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Growth rate and trend analysis of groundnut production in Rajasthan

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Abstract

India's share in world production of groundnut is around 19 percent while in area under this crop India accounts for about 27 percent. In terms of area under this crop India ranks first in the world but output is quite low and is nearly a third of those in USA and China and even less than the world average Productivity. Five major states contribute nearly 90 percent production of total groundnut in India. These states are - Gujarat (37%), Andhra Pradesh (20%), Tamil Nadu (13%), Karnataka (8%), Rajasthan (7.7%), and Maharashtra (5.4%). Gujarat and Andhra Pradesh together contribute nearly 58 percent of total production and area under the crop. These study based on secondary data during the period from 1980-81 to 2014-15.

Keywords: area, production, growth rate, trend

Introduction

Groundnut is one of the most important oilseed crops in India. It is an important source of edible oil. It is grown in tropical, sub-tropical and warm temperate regions of the world. Groundnut is considered as "king of oilseeds" and also "poor man's cashew nut". Out of the total world production of groundnut nearly 68 percent is grown in Asia, 24 percent in Africa and remaining 8 percent in other parts (mainly in USA) of the world. It is interesting to note that though more than 100 countries grow groundnut, however, 97 percent of the global area and 94 percent of world's total production of groundnut is contributed by the developing countries. The major groundnut producing countries are China, India, Nigeria, USA, Myanmar, and Indonesia. India's share in world production of groundnut is around 19 percent while in area under this crop. India accounts for about 27 percent. In terms of area under this crop India ranks first in the world but output is quite low and is nearly a third of those in USA and China and even less than the world average Productivity. India has a place of pride by occupying 4th place in the production of oilseed crops in the world after USA, China, and Brazil. India accounts for 10-12 percent of world's oilseeds area and 6-7 percent of world's oilseed production. Five major states contribute nearly 90 percent production of total groundnut in India. These states are - Gujarat (37%), Andhra Pradesh (20%), Tamil Nadu (13%), Karnataka (8%), Rajasthan (7.7%) and Maharashtra (5.4%). Gujarat and Andhra Pradesh together contribute nearly 58 percent of total production and area under the crop. India produces nine major oilseed crops which are groundnut, rapeseed-mustard, soybean, sunflower, safflower, Niger, linseed, castor, and Sesamum. The other minor oilseed crops grown in India are horticultural and forest origin such as coconut and oil-palm. In addition, rice bran and cotton seeds also provide vegetable oils in substantial quantities along with a small quantity from tobacco seed and corn. In this chapter we are presenting the trends in the growth of area, production and productivity of Groundnut oilseed crop in the World and India vis-à-vis Rajasthan during the period 1980-81 to 2014-15.

Objective

1. To find growth rate and Trend Analysis of Groundnut Production in Rajasthan.

Research Methodology

The study is calculated by secondary data. The data collection will be based on the records of the directorate of agriculture and directorate of economic and statistics (DES, Jaipur), govt of Rajasthan and various journals and reports.

The study would cover the area of Rajasthan based on the last thirty years that is 1980-81 to 2014-15.

To examine the stability in the growth of oilseeds across states, the coefficient of variation was estimated using following procedure: Compound Annual Growth Rates (CAGR) was also used in classifying the districts in different categories based on their growth performance. Formula of calculate CAGR is-

The compound annual growth rate (CAGR) of production of Groundnut was estimated as follows:

$$Y_t = Y_0 (1+r)^t \dots\dots\dots (1)$$

Yt denotes the observation (Ground production)

$$Y_t = A + Bt + \epsilon \dots\dots\dots (2)$$

$$\ln Y_t = A + Bt + \epsilon \dots\dots\dots (3)$$

Where, A= ln (Y₀) and B = ln (1+r)

Y_t= Production of Groundnut in the ith period,
 t = a time variable (1, 2, 3....., n) A and B are parameters to be estimated,
 r = compound growth rate, and ε =error term

