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# TRENDS IN PRICES OF PULSES IN SELECTED MARKETS OF ANDHRA PRADESH

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## ABSTRACT

The present study was conducted for bengalgram, blackgram, greengram, redgram in selected markets of Andhra Pradesh for a period of 2000-2014. The secondary data pertaining to monthly modal prices (Rs./qtl) of selected pulses was collected from respective Agricultural Market Committees for evaluation of trend analysis for the corresponding markets. In selected markets, with regard to prices of selected pulses in the long run all the markets showed an increasing trend. The extent of increase in prices varied from one market to another.

**KEYWORDS:** Bengalgram, Blackgram, Greengram, Redgram, Prices, Trend.

## INTRODUCTION

India is one of the largest pulses producing countries in the world. It accounts for 32.24 per cent of global pulses area but only 23.46 per cent of the global pulse production. About 23.26 million hectares of land (17 per cent of the total cultivated area) is under cultivation of pulses with an annual production of about 18.34 million tonnes (2012-13). Pulses have been cultivated in rain fed conditions which are characterised by poor soil fertility and moisture stress. Among the pulses, chickpea and pigeon pea are the important crops accounting for 50 per cent of pulse area and 60 per cent of total production. Madhya Pradesh, Uttar Pradesh, Maharashtra, Rajasthan, Andhra Pradesh, Karnataka, Bihar, Chattisgarh, Gujarath and Tamil Nadu, Orissa account for about 95 per cent of production.

Pulses are the cheapest source of dietary proteins. The highest content of protein in pulses makes the diet more nutritive. Pulses occupy a unique position in Indian agriculture by virtue of their high protein content (up to 18-25%) and ability to convert atmospheric nitrogen into useful form. This makes pulses one of the cheap sources of protein for human consumption. Hence pulses are also called as poor man's meat. However, prices of pulses were highly flexible across the markets. Hence, the study was taken up to analyse the price trends of bengalgram, blackgram, greengram and redgram across the selected markets and to explore possible reasons.

## MATERIAL AND METHODS

This study was undertaken with an overall objective of analysing the trends in prices of bengalgram, blackgram, greengram and redgram. Selection of the markets was done on the basis of maximum quantity of arrivals for the market. The top two markets were selected for each crop for the study are Koilakuntla, Kurnool, Tenali, Ponnur, Thandur, Suryapetamarkets. The secondary data collected for the study were monthly modal prices of bengalgram, blackgram, greengram and redgram at the respective Agricultural Market Committees of the selected markets for a period of 14 years (2000 to 2014).

### Time Series Analysis

A time series is a complex mixture of four components namely, Trend ($T_t$), Seasonal ($S_t$), Cyclical ($C_t$) and Irregular ($I_t$). These four types of movements are frequently found either separately or in combination in a time series. The relationship among these components is assumed to be additive or multiplicative, but the multiplicative model is the most commonly used, which can be represented as

$$\text{Monthly data: } Y_t = T \times C \times S \times I$$

$$\text{Yearly data: } Y_t = T \times C \times I$$

where,

$Y_t$ : Original observation at time period 't'

$T_t$ : Secular trend at time period 't'

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$S_t$ : Seasonal variations at time period 't'

$C_t$ : Cyclical movements at time period 't'

$I_t$ : Irregular fluctuations at time period 't'

**Analysis of long-term movements (trend)**

For estimating the long run trend of arrivals and prices, the method of least squares estimate was employed. This method of ascertaining the trend in a series of annual arrivals of prices involves estimating coefficient of intercept (a) and slope (b) in the linear functional form. The equation adopted for this purpose was specified as follows

$Y_t = a + bx + e$

$Y_t$ = Trend values at time t

x = Period

a = Intercept parameter

b = Slope parameter

e = Error

Annual trends of prices for the selected markets were computed and compared. The goodness of fit of trend line to the data was tested by the coefficient of multiple determination which is denoted by $R^2$.

## RESULTS AND DISCUSSION

The trends are the changes over years and are associated with changes in technology of production, input supply, infrastructure etc. The study of trends enables us to indicate the general direction of change in prices in different markets.

**Table 1. Trends in prices of bengalgram in the selected markets**

| Market | Equation | $R^2$ | t |
|---|---|---|---|
| Koilakuntla | 782.777 + 15.3198*t | 0.77 | 12.3356** |
| Kurnool | 915.327 + 12.2841*t | 0.60 | 11.9574** |

** Significant at 1% level of significance

**Table 2. Trends in prices of blackgram in the selected markets**

| Market | Equation | $R^2$ | t |
|---|---|---|---|
| Tenali | 1104.866 + 22.13379*t | 0.64 | 8.723041** |
| Ponnur | 846.3734 + 23.20199*t | 0.69 | 7.061094** |

** Significant at 1% level of significance

**Table 3. Trends in prices of greengram in the selected markets**

| Market | Equation | $R^2$ | T |
|---|---|---|---|
| Suryapeta | 823.6617 + 22.85532*t | 0.66 | 6.644157** |
| Thandur | 731.5858 + 25.31653*t | 0.70 | 5.748414** |

** Significant at 1% level of significance

**Table 4. Trends in prices of redgram in the selected markets**

| Market | Equation | $R^2$ | T |
|---|---|---|---|
| Thandur | 998.0815 + 20.01432*t | 0.78 | 12.28495** |
| Kurnool | 1113.5000 + 14.35965*t | 0.70 | 15.58149** |

** Significant at 1% level of significance

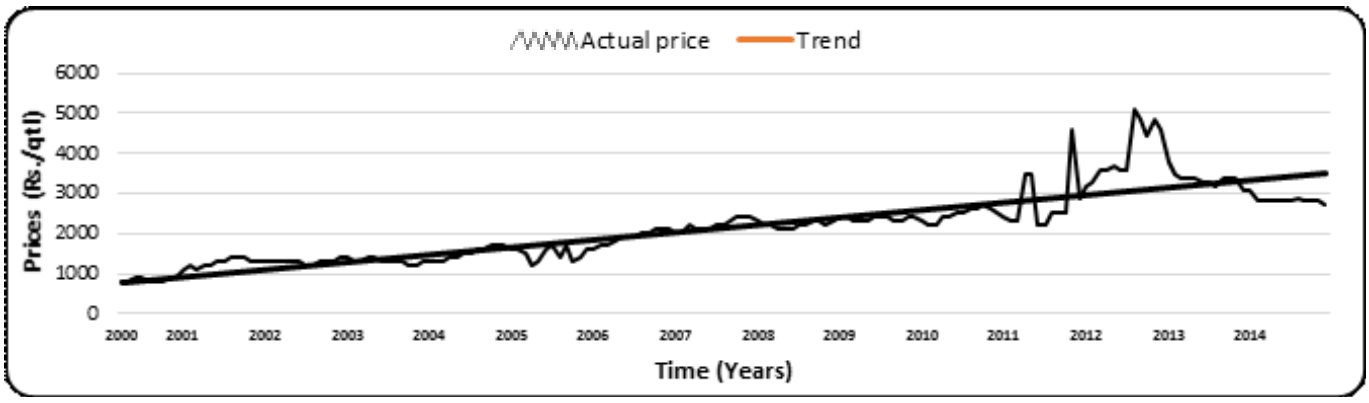


**Fig. 1. Trends in prices of bengalgram in Koilakuntla market**

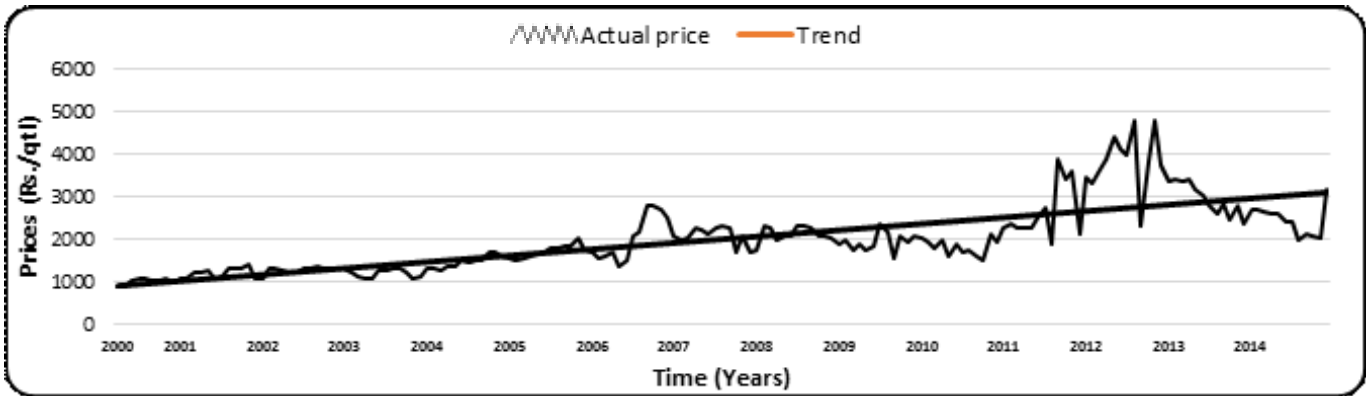


**Fig. 2. Trends in prices of bengalgram in Kurnool market**

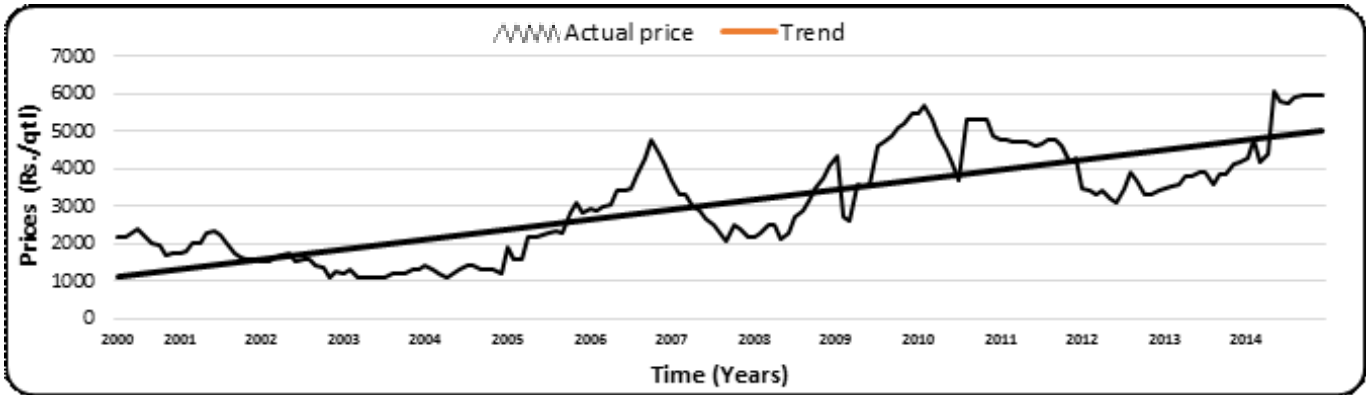


**Fig. 3. Trends in prices of blackgram in Tenali market**

**Trends in the prices of bengalgram in selected markets**

In order to ascertain, the long run movements of bengalgram prices in the selected markets, the data relating to prices of bengalgram were subjected to linear trend analysis.

The results presented in Table 1 revealed that there was an increasing trend in the prices of bengalgram in both the selected markets (Figures 1 and 2) and were found to be highly significant.

The annual increase in prices of bengalgram was found to be highest in koilakuntla market (15.32 Rs./qtl) whereas lowest in Kurnool market (12.28 Rs./qtl) and were found to be statistically significant at 1 per cent level of significance. The contribution of independent variable time, to the changes in the prices was found to be lowest in

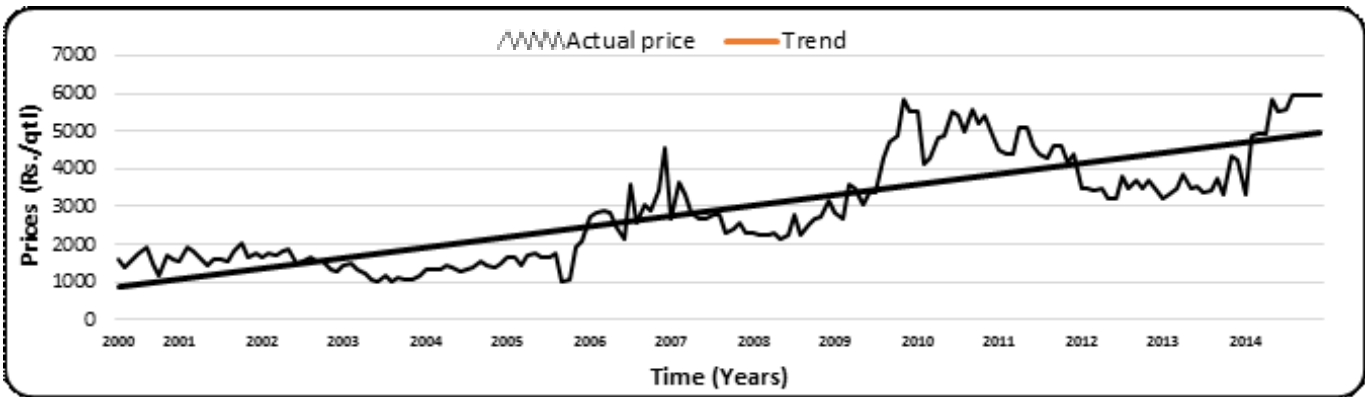


**Fig. 4. Trends in prices of blackgram in Ponnur market**

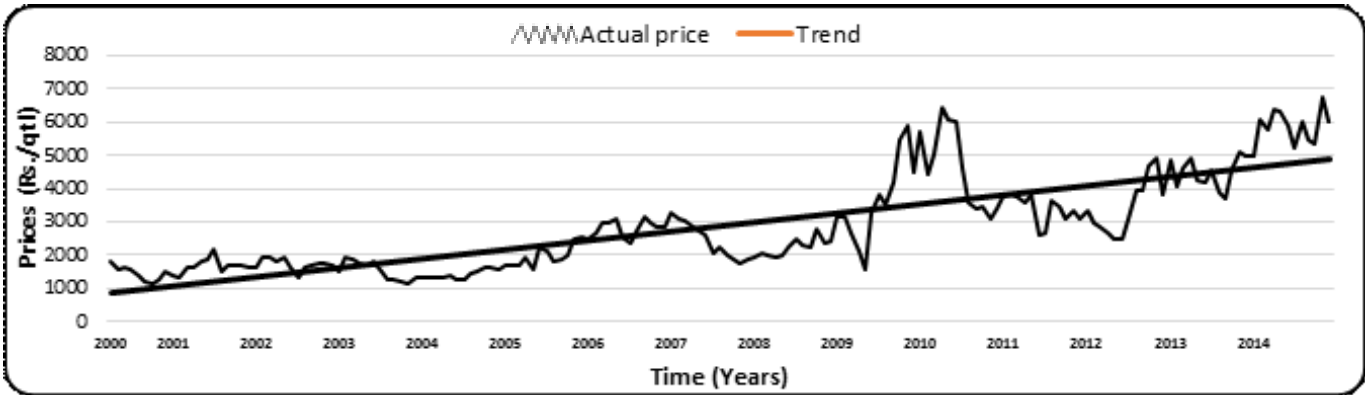


**Fig. 5. Trends in prices of greengram in Suryapeta market**

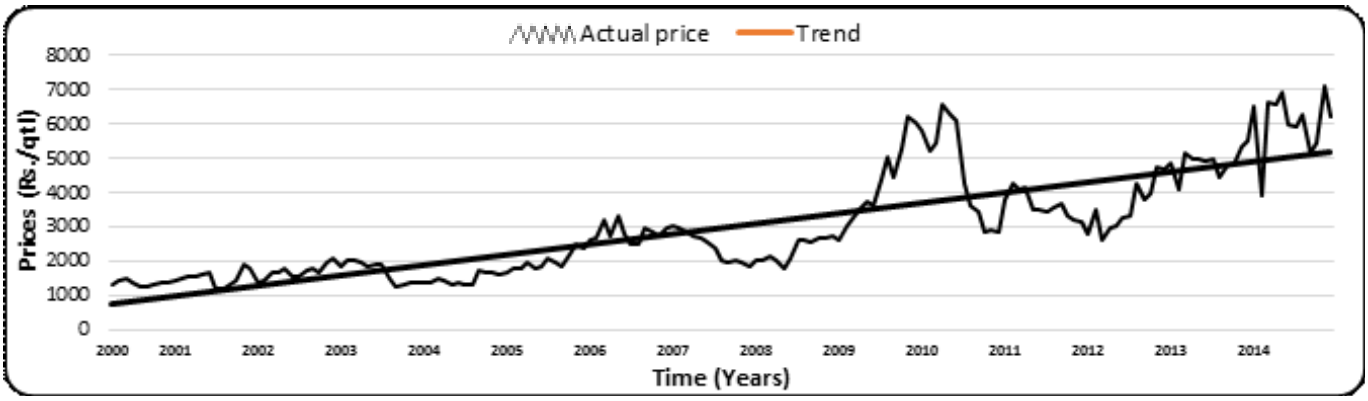


**Fig. 6. Trends in prices of greengram in Thandur market**

Kurnool market (60%) and highest in Koilakuntla market (77%).

**Trends in the prices of blackgram in the selected markets**

To study the long run movements of blackgram prices in the selected markets, the data relating to prices of blackgram were subjected to linear trend analysis. As noticed from Table 2 there was an increasing trend in the prices of blackgram (Figures 3 and 4) in all the selected markets and were found to be highly significant.

The annual increase in prices was relatively higher in Ponnur market (23.20 Rs./qtl), compared to Tenali market (22.13 Rs./qtl) and were found statistically significant at 1 per cent. The increasing trend in prices did not vary much from one market to another market.

**Trends in the prices of greengram in the selected markets**

As noticed from Table 3 there was an increasing trend in the prices of greengram (Figures 5 and 6) in all the selected markets and was found to be highly significant.

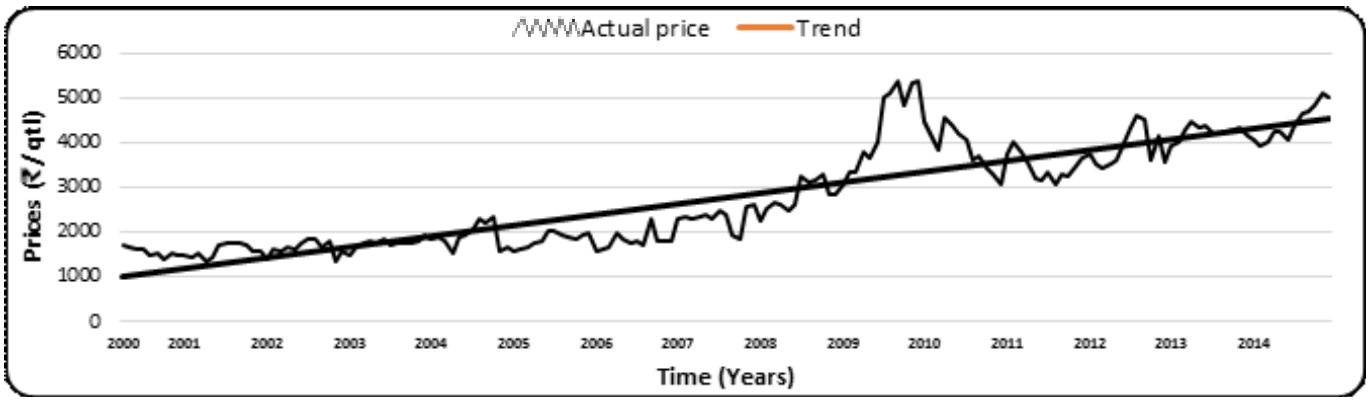


**Fig. 7. Trends in prices of redgram in Thandur market**

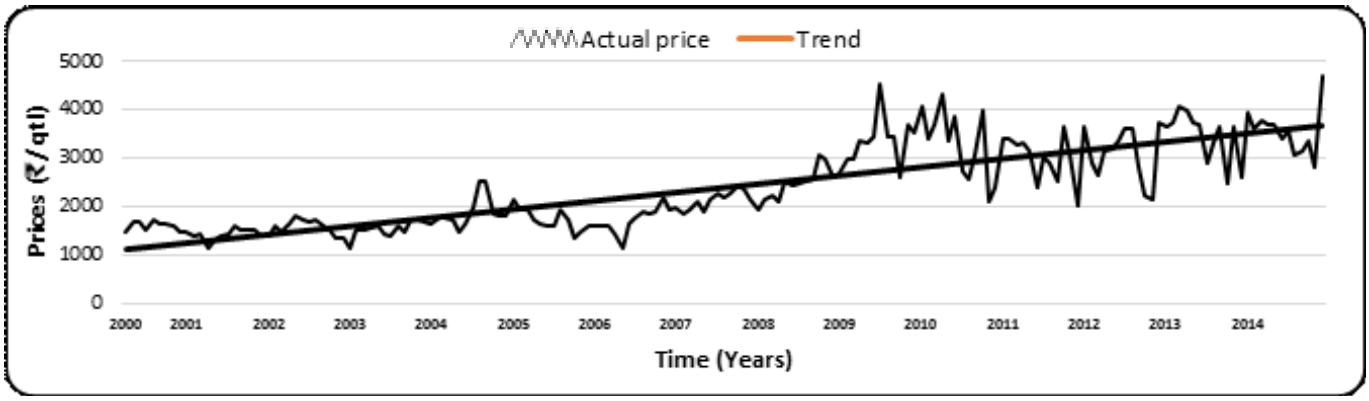


**Fig. 8. Trends in prices of redgram in Kurnool market**

The annual increase in prices was higher in Thandur market (25.31 Rs./qtl), whereas it was lowest in Suryapeta market (22.85 Rs./qtl) and were found statistically significant at 1 per cent. The increasing trend in prices varied from one market to another market.

**Trends in the prices of redgram in the selected markets**

As noticed from Table 4 there was an increasing trend in the prices of redgram (Figures 7 and 8) in all the selected markets and was found to be highly significant.

The annual increase in prices was distinctly higher in Thandur market (20.01 Rs./qtl), whereas it was lower in Suryapeta market (14.35 Rs./qtl) and were found statistically significant at 1 per cent. The increasing trend in prices varied from one market to another market.

## CONCLUSION

The study has indicated that the prices of the pulses in the selected markets were on the rise during the period under study. There was not much of a difference in the price rise for bengal gram, blackgram and greengram across the markets. However there was distinct difference in price rise of redgram between the selected markets. The probable reason for this might be the frequent movement of produce from the selected markets to neighbouring markets.

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