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Growth Rate of area, Production and Yield of Oilseed Crops in Rajasthan vis-a-vis SKNAU Jobner

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Abstract—*The present study is related to the Growth rate of area, production and yield of oilseed crops in Rajasthan vis-à-vis SKNAU Jobner. The coverage under oilseeds in Rajasthan during 1990-91 was about 29.5 lakh hectare which increase to above 45.6 lakh hectare in 2011-12. Production increased from 22.8 lakh to 57.4 lakh tones.. This study was based on secondary data. The secondary dated on area, production and yield of Rajasthan and command area of SKNAU, Jobner for past years were collected from various sources like the Year wise Statistical Abstract of Rajasthan (Directorate of Economics & Statistics, Rajasthan, Jaipur), Basic Agricultural Statistics of Rajasthan (1990-2012) (Directorate of Economics & Statistics, Rajasthan, Jaipur), Vital Agricultural Statistics Rajasthan (2011-12) (Directorate of Economics & Statistics, Rajasthan ,Yojana Bhawan, Jaipur) and Revenue records of area, production and yield of crops for 2011-12. For working out the growth to examine the changes in area, production and productivity of crops for the period of 1990-91 to 2011-012 compound growth rates were computed by fitting exponential function of the form* $Y_t = Yo\ (1+r)^t$ *.The study revealed positive growth rate in production for selected oilseeds crops like groundnut, soybean, sesame, rapeseed & mustard and castor seed except linseed in Rajasthan but in case of command area of SKNAU Jobner all selected crops (groundnut, sesame and rapeseed & mustard) recorded positive growth rate in area, production and productivity. Castor seed is profitable for Rajasthan but in case of SKNAU the groundnut is favorable. Only groundnut recorded positive and significant growth rate of area production and productivity for Rajasthan and command area of SKNAU Jobner (1990-91 to 2011-12). The yield growth rate further reveals that there has been a substantial change in the yield of all oilseed crops. There is an urgent need to evolve such varieties of oilseeds which sustained in the farmers fields and maintain sustainable yield.*

1. INTRODUCTION

The coverage under oilseeds in Rajasthan during 1990-91 was about 29.5 lakh hectare which increase to above 45.6 lakh hectare in 2011-12. Production increased from 22.8 lakh to 57.4 lakh tones.. This indicated that production of oilseed increased mainly on account of increase in area and production during the period. Among oilseed crops Groundnut, soybean, sesame, rapeseed & mustard are popular in the state. These crops not only promote health of the population and better environment but have also high potential to generate economic betterment and employment too. An attempt has been made under this paper to estimate growth rate of area, production and productivity of important oilseed crops of the state.

2. METHODOLOGY

This study was based on secondary data. The secondary dated on area, production and yield of Rajasthan and command area of SKNAU, Jobner for past years were collected from various sources. The sources of published data were:

- Year wise Statistical Abstract of Rajasthan (Directorate of Economics & Statistics, Rajasthan, Jaipur)
- Basic Agricultural Statistics of Rajasthan (1990-2012) (Directorate of Economics & Statistics, Rajasthan, Jaipur)
- Vital Agricultural Statistics Rajasthan (2011-12) (Directorate of Economics & Statistics, Rajasthan, Yojana Bhawan, Jaipur).
- Revenue records of area, production and yield of crops for 2011-12.

To estimate the growth rate of area, production and yield of oilseed crops under study in Rajasthan and SKNAU Jobner in 1990-91 to 2011-12, further the period was divided into three segments-:

Period I: Represent from 1990-91 to 1999-2000

Period II: Represent from 2000-01 to 2011-12

Period III: Represent from 1990-91 to 2011-12 (Overall Period)

3. ESTIMATION OF COMPOUND GROWTH RATES:

For working out the growth to examine the changes in area, production and productivity of crops for the period of 1990-91 to 2011-012 compound growth rates were computed by fitting exponential function of the form:

$$Y_t = Yo\ (1+r)^t$$

Where,

Y_t = Area/production/productivity in `t^{th}' year

Yo = Production in initial year

r = Compound growth rate

t = Time variable

4. RESULTS AND DISCUSSIONS

The compound growth rates of area, production and productivity of oilseeds crops in Rajasthan are given in table-1. The production of groundnut recorded significant growth rate of 4.81 per cent per annum largely due to significant growth in productivity by 3.07 per cent per annum with static growth in area. Soybean recorded 3.03 per cent non-significant growth in Production which is largely attributable to 6.74 per cent significant growth in area with only slight increase in productivity by 3.47 per cent per annum. Sesame registered positive and non-significant growth in production by 0.36 per cent per annum which is largely due to negative and non-significant area growth by 0.19 per cent per annum with static and non-significant productivity growth at the rate of 0.55 per cent annually. The rabi oilseed crop rapeseed and mustard recorded significant production growth by 2.07 per cent per annum with low and non-significant growth in area (Singh *et.al* 1995 observed same growth rate). The production of linseed recorded significant and negative growth at the rate of 11.75 per cent per annum which is largely due to 16.65 per cent negative and significant growth rate in area with positive and significant growth in productivity by 5.87 per cent per annum. The production of castor seed registered a high positive, significant growth at the rate of 13.74 per cent which is mainly due to significant area growth by 12.76 per cent per annum with a low and non-significant growth of productivity by 0.87 per cent annually. In production castor seed recorded paramount growth rate, groundnut recorded moderate growth rate and linseed recorded trivial growth rate.

5. GROWTH RATE FOR FIRST PERIOD (1990-91 TO 1999-2000)

The production of soybean recorded by highest and significant growth rate of 19.27 per cent per annum. The castor seed recorded highest and significant growth rate in area by 17.12 per cent annually. The productivity of linseed recorded highest and significant growth rate of 5.24 per cent per annum which is due to lowest and negative with significant growth rate in area by 16.44 per cent per annum. The production of sesame recorded by lowest and negative with significant growth rate by 20.81 per cent per annum which is largely due to 10.66 per cent negative and non-significant growth rate in productivity. In production soybean recorded paramount growth rate, castor seed recorded moderate growth rate and sesame recorded trivial growth rate.

6. GROWTRH RATE FOR SECOND PERIOD (2000-01 TO 2011-12)

The production of castor seed recorded by highest and significant growth rate of 16.52 per cent per annum which is largely due to 12.43 per cent significant growth rate in area. The productivity of linseed recorded by highest and significant growth rate of 7.76 per cent per annum which is due to negative and lowest area growth rate of 7.07 per cent annually. The production of soybean recorded lowest and negative with non-significant growth rate in all oilseeds by 2.85 per cent per annum and rapeseed and mustard recorded lowest and significant growth rate in productivity by 2.90 per cent annually. In production castor seed recorded paramount growth rate, groundnut recorded moderate growth rate and soybean recorded trivial growth rate.

7. COMPOUND GROWTH RATES OF AREA, PRODUCTION AND PRODUCTIVITY

The compound growth rates of area, production and productivity of oilseed crops in command area of SKNAU are given in table-2. The production of groundnut recorded significant growth rate of 8.48 per cent per annum largely due to increase in productivity by 5.62 per cent per annum with static growth in area. Sesame registered positive and non-significant growth in production by 2.59 per cent per annum which is largely due to positive and non-significant area growth by 0.14 per cent per annum with good productivity growth at the rate of 2.45 per cent annually. The rabi oilseed crop rapeseed and mustard recorded significant production growth

Table 1: Compound growth rates of area, production and productivity of oilseeds in Rajasthan

Oilseed crops	First Period (1990-2000)			Second Period (2000-12)			Overall (1990-2012)		
	Area	Production	Yield	Area	Production	Yield	Area	Production	Yield
Groundnut	2.74 (1.4133)*	5.01 (2.7017)*	2.22 (1.9410)	5.60 (0.8590)***	9.83 (3.3185)**	5.76 (2.2329)**	1.68 (0.5352)***	4.81 (1.1483)***	3.07 (0.7592)***

Soy bean	16.22 (2.6011)***	19.27 (3.6039)***	2.63 (1.8038)	4.09 (1.2347)***	-2.85 (12.7212)	5.57 (2.5011)*	6.74 (0.8918)***	3.03 (4.0530)	-3.47 (0.8813)
Sesame	-11.36 (1.4165)***	-20.81 (3.8006)***	-10.66 (4.0898)**	8.27 (2.2341)***	7.83 (9.4667)	6.46 (5.2419)	-0.19 (1.2760)	0.36 (3.2095)	0.55 (2.0235)
Rapeseed & mustard	2.75 (0.9412)**	3.84 (1.4325)**	1.06 (1.3603)	4.70 (2.7100)	6.71 (3.5329)*	2.90 (0.7994)***	0.99 (0.8619)	3.09 (1.0716)***	2.07 (0.3712)****
Linseed	-16.44 (1.8047)***	-12.06 (2.4708)***	5.24 (1.5020)***	-7.07 (4.6173)	-1.42 (6.0118)	7.67 (2.0493)***	-16.65 (1.5223)***	-11.75 (1.8708)***	5.87 (0.6607)****
Castor seed	17.12 (4.8071)***	18.56 (7.2414)**	1.23 (4.3758)	12.43 (4.2506)*	16.52 (4.7449)***	5.36 (3.3502)	12.76 (1.5362)***	13.74 (1.9358)***	0.87 (1.3003)

Note: Figure in parenthesis are standard error.
* Significant at 10%, ** Significant at 5%, *** Significant at 1%.

in productivity by 2.90 per cent annually. In production castor seed recorded paramount growth rate, groundnut recorded moderate growth rate and soybean recorded trivial growth rate.