Growth and Trend Analysis

Table 1 shows growth rate of sown area of groundnut in the World, India vis-à-vis Rajasthan. The growth rate in sown area under groundnut for the world shows a positive trend, albeit, a tortuous pattern. The highest growth rate was observed in 2017-18 which stands at 13.61 percent. In India area sown under groundnut shows a declining pattern although the period with maximum negative rate (28.03 percent) was observed in 2000-01. A similar pattern is also seen for Rajasthan. Though registered a negative growth rate of 15.55 percent in 2000-01, it has exhibited a positive rate everywhere with the highest positive growth rate (84.97 percent) obtained in 2017-18. The cropping pattern in Rajasthan has shifted in favor of groundnut after 2000.

Table 1: Area Growth rate of Groundnut in the World, India and Rajasthan

Year	World	Growth Rate	India	Growth Rate	Rajasthan	Growth Rate
1980-81	19363810	—	7428700	—	212082	—
1990-91	20511158	5.93	8667900	16.68	231789	9.29
2000-01	23082237	12.54	6238100	-28.03	195739	-15.55
2010-11	25100131	8.74	5310000	-14.88	349331	78.47
2017-18	28515387	13.61	4940000	-6.97	646154	84.97

Source: Food and Agriculture Organization of the United Nations and Agriculture Statistics of Rajasthan Column of Growth Rate Calculated by Scholar

Table 2 presents share of area shown of groundnut in the world, India and Rajasthan. India’s share in sown area of groundnut crop in the world has been declining although the period. It peaked in 1990-91 with a share of 42.26 percent but since then it was falling continuously and reached to the level of 17.32 percent in 2017-18. Rajasthan’s share in sown area of groundnut in India has registered a rising trend

except in 1990-91 when it was 2.67 percent. In 2017-18 it climbed to as high as 13 percent of total country’s sown area under groundnut, which is almost doubled of the share in 2010-11. Likewise Rajasthan’s share in the whole world also shown a rising trend except in 2000-01. In 2017-18 Rajasthan claimed 2.27 percent of the total world’s share in sown area of groundnut.

Table 2: Area of Groundnut in the World, India and Rajasthan

Year	India's share in the World	Rajasthan's share in the India	Rajasthan's share in the World
1980-81	38.36	2.85	1.10
1990-91	42.26	2.67	1.13
2000-01	27.03	3.14	0.85
2010-11	21.16	6.58	1.39
2017-18	17.32	13.08	2.27

Source: Calculated by Scholar from Table 1

The CAGR (compound annual growth rate) are calculated with coefficient of variation to explain the relative importance of each crop in India and in the state of Rajasthan. For each crop we have presented not only the growth rates in area, production and yield in tabular form but also illustrated them in figures and diagrams associated with these tables.

Analysis of Trend and Growth of Groundnut Crop

Groundnut is one of three most important oilseed crops in the country. The decade of 1990-91 to 2000-01 show a very growth rate of production of groundnut in the world which stood at 52 percent, but unfortunately during this decade

both India and Rajasthan witnessed negative growth rate in production of groundnut to the extent of 0.95 percent and 17.22 percent respectively. In other decades normal growth rates were observed in world between 15 to 20 percent India has obtained mild negative growth rates (mostly around 2-3 percent) during this four decades period. Rajasthan on the other hand had found positive growth rates in all four decades except the 1990-2000. During 2000-01 to 2010-11 there was spectacular growth in output of groundnut in Rajasthan to the extent of 280 percent. Rajasthan produces nearly 8 percent of total production of groundnut in the country and falls in the five most prominent groundnut producing states of the country.

