola market followed by Akot market (282.81 per cent) and Murtijapur market showed highest in the month of June (248.43 per cent) followed by October (200.11 per cent), whereas the lowest arrivals in the month of November (4.37 per cent) in Akot APMC market.

It was observed that in Akola APMC, monthly seasonal indices of prices were highest in the month of October (123.55 per cent) followed by November (115.64 per cent) and September (107.99 per cent), whereas lowest prices were during January (89.45 per cent), followed by May (89.71 per cent) and February (90.44 per cent), respectively. The highest seasonal indices of prices of Pigeon pea were registered in the month June (122.43 per cent) followed by July (119.07 per cent) and February (108.04 per cent) in Murtijapur APMC, whereas lowest seasonal indices observed in the month of March (84.44 per cent), May (84.69 per cent) and April (89.44 per cent).

In Akot APMC the seasonal indices of prices were highest in the month of October (130.76 per cent) followed by September (106.16 per cent) and November (103.76 per cent). Whereas, lowest seasonal indices of prices observed in the month of January (91.75 per cent) and March (91.84 per cent)

Table 1: Marketwise seasonal indices of arrivals and prices of Pigeon pea

Sr. No.	Years	Arrivals			Prices		
		Akola	Murtijapur	Akot	Akola	Murtijapur	Akot
1	2000-2001	51.34	54.44	47.94	46.85	50.75	44.04
2	2001-2002	71.21	63.44	36.80	45.69	47.58	29.72
3	2002-2003	77.15	43.51	38.83	51.38	53.92	79.05
4	2003-2004	73.89	58.35	61.96	60.46	57.09	46.52
5	2004-2005	56.57	64.97	39.79	49.50	63.44	41.56
6	2005-2006	63.35	69.03	39.17	52.90	52.40	48.13
7	2006-2007	59.96	68.01	63.85	51.20	71.68	60.41

8	2007-2008	60.72	27.75	34.38	70.53	73.05	67.03
9	2008-2009	73.70	56.66	51.80	88.37	79.30	80.94
10	2009-2010	67.21	54.44	43.09	79.44	106.73	127.76
11	2010-2011	115.14	106.92	47.45	119.71	97.95	104.72
12	2011-2012	165.56	180.92	122.04	94.63	90.11	110.79
13	2012-2013	132.27	126.54	84.74	112.83	118.44	107.75
14	2013-2014	118.14	127.65	15.52	122.36	87.76	122.75
15	2014-2015	104.19	113.43	125.80	157.66	147.65	160.43
16	2015-2016	150.55	106.45	128.26	239.78	241.13	206.47
17	2016-2017	151.62	140.89	208.75	166.62	161.77	170.35
18	2017-2018	162.08	269.16	269.80	119.71	126.87	126.77
19	2018-2019	130.27	178.61	286.79	130.31	112.732	127.622
20	2019-2020	114.99	88.73	253.17	139.99	159.583	137.102

Table 2: Monthly seasonal indices of arrivals and prices of Pigeon pea

Sr. No.	Months	Arrivals			Prices		
		Akola	Murtijapur	Akot	Akola	Murtijapur	Akot
1	January	58.06	53.51	131.56	89.45	104.98	91.75
2	February	396.80	78.34	282.81	90.44	108.04	92.04
3	March	248.57	123.81	204.78	92.41	84.44	91.84
4	April	63.37	66.28	52.11	93.40	89.75	96.55
5	May	114.15	57.44	178.39	89.71	84.69	97.51
6	June	152.09	248.43	151.95	103.29	122.43	97.51
7	July	61.02	72.18	35.60	100.82	119.07	98.47
8	August	41.42	37.82	49.38	96.37	96.74	101.84
9	September	29.65	36.58	37.18	107.99	94.96	106.16
10	October	16.81	200.11	22.20	123.55	91.98	130.66
11	November	8.73	136.64	4.37	115.64	99.72	103.76
12	December	9.281	88.81	49.62	96.88	103.14	91.84

Conclusion

It was concluded that the variation observed in annually and monthly seasonal indices of arrivals and greater fluctuation observed in prices of Pigeon pea in markets. Seasonal indices of selected markets of arrivals and prices of Pigeon pea were increasing and decreasing with ranging for selected APMC's from 15.52 per cent to 286.79 per cent and the range of prices 29.72 per cent to 241.13 per cent. In various months of the year 2020, the arrivals indices ranged from 4.37 per cent to 396.80 per cent and the prices indices ranged from 84.44 per cent to 130.76 per cent.

References

1. Benke SR, Gholap VB, Gade PV. An economic analysis of green gram arrivals and price behavior in Akola district (Akola APMC) of Maharashtra. *Int Res J Agric Econ Stat.* 2016;7(2):198-202.
2. Deokate TB, Bandgar DP, Yadav DB. Price analysis of soyabean in agricultural produce market committee Ahmednagar, Maharashtra. *J Pharmacogn Phytochem.* 2020;9(2):875-7.
3. Dhok AA, Perke DS, Karanjalkar AP. Socio-economic study and seasonal indices of turmeric in Sangli district of Maharashtra.
4. Jadhav MC, Ulemale DH, Borkar AN. Trends and seasonal variation in arrivals and prices of soybean in Amravati district. *Int Res J Agric Econ Stat.* 2011;2(2):232-5.
5. Sharma H, Burark SS. A study of seasonal price behavior and market concentration of maize in Rajasthan. *Int Res J Agric Econ Stat.* 2015;6(2):282-6.
6. Sahoo SP, Singh R. Trend and seasonality in prices and arrivals of Bengal gram. *Indian J Econ Dev.*

2017;5(7):1-5.

7. Thakare HP, Daundkar KS, Bondar US, Kashid SD. Organizational structure and seasonal indices in arrivals and prices of agricultural commodities in Kolhapur APMC market. *Int J Commer Bus Manag.* 2016;9(2):227-33.