

Instability in groundnut production in eastern regions - a relook

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ABSTRACT

A decreasing trend in groundnut acreage in India and major groundnut growing states has been observed which is more pronounced during the period 1990-91 to 1999-2000. The overall acreage and yield trend during the period 2000-01 to 2008-09 for the country is positive but marked with wide fluctuations. Comparing Eastern Indian states, West Bengal has shown brilliant performance in terms of area, production and yield growths though this state was witnessed of high level of instability during 1979 to 1990. It is revealed from the study that area change is the major component of change in groundnut production in Eastern Indian states.

Keywords: Groundnut, compare, states, brilliant

Connoisseurs of oilseeds adore groundnut as the king of oilseeds. In India, groundnut constitutes 45% of oilseeds acreage & 55% of total oilseeds production. However, the kingdom of this particular crop is not well spread throughout the country. Southern states, covering Tamil Nadu, Gujrat, Maharashtra, Karnataka, Andhra Pradesh represent the main geographical bastion (80%

coverage) of the crop. On the other hand, the Easter Zone comprising the states of West Bengal, Orissa, Bihar & Jharkhand has an acreage of less than 2% of the total area.

It is estimated that required consumption demand of groundnut by the end of 2020 would be 14 million tons. Considering its current production level around 8.4 million tons we have to accelerate acreage at least 2.2% per annum to reach the projected demand. Introduction of new cultivars and competitive crops and interaction of various biotic & a-biotic factors have made us skeptical about the future of the crop. The hope relies on unearthing new regions, specifically rainfed, stressed

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& disfavor able lands suited to this crop and finding location specific cultivars with proven technologies. Keeping in view of the present scenario of groundnut cultivation in the country we have attempted here to focus the eastern region for groundnut prospects in terms of area, production & yield growth. In addition, we would discuss the magnitude of production instability along with instability in acreage expansion & yield concerning the regions over three decades. Simultaneously we shall delve into the components of change in the mean production of groundnut at two segments of time.

METHODOLOGY

This exercise is broadly divided into two parts. The first part oversees trend of area, production and yield of groundnut accruing to the major groundnut growing states during the last two decades. In the second part, the prospects of groundnut in eastern region in terms of growth-trajectory have been discussed. In that part an attempt has also been done to quantify the magnitude of instability in production, acreage and yield of the crop across the eastern states. Additionally effort has been given to decompose the components of changes in average production between two segments of time periods.

The exercise is based on secondary published data from different sources. The analytical tools consist of using exponential growth curves to examine trends. The instability has been studied by weighted co-efficient of variation (CV) measuring variation from de-trended (unexplained) curve. Thus, $Instability = CV \sqrt{1 - R^2}$ where R^2 refers to explained proportion of the fitted curve. Decomposition of average production changes is being done as advocated by Hazell³.

RESULTS AND DISCUSSION

Growths of area, production and yield across the major groundnut growing states relating to different time periods have been estimated. India's position is also portrayed in Table-1.

Table 1: Compound Growth Rates of Groundnut Production

States	Overall period	1990-'91 to 1999-'2000	2000-01 to 2008-09
Andhra Pradesh	-3.04 (-2.50)	-3.89 (-3.18)	7.64 (1.42)
Gujrat	3.25 (0.11)	1.29 (-0.18)	3.22 (-0.28)
Uttar Pradesh	-3.67 (-2.43)	-1.79 (-1.18)	-2.47 (-1.03)
Karnataka	-3.81 (-1.36)	-1.27 (0.97)	0.26 (0.22)
Maharashtra	-3.51 (-3.97)	-3.70 (-4.92)	-2.37 (-2.58)
Madhya Pradesh	-0.51 -1.20)	1.59 (-1.32)	-0.98 (-1.56)
Orissa	-6.92 (-6.24)	-16.71 (-12.75)	6.36 (3.22)
Rajasthan	2.47 (0.70)	2.38 (0.71)	10.04 (3.98)
Tamil Nadu	-2.94 (-4.63)	-0.89 (-4.29)	0.30 (-2.39)
India	-1.51 (-2.10)	-1.71 (-2.36)	2.84 (0.15)

Figures in the parenthesis indicate the estimated value of compound growth rate of ground nut area