The compound growth rates of area, production and productivity of oilseed crops in command area of SKNAU are given in table-2. The production of groundnut recorded significant growth rate of 8.48 per cent per annum largely due to increase in productivity by 5.62 per cent per annum with static growth in area. Sesame registered positive and non-significant growth in production by 2.59 per cent per annum which is largely due to positive and non-significant area growth by 0.14 per cent per annum with good productivity growth at the rate of 2.45 per cent annually. The rabi oilseed crop rapeseed and mustard recorded significant production growth in 3.15 per cent which was largely due to significant yield growth by 2.81per cent per annum with low and non-significant growth in area. The growth rate of production in sesame was 3rd most important oilseed crop after groundnut and rapeseed & mustard in the command area of SKNAU.

8. GROWTH RATE FOR FIRST PERIOD (1990-91 TO 1999-2000)

The sesame registered negative and lowest significant growth in production by 13.75 per cent per annum which was largely due to negative and significant area growth by 12.14 per cent per annum with negative and non-significant productivity growth at the rate 1.84 per cent annually. The groundnut registered highest and positive, significant growth in production by 14.36 per cent per annum which was largely due to positive and significant growth in area and non-significant in productivity.

9. GROWTH RATE FOR SECOND PERIOD (2000-01 TO 2011-12)

The oilseed crop sesame registered highest and significant growth in production by 10.44 per cent annually which was largely due to positive and Non-significant productivity growth by 13.81 per cent per annum with lowest and negative, significant area growth at the rate 1.84 per cent per annum. Rabi crop rapeseed and mustard registered lowest and significant growth rate in productivity.

Table 2: Compound growth rates of area, production and productivity of oilseeds in SKANU

Oilseed crops :	First Period (1990-2000)			Second Period (2000-12)			Whole Rajasthan (1990-2012)		
	Area	Production	Yield	Area	Production	Yield	Area	Production	Yield
Groundnut	7.43	14.36	6.44	3.66	8.85	5.01	2.70	8.48	5.62
	(2.1436)***	(5.0727)**	(3.8994)	(1.5711)**	(2.9730)**	(1.8324)**	(0.6943)***	(1.3225)***	(0.9156)***
Sesame	-12.14 (3.0447)***	-13.75 (3.9613)***	-1.84 (4.0148)	10.44 (3.3380)**	13.81 (5.5300)**	3.05 (4.5932)	0.14 (1.6651)	2.59 (2.6105)	2.45 (1.5609)
Rapeseed & mustard	-0.99 (1.1646)	-0.68 (1.8911)	0.31 (1.8778)	3.87 (1.6814)**	7.70 (2.1592)***	3.69 (1.0715)***	0.33 (0.6192)	3.15 (0.8536)***	2.81 (0.5154)***

Note: Figure in parenthesis is standard error.

10. CONCLUSION

The study reveals that a positive growth rate in production of all oilseed crops except linessd has been observed in the state. Where as in case of command area of SKNAU Jobner recorded positive growth rate in area, production and productivity of all selected oilseed crops. However, growth rate is higher in groundnut and low in sesame for Rajasthan and as well as command area of SKNAU jobner. The yield growth rate further reveals that there has been a substantial change in the yield of all oilseed crops. There is an urgent need to evolve such varieties of oilseeds which sustained in the farmers fields and maintain sustainable yield.

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REFERENCES

[1] Singh, R.P and Rani, N. (2013),"To study the growth rate of area, production and productivity of fruit crop in Jharkhand",*Journal of Economic & Social Development*, Vol - IX, No. 1, ISSN 0973 - 886X

[2] Kumawat R.C and P.C.Meena, (2005),"Growth and instability in area, production and yield of major spice crops in Rajasthan vis-à-vis",*Journal of Spices and Aromatic Crops*, 14(2):102-111

[3] Kumar, P.R. and Singh, N.P. (1990),"Growth Analysis of Rapeseed & Mustard",*Agriculture Situation in India*, XLIV(11):915.

[4] Pal, Suresh and Sirohi, A.S. (1988),"Sources of Growth and Instability in the Production of Commercial Crops in India",*Indian Journal of Agricultural Economics*, 43(3):456-463.