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Estimate the compound growth rate (CGR) of area, production & productivity of groundnut in Chhattisgarh plains

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Abstract

The present study was carried out to estimate the compound growth rate of area, production & productivity of groundnut in Chhattisgarh plains. The current study made use of secondary data on area, production & productivity from 2009-10 to 2018-19 was collected from various government sources including the Directorate of Economics & Statistics and Department of Agriculture etc. To examine the growth rates in area, production and productivity of groundnut in Chhattisgarh plains for the period of 2009-10 to 2018-19 exponential form were estimated. It can be clearly seen from the table that the area and production of groundnut in Chhattisgarh plains registered negative and significant growth rate & productivity of groundnut in Chhattisgarh plains registered negative non-significant growth rate. In context of area Chhattisgarh plains shows negative and significant growth. In context of production Chhattisgarh plains shows negative and significant growth. In context of productivity Chhattisgarh plains shows negative and non-significant growth.

Keywords: compound growth rate, area, production, productivity & significant

1. Introduction

Groundnut (*Arachis hypogaea* L.), is an important crop grown worldwide which is cultivated in more than 100 countries. Groundnut is considered as the world's fourth largest source of edible oil and third most important source of vegetable protein. It is also a major oilseed legume crop in India and meets about 30 per cent of the edible oil requirements in the country. Groundnut is one of the major commercial oil seed crop in India and ranked first in area and second in production in the world. This area constitutes approximately one tenth of the total cultivated area in India. India occupies a prominent position, both in regard to acreage and production of oilseed crops in the world. India is one of the largest producers of oilseeds in the world and occupies an important position in the Indian agricultural economy. Groundnut is called as the 'king' of oilseeds. It is one of the most important food and cash crops of our country. While being a valuable source of all the nutrients, groundnut is a low-priced commodity. Groundnut is also called as wonder nut and poor man's cashew nut. Groundnut is one of the most important cash crops of our country. It is a low priced commodity but it has a valuable source of all the nutrients.

Groundnut is important in the diet, being the major source of vegetable protein and edible fat. The haulms are a rich protein feed for livestock. Shelled groundnuts are basically used as seed, consumed as raw edible groundnuts or after transformation into "prepared" groundnuts (roasted, salted, flavoured, etc.) or into groundnut butter/ paste. The seeds can also be crushed for oil and a by-product as groundnut meal (animal feed). Groundnut oil is used as quality cooking oil with a high smoke point (440°F) and neutral flavour and odour.

2. Materials and Methods

2.1 Method of enquiry and data collection

The current study made use of secondary data on area, production & productivity from 2009-10 to 2018-19 were collected from various government sources including the Directorate of Economics & Statistics and Department of Agriculture etc. to estimate the compound growth rates in area, production and productivity of groundnut.

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2.2. Analytical tools

2.2.1. Computation of growth rate

Annual compound growth rates in area, production and productivity of Groundnut in Chhattisgarh plains was done by fitting an exponential function of the following form.

$$Y = \alpha \beta^t$$

$$\text{Log } Y = \log \alpha + t \log \beta$$

Where,

Y = Area, production & productivity of Groundnut in Chhattisgarh plains

α = Constant

β = Regression coefficient

t = time in year

$$\text{Compound growth rate (\%)} = (\text{Antilog } \beta - 1)100.$$

3. Result and Discussion

To examine the growth rates in area, production and

productivity of groundnut in Chhattisgarh plains for the period of 2009-10 to 2018-19 exponential form were estimated.

3.1. Growth rate in area, production and productivity of groundnut

Growth rate in area, production and productivity of groundnut in Chhattisgarh plains is presented in Table 3.1. It can be clearly seen from the table that the area and production of groundnut in Chhattisgarh plains registered negative and significant growth rate & productivity of groundnut in Chhattisgarh plains registered negative non-significant growth rate. In context of area Chhattisgarh plains shows negative and significant growth. In context of production Chhattisgarh plains shows negative and significant growth. In context of productivity Chhattisgarh plains shows negative and non-significant growth.

Table 1: Compound Growth Rate of area, production and productivity of groundnut

S. No	Region	Compound Growth Rate		
		Area	Production	Productivity
1.	Chhattisgarh Plains	-3.965265764*	-4.080025702*	-0.119498367 ^{NS}

Note: * Significant at 5%, NS = Non-significant

Table 2: Area, production and productivity of groundnut in Chhattisgarh plains

S. No.	Year	Area (ha)	Production (qt)	Productivity (qt/ha)
1.	2009-10	18701	29140	1.56
2.	2010-11	17381	21696	1.25
3.	2011-12	16699	22008	1.32
4.	2012-13	17584	24297	1.38
5.	2013-14	17227	24604	1.43
6.	2014-15	16791	22862	1.36
7.	2015-16	17228	21927	1.27
8.	2016-17	14428	25843	1.79
9.	2017-18	13549	17490	1.29
10.	2018-19	11839	15320	1.29

Source: Directorate of Economics & Statistics Ministry of Agriculture, Govt. of India.