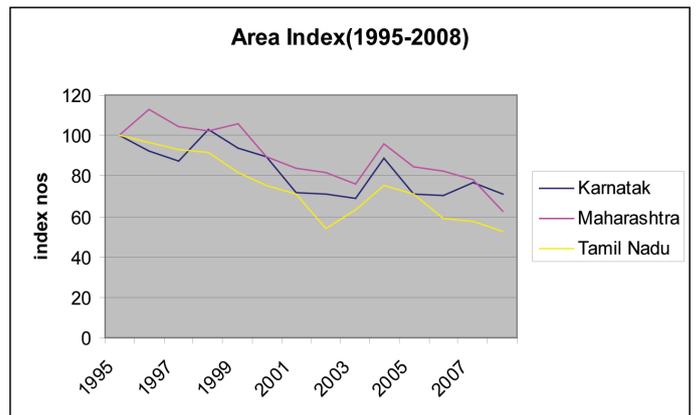


Fig. 1

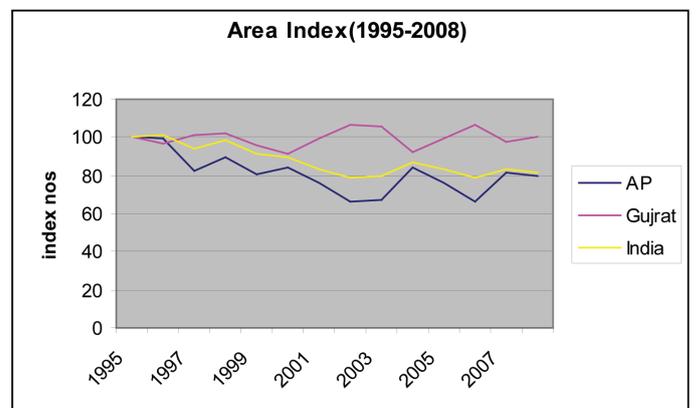


Fig. 2

³Instability in Indian Foodgrain Production: Peter B.R. Hazell, IFPRI,1982

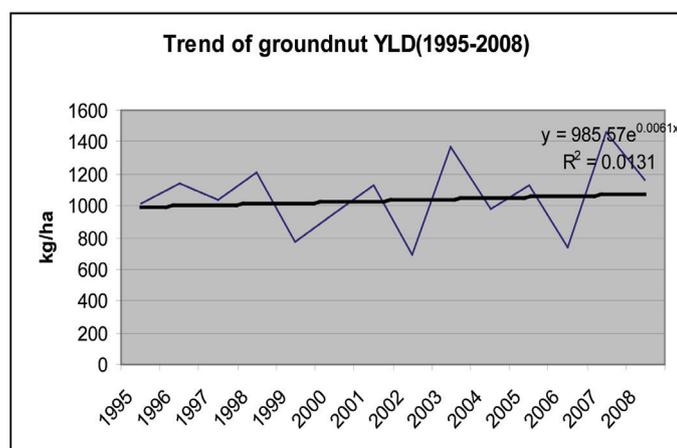


Fig. 3

Overall impression on above estimates suggests that there has been a declining trend in groundnut acreage in India and major groundnut growing states. Declining rates in acreage expansion in all most all the major states are more visible during the first phase. In the second phase Karnataka & Andhra Pradesh (AP) reversed their earlier trajectory. However, their moves are statistically not significant. Similarly, production trend in India

and in the groundnut leading states showed similar results. Overall yield trend for the country is positive but marked with wide fluctuations.

Table 2 exhibits growth estimates of area, production and yield of groundnut across states in eastern region in different segments of time period. West Bengal has shown brilliant performance in terms of area, production & yield growths during the whole period. Production growth in this state had been as high as 63% during the first phase. Yield growth was all at higher level. During the last decades it witnessed steady growths in above indicators. All the estimates relating to West Bengal have been found statistically significant. In contrast Bihar recorded poor performance over the entire period in terms of acreage & production growth. For Bihar, yield growth was positive but statistically insignificant. Orissa performed well during eighties but lost its momentum during the last phase. Area as well as production drastically reduced in the last decades. Of late, Jharkhand evidenced steady growth in groundnut in terms of area, production and yield growths.

Table 2: Percentage Growth of Area (A), Production (P) and Yield(Y) of Groundnut in Eastern Region

States	All through(1979-2003)			Phase-I(1979-1990)			Phase-II(1990-2003)		
	A	P	Y	A	P	Y	A	P	Y
W.B.	14.00	19.00	5.09	3.50	63.50	18.00	6.20	8.30	2.05
Orissa	-2.63	-3.78	-1.17	10.69	11.27	0.52	-10.08	-12.09	-2.23
Bihar	-7.18	-6.26	0.99	-10.48	-8.33	2.32	-3.32	-4.11	-0.83
Jharkhand	1.57	2.78	1.12	2.96	4.60	1.65	1.98	6.48	4.41

Table 3: Measurements of Instability in Area, Production and Yield of Groundnut across Eastern States of India

States	Co-efficient of area instability			Co-efficient of production instability			Co-efficient of yield instability		
	All period	Phase I	Phase II	All period	Phase I	Phase II	All period	Phase I	Phase II
W.B.	29.27	18.50	11.60	38.76	30.98	17.20	23.55	28.86	8.79
Orissa	59.98	9.04	49.83	67.17	18.62	66.66	15.95	13.17	15.87
Bihar	42.39	25.02	51.84	51.36	51.50	57.04	39.25	34.68	43.68
Jharkhand	17.24	19.37	12.07	27.08	29.69	18.43	20.50	23.83	9.86

West Bengal was witnessed of high level of instability in area, production and yield during the first period

under study as can be seen in Table 3. However, the magnitudes of instability for all the indicators were

reduced in nineties. Instability of yield (8.79%) was found within the tolerance limit the second phase. Jharkhand also showed less fluctuation in yield during the second phase. Bihar evidenced wide fluctuation in area, production and yield irrespective of time segments. Orissa recorded high volatility in