
TREND OF AREA, PRODUCTION AND PRODUCTIVITY OF GROUNDNUT IN GUJARAT

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ABSTRACT

India has been one among the top three producing countries of Groundnut in the world. Gujarat, Tamil Nadu and Madhya Pradesh are the major groundnut producing states in the country. Gujarat occupies an important place as supplier of groundnut, groundnut oil, groundnut cake to the rest of the country. However, there has been a consistent fluctuation in the area and production over the years and across the state. Groundnut plays an important role in the agricultural and industrial economy of Gujarat state. Hence, research study on trends of area, production and productivity of groundnut in Gujarat state was conducted. The study revealed that the trend values of groundnut except for area, production and productivity shows an increasing trend. The compound growth rate of the area of groundnut is showing the negative trend, whereas production and productivity shows a positive trend.

KEY WORDS: *Trend, Growth rate, Groundnut*

INTRODUCTION

Groundnut 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. The botanical name for groundnut (*Arachis hypogaea* L.) is derived from two Greek words, *Arachis* means a legume and *hypogaea* means below ground, referring to the formation of pods in the soil (Madhusudhana, 2013). India has been one among the top three producing countries of Groundnut in the world. It ranks second next to China. Nearly 16 per cent of Groundnut production is contributed by India to the world production during 2016.

In India, Gujarat, Rajasthan, Tamil Nadu are the major producing states during 2015-16. Groundnut crop is cultivated in about 4.56 million hectares, with the total production of 6.77 million tonnes and with the average yield of 1486 kg/hectare. The area under groundnut constitutes approximately 3.3 percent of the net sown area in India (Anon., 2016).

Gujarat occupies an important place as supplier of groundnut, groundnut oil, groundnut cake to the rest of the country. Groundnut plays an important role in the agricultural and industrial economy of Gujarat state. Saurashtra region, which known as “*groundnut bowl of India*”. Gujarat cultivates groundnut in about 1.62

million ha with an annual production of 3.05 million tons and productivity of 1879 kg per hectare. In Gujarat, about 85 per cent of the total area under groundnut growing district are in Junagadh, Rajkot, Amreli, Bhavnagar, Surendranagar and Jamnagar. About 90 per cent of the groundnut growing soils in the state are medium black. The rest of the 10 per cent are sandy barns confined to the districts of Bhavnagar and Amreli (Anon., 2018). The area under groundnut shows decline trend over the years due to various reasons. Groundnuts being the major edible oil seed crop in Gujarat, planners are concerned with the declining area. With this background, the present study has been made to study the trends in area, production and yield of groundnut in Gujarat.

METHODOLOGY

Data collection

The study takes into account the secondary data related to the area, production, yield of groundnut from various reports of Directorate of Economics and Statistics, Government of India and Departments of Junagadh Agricultural University. The study takes 27 years period from 1991-92 to 2017-18.

Linear trend

The study was based on the 27 years of data from 1991-92 to 2017-18. Keeping the objective in view, linear trend and compound growth rate for the crop area, production and productivity of groundnut crop in Gujarat state was estimated by fitting the following function.

Linear trend fit is given by the equation;

$$Y = a + bx \quad (1)$$

Where,

Y = Trend value of the dependent variable

a = Constant

b = Regression coefficient

x = Time in years, independent variable

Compound growth rate

$$Y = ab^t \quad (2)$$

Where,

Y = Trend value of the dependent variable

a = Constant

b = Regression coefficient

t = Time in years, independent variable

The compound growth rate is calculated by using the formula. The mathematical equation is given by Logarithmic function,

$$\text{Log } Y_t = \text{Log } a + t \text{ Log } b \quad (3)$$

Where,

Y_t = Area,

T = Time in year, independent variable 'a'

and 'b' are constant production and

productivity is the dependent variable

The present compound growth rate (g) was calculated by using the relationship:

$$g = (\text{Antilog of log } b - 1) * 100 \quad (4)$$

Where,

g = compound growth rate per annum(%)

(Saraswati *et al.*, 2012)

RESULTS AND DISCUSSION

Linear trends of groundnut area, production and productivity in Gujarat is presented in Table 1 and graphically depicted in Figure 1, 2 and 3, respectively. The annual average area, production and productivity of groundnut during 1991-92 to 2016-17 in Gujarat was 18.18 lakh hectare, 23.19 lakh tones and 1294 kg per hectare, respectively. The area of groundnut decrease from 19.41 lakh hectares in 1991-92 to 16.25 lakh hectares in 2016-17 showing a tremendous decrease the area of Gujarat. The reason for declining trend in area under groundnut due to in adequate and uneven rainfall in Saurashtra region and change of cropping pattern in recent years. Production of groundnut was increased from 6.99 lakh tones in 1991-92 to 30.54 lakh tones in 2016-17. Productivity of groundnut was also

increased from 360.37 kg per hectare in 1991-92 to 1879.69 kg per hectare in 2016-17. The productivity of groundnut was significantly increased in the study period. The production and productivity were increased due to adoption of improved production technology and higher use of yield attributing inputs.