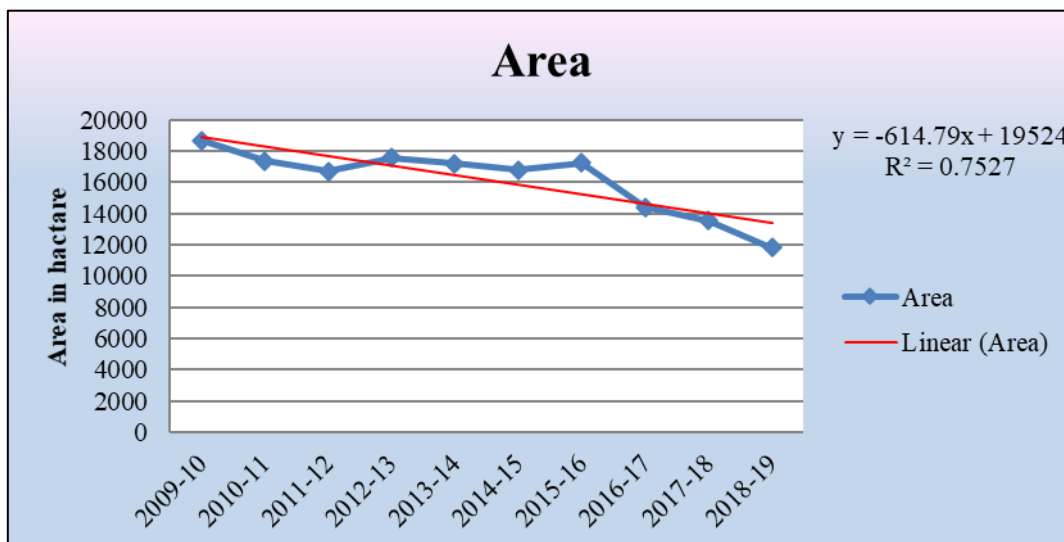


Fig 1: Trend in area of groundnut in Chhattisgarh plains

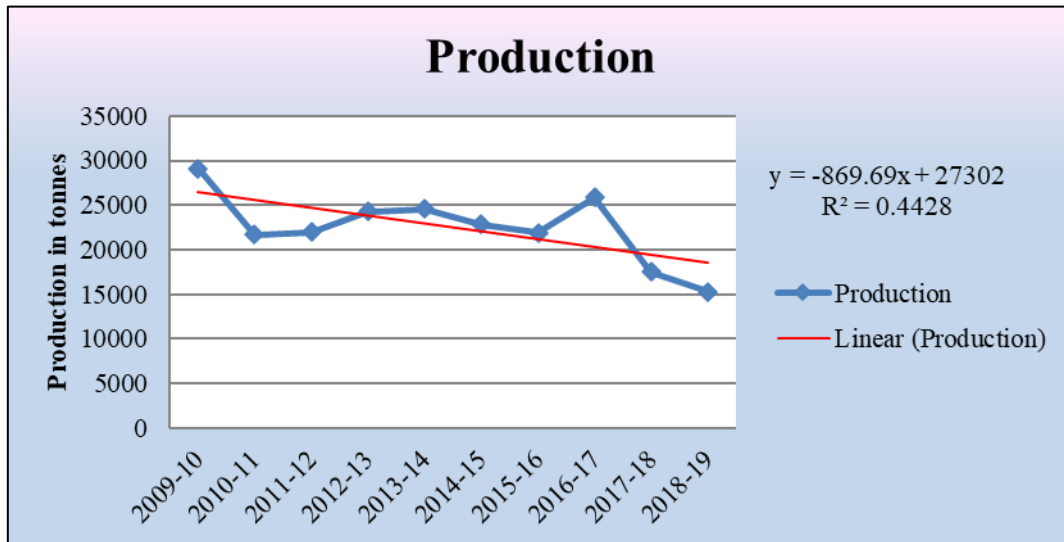


Fig 2: Trend in production of groundnut in Chhattisgarh plains

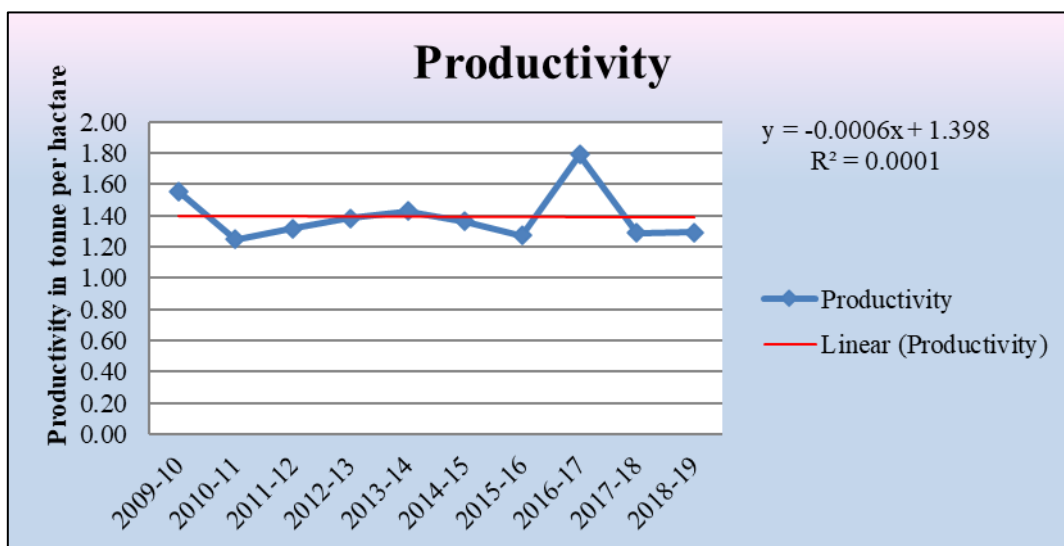


Fig 3: Trend in productivity of groundnut in Chhattisgarh plains

4. Conclusion

Growth rate in area, production and productivity of groundnut in Chhattisgarh plains is presented in Table 3.1. It can be clearly seen from the table that the area and production of groundnut in Chhattisgarh plains registered negative and significant growth rate & productivity of groundnut in Chhattisgarh plains registered negative non-significant growth rate. In context of area Chhattisgarh plains shows negative and significant growth. In context of production Chhattisgarh plains shows negative and significant growth. In context of productivity Chhattisgarh plains shows negative and non-significant growth.

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