Table 3: Growth rate of Production of Groundnut in the World, India and Rajasthan

Year	World	Growth Rate	India	Growth Rate	Rajasthan	Growth Rate
1980-81	20584511	-	7223000	-	85946	-
1990-91	23615480	14.72	7094600	-1.78	218370	154.08
2000-01	35816504	51.67	7027500	-0.95	180762	-17.22
2010-11	40871030	14.11	6964000	-0.90	686817	279.96
2017-18	45950901	12.43	6695000	-3.86	1262214	83.78

Source: Food and Agriculture Organization of the United Nations and Agriculture Statistics of Rajasthan, Column of Growth Rate Calculated by Researcher

Table 3 presents data on shares of production of groundnut in the world, India and Rajasthan for the period between 1980-81 and 2017-18. For India the percentage share in the World output of groundnut has been falling continuously during the period. It was 35 percent in 1980-81 declined to 20 percent in 2000-01 and further to 14.6 percent in 2017-

18. For it was just below 2 percent in 1980-81 gone up to 9.9 percent in 2010-11 and further doubled to 19 percent in 2017-18. Similarly Rajasthan’s share in the world has gone up from 0.42 percent in 1980-81 to 1.68 percent in 2010-11 and further to 2.75 percent in 2017-18.

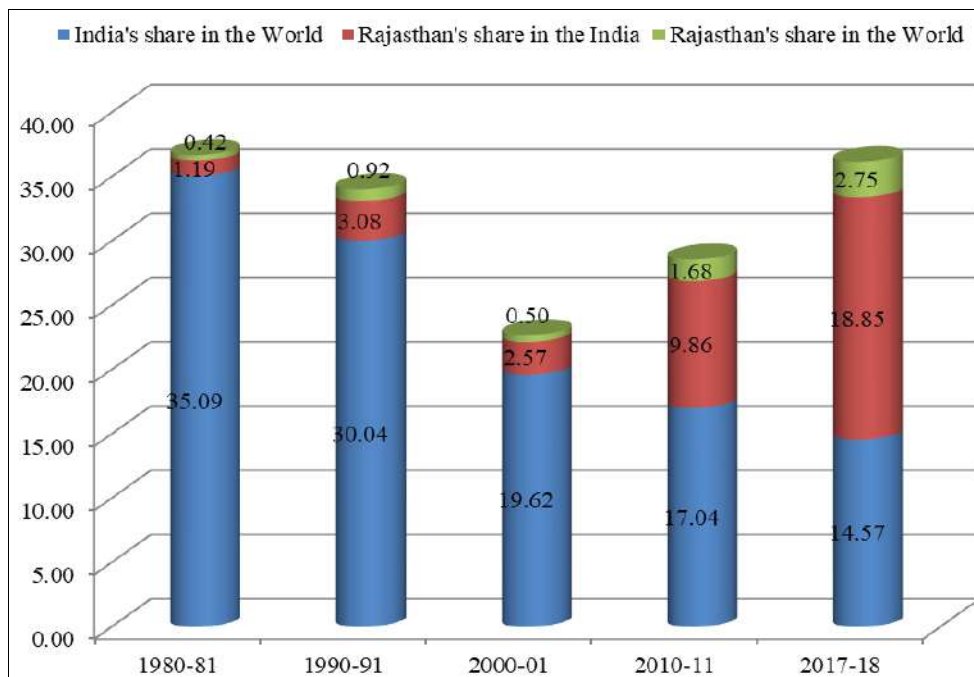
Table 4: Share of Production of Groundnut in the World, India and Rajasthan

Year	India's share in the World	Rajasthan's share in the India	Rajasthan's share in the World
1980-81	35.09	1.19	0.42
1990-91	30.04	3.08	0.92
2000-01	19.62	2.57	0.50
2010-11	17.04	9.86	1.68
2017-18	14.57	18.85	2.75

Source: Calculated by Researcher from Table 4

Figure 1(a) draws on Table 4 for data and illustrates in bar diagram. It shows shares of production of groundnut in India and Rajasthan. The blue colored bars show India’s share in production of groundnut the world which falls continuously over time period from 35 percent in 1980-81 to 19 percent in 2017-18. But except in 2000-01 the share of

Rajasthan in both India and the world have shown an upward trend during the entire period. Rajasthan produces nearly 19 percent of groundnut in 2017-18 in the country and about 2.75 percent in the world.

