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ESTIMATE THE COMPOUND GROWTH RATE (CGR) AND TREND ANALYSIS OF THE AREA, PRODUCTION, AND PRODUCTIVITY OF GROUNDNUT IN INDIA

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ABSTRACT:

Computing the growth of any article over a time period is important for understanding past behavior and for future planning. 'Compound growth rate' is one of the commonly used methods for scheming growth rate models. The present study was carried out to estimate the compound growth rate of area, production, and productivity of groundnut in India from 2010 to 2021. The study revealed that, through exponential growth, production and productivity of groundnut in India registered a positive and significant growth rate, while the area of groundnut in India registered a negative and significant growth rate.

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

Introduction

Groundnut (Arachis hypogaea L.) is a leguminous plant that is widely cultivated in the tropics and subtropics between 40°N and 40°S latitudes. It is valued for its high-oil content and edible seeds. It is the fourth most important source of edible oil and a third most important source of vegetable protein in the world. Groundnut is not only an important oilseed crop of India but also an important agricultural export commodity. Globally, Groundnut covers 327 lakh hectares with the production of 539 lakh tonnes with the productivity of 1648 kg per hectare (FAOSTAT, 2021). With annual all-season coverage of 54.2 lakh hectares, globally, India ranks first in Groundnut area under cultivation and is the second largest producer in the world with 101 lakh tonnes with productivity of 1863 kg per hectare in 2021-22 (agricoop.nic.in). I

The NEH region is a non-traditional area for groundnut production. The crop has been newly introduced for cultivation in NEH region and found successful as rainfed crop during kharif season. It has got very high yield potential. The crop is gaining popularity among farmers of NEH region due to its multiple benefit as food, feed, cover crop and for restoring soil fertility. By far the groundnut is found as most potential field crop for organic production in the North-eastern region due to its high yield potential, ability to grow in marginal soils with minimum input and management and less problem of pests and diseases. However, the yield of groundnut in farmers field is low, mainly due to lack of improved technology available with them. The adoption of appropriate package of practices can increase the productivity of groundnut substantially in the NEH region.

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2. Materials and Methods

2.1 Method and data collection

The current study made use of secondary data on area, production & productivity from 2011- 12 to 2020-21 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.

2.2. Analytical tools

2.2.1. Computation of growth

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

 $Y = \alpha \beta t$

 $Log Y = log \alpha + t log \beta$

Where, Y = Area, production & productivity of Groundnut in India

 $\alpha = Constant$

 β = Regression coefficient

t = time in year

Compound growth rate (%) = (Antilog β -1)100.

3. Result and Discussion

To examine the growth rates in area, production, and productivity of groundnut in India for the period of 2011–12 to 2020–21, exponential forms were estimated.

Growth rate in area, production, and productivity of groundnut in India is presented in Table 3.1. It can be clearly seen from the table that the production and productivity of groundnut in India registered a positive and significant growth rate, and the area of groundnut in India registered a significant growth rate. In the context of the area, India shows negative and significant growth. In the context of production, India shows positive and significant growth. In the context of production, significant growth.

		Compound Growth Rate		
S. No	Country	Area	Production	Productivity
1	India	-0.01923	3.764311	4.760346821

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

The compound growth rate for groundnut area is negative; on the other hand production as well as yield Yield a positive value. This also reveals that yield is contributed more by production than by area. The insignificant area value serves as a warning sign that the area under groundnut should not get shrink in the future.

Table 2: Area, production and productivity of groundnut in India

S.	Year	Area (ha)		
No.			Production (qt)	Productivity (qt/ha)
1	2011-12	5.86	8.26	1411
2	2012-13	4.72	4.7	995
3	2013-14	5.51	9.71	1764
4	2014-15	4.77	7.4	1552
5	2015-16	4.6	6.73	1465
6	2016-17	5.34	7.46	1398





Fig 3: Trend in productivity of groundnut in India

4. Conclusion

One of the important oilseed crops in India is groundnut. The compound growth rate of the area, production, and yield during 2011–12 to 2020–21 reveals that the groundnut area is negative, whereas production and yield show a positive trend value. It highlights the fact that the area under groundnut is

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shrinking. The study revealed that the trend values of groundnut except for area, production, and yield show an increasing trend.

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