Growth rate of groundnut production and productivity in Gujarat was found positive i.e. 3.69 and 4.70 per cent, respectively. While area under groundnut was found negative i.e. -0.96 per cent (Table 2)

CONCLUSION

The compound growth rate of the area, production and yield from 1991-92 to 2016-17 reveals that the groundnut area shows negative trend, whereas production and productivity shows a positive trend value. It highlights the fact that area under groundnut is shrinking. Since groundnut is

cultivable throughout the year, the area under groundnut can be increased with improved cultivars and improved cultural.

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Table 1: Area, production and yield of groundnut in Gujarat

Year	Area (lakh ha)	Production (lakh tones)	Yield (kg/ha)
1991	19.41	6.99	360.37
1992	18.84	20.68	1097.87
1993	20.53	6.76	329.56
1994	19.89	23.80	1196.45
1995	19.02	10.27	540.20
1996	18.34	24.49	1334.73
1997	19.26	26.15	1358.06
1998	19.40	25.77	1328.21
1999	18.26	7.17	392.82
2000	17.44	6.88	394.42
2001	18.87	26.46	1402.02
2002	20.29	10.94	539.32
2003	20.03	44.77	2235.49
2004	19.85	18.12	912.84
2005	19.42	33.58	1729.19
2006	18.52	18.50	998.86
2007	18.57	32.98	1776.37
2008	19.07	26.60	1395.04
2009	18.22	17.56	963.95
2010	19.21	35.75	1860.33
2011	16.86	27.16	1611.10
2012	12.85	7.62	593.32
2013	18.22	54.14	2975.16
2014	14	30.18	2155.78
2015	14.10	23.60	1673.75
2016	16.30	31.29	1920.18
2017	16.25	30.54	1879.69

Table 2: Percent growth rates of groundnut area, production and productivity in Gujarat (1991-92 to 2017-18)