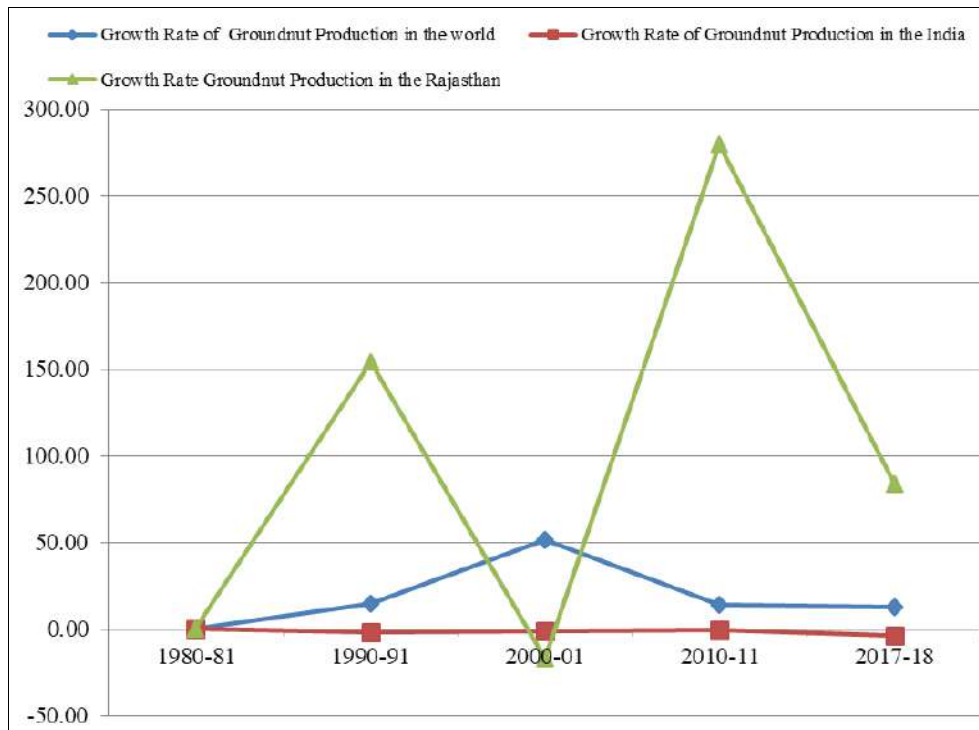


Source: Source – Table 4

Fig 1(a): Share of Production of Groundnut in the World, India and Rajasthan

Figure 1(b) shows growth rate of groundnut production in world, India, and Rajasthan. The blue line indicates that the world’s groundnut production has reached the peak in 2000-01 and subsequently fell. The Indian groundnut production in red line shows a relatively stable growth rate over time. The growth rate of groundnut production for Rajasthan has

shown highly fluctuating behavior. It reached to around 150 percent positive growth rate in 1990-91 and after fell down significantly and was -17 percent in 2000-01. It again reached to all time high of over 250 percent in 2010-11 and fell down to around 50 percent in 2017-18.



Source: Table 4

Fig 1(b): Growth Rate of Groundnut Production in the World, India and Rajasthan

Conclusion

Rajasthan on the other hand had found positive growth rates in all four decades except the 1990-2000. During 2000-01 to 2010-11 there was spectacular growth in output of groundnut in Rajasthan to the extent of 280 percent. Rajasthan produces nearly 8 percent of total production of groundnut in the country and falls in the five most prominent groundnut producing states of the country. Rajasthan the share in production of groundnut was rather a happy situation when its share continued to experience increasing trend during the entire period. Rajasthan on the other hand had found positive growth rates in all four decades except the 1990-2000. During 2000-01 to 2010-11 there was spectacular growth in output of groundnut in Rajasthan to the extent of 280 percent. Rajasthan produces nearly 8 percent of total production of groundnut in the country and falls in the five most prominent groundnut producing states of the country.

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