



A STUDY ON GROWTH PATTERN OF RED CHILLI IN INDIA AND ANDHRA PRADESH

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ABSTRACT

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India is one of the largest producers of red chilli in the world. Andhra Pradesh is the major state in the country which occupies larger area under red chilli cultivation. The current study was employed to analyse the growth pattern of red chilli in India and Andhra Pradesh. The data related to area, production and productivity of red chilli in India and Andhra Pradesh was collected from indiastat.com and CAGR analysis was employed to analyse the data. The results showed that the compound annual growth rates of area, production and productivity of red chilli in India and Andhra Pradesh were found to be positive and significant at 1 per cent which indicated that the growth in area, production and productivity has been increased significantly over the period of last 71 years (1950-51 to 2020-21). The CAGRs of area, production and productivity of red chilli in India were found to be 0.42, 2.68 and 2.24 percentage respectively and the CAGRs of area, production and productivity of red chilli in Andhra Pradesh were observed as 0.48, 3.99 and 3.49 percentage respectively.

KEYWORDS: Redchilli, Growth Pattern, Compound Annual Growth Rate.

INTRODUCTION

Red chilli is one of India's most important economic crops. Red chilli is also known as capsicum and red pepper. It is native to South America and is abundant in all tropical and subtropical countries, including India. Red chilli is a major commercial crop that is used as a condiment, spice, and culinary supplement. Dry chilli is consumed in significant quantities per person in India, and more than 50 different varieties of chillies are farmed throughout the country. In India red chilli is grown on an area of 2.29 lakh hectares with a production of 10.78 lakh tonnes and a productivity of 4707 kg ha⁻¹ (Directorate of Economics and Statistics, 2021–2022). Andhra Pradesh ranks first among the major chilli producing states and it also has the most acreage under cultivation of chilli with 700 thousand tonnes, contributing 37.35 per cent of chilli production in the country.

For the period of 1995-96 to 2017-18 the growth of chilli in area, production and productivity exhibited a compound growth rates of -0.774, 3.647 and 4.262 respectively (Gade *et al.*, 2020) At National level, chilli showed growth rates in area, production and productivity to the tune of -0.14 per cent, 3.58 per cent and 3.96 per cent respectively (Ashoka *et al.*, 2013) In recent times, there has been a significant change in trends of red chilli area, production and productivity in India and Andhra Pradesh. So this paper aims to understand the trends in growth pattern of area, production and productivity of India and Andhra Pradesh using Compound Annual Growth Rate (CAGR).

MATERIAL AND METHODS

Secondary data on dry chilli area, production, and productivity were used to examine growth. Data from 1950-51 to 2020-21 were utilised to examine the growth in area, production, and yield of dry chilli. The analysis is based on secondary data gathered from indiastat.com and other government sources. To analyse the growth pattern of red chilli in India and Andhra Pradesh, Compound Annual Growth rates were estimated. The compound annual growth rates of area, production, productivity for red chilli were analysed using the exponential growth function of the form,

$$Y_t = ab^t e^u \dots\dots\dots (1)$$

where,

- Y : red chilli area, production, productivity in respective units.
- t : time in years
- a : intercept indicating Y value (value of Y' when t=0).
- u : random error terms
- b : (1+r) 'r' being growth rate

Equation (1) was converted into logarithmic form in order to facilitate the use of linear regression. Taking the logarithms on both sides, we obtain

$$\ln Y_t = \ln a + t \ln b + e \dots\dots\dots (2)$$

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In a and ln b are obtained by application of Ordinary Least Squares (OLS) procedure to equation (2) and growth rate (CAGR) was derived using the relationship:

$$\text{CAGR} = (\text{Anti log } (b) - 1) * 100$$

RESULTS AND DISCUSSION

Growth in area, production and productivity of red chilli in India from 1950-51 to 2020-21

It can be inferred from Table 1 that the compound annual growth rate of area under red chilli in India from 1950-51 to 2020-21 was observed positive and significant growth rate of 0.42 per cent, this indicated that there was a small amount of increase in area under red chilli cultivation in India over the past 71 years. The compound annual growth rates of Indian red chilli production and productivity during the study period were 2.68 per cent and 2.24 per cent respectively. This indicated that increase in production was the major reason for increase in productivity of red chilli in India during the study period.

Table 1. CAGR(%) of area, production and productivity of red chilli in India and Andhra Pradesh from 1950-51 to 2020-21

Particulars	CAGR (%)	
	India	Andhra Pradesh
Area	0.42**	0.48**
Production	2.68**	3.99**
Productivity	2.24**	3.49**

Growth in area, production and productivity of red chilli in Andhra Pradesh from 1950-51 to 2020-21

From Table 1 it can be inferred that the compound annual growth rates of area under red chilli in Andhra Pradesh from 1950-51 to 2020-21 was positive and 0.48 per cent, which indicated that there was a slight increase in area under red chilli cultivation in Andhra Pradesh over the past 71 years. The compound annual growth rates of red chilli production and productivity in Andhra Pradesh during the study period were 3.99 per cent and 3.49 per cent respectively. This indicated that increase in productivity was mainly due to increase in production of red chilli in Andhra Pradesh during the study period.

Chilli is one of the important economic crops grown in major regions of the country. The compound growth rates of area, production and productivity of both India and Andhra Pradesh were found to be positive and

significant at 1 per cent level of significance. The results were similar to the results obtained in the study on Trends of area, production and productivity of soybean crop in Madhya Pradesh (Agarwal *et al.*, 2014) and study on Growth rate of chilli production in Guntur District of Andhra Pradesh (Velayutham and Damodaran). There was a gradual increase in area, production and productivity of red chilli in India and Andhra Pradesh over the past 71 years. The compound annual growth rate percentages of area of India and Andhra Pradesh were observed less than the production and productivity growth rates percentage. Improved cultivation practices and introducing high yielding varieties were the major reasons for increasing the production which in turn resulted in increase in productivity.

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