Sr. No.	Particular	Area	Production	Productivity
1	Gujarat	-0.96	3.69	4.70

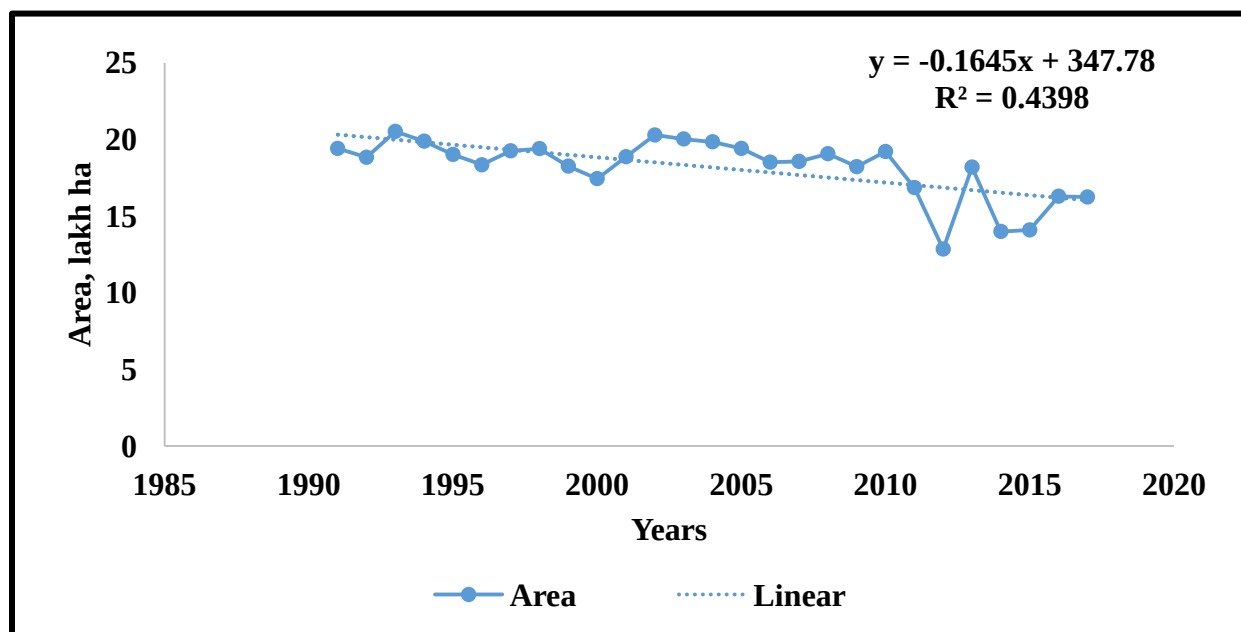


Figure 1: Trend of area under groundnut crop in Gujarat

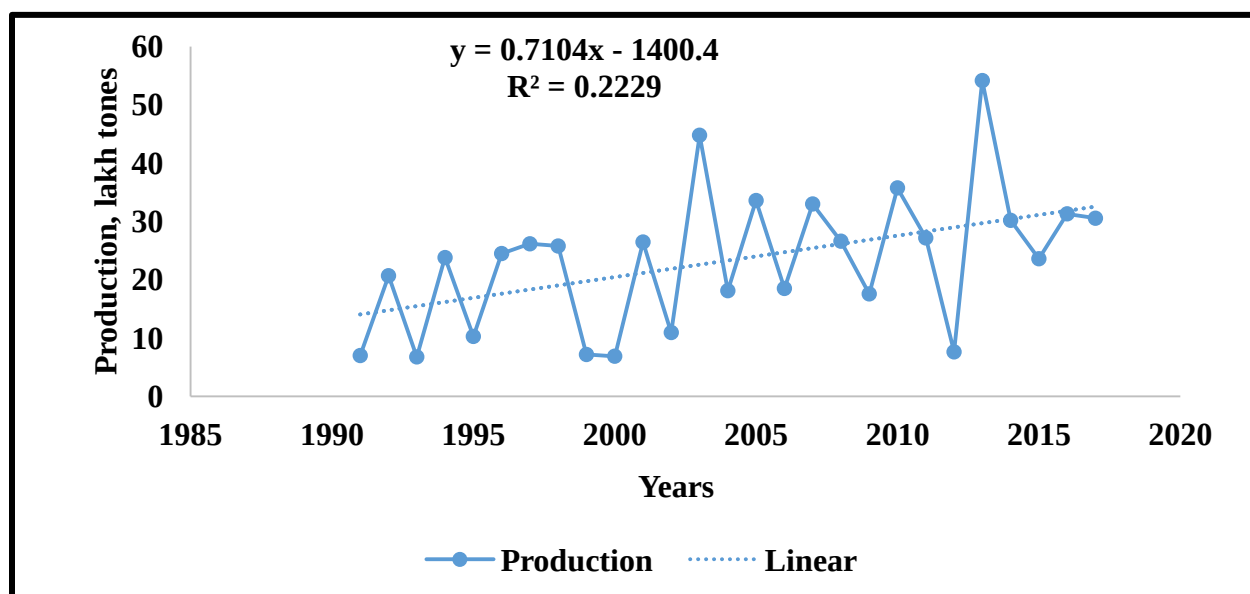


Figure 2: Trend of groundnut production in Gujarat

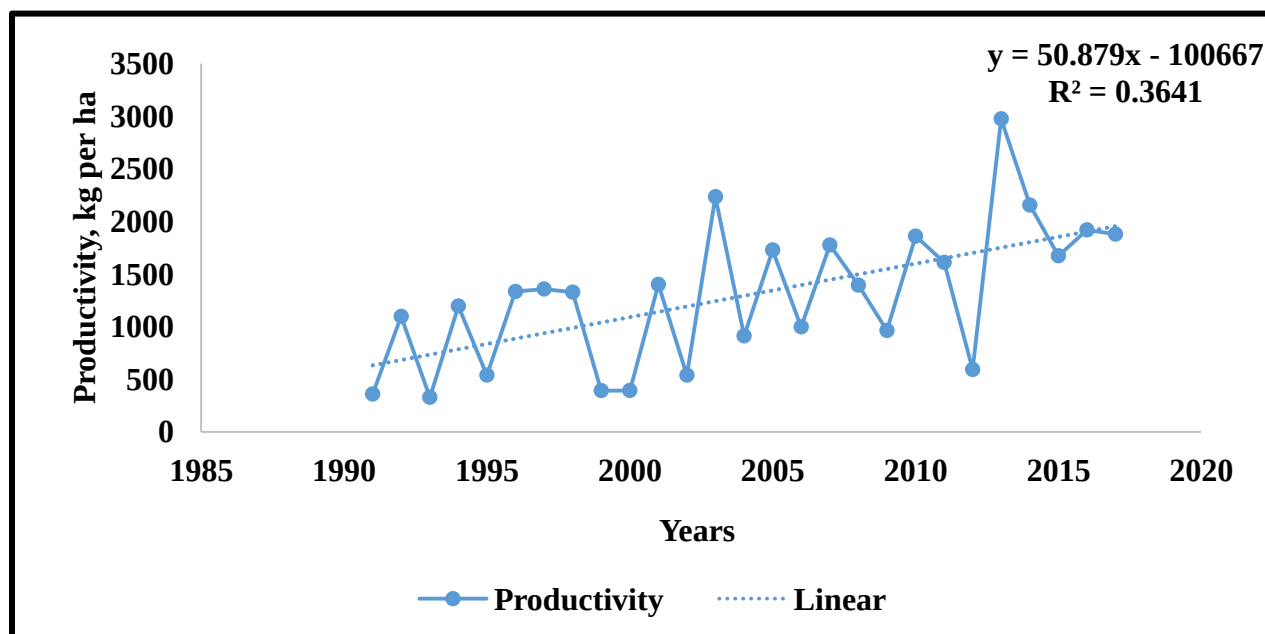


Figure 3: Trend of groundnut productivity in Gujarat

[MS received : September 02 , 2018]

[MS accepted : September 06, 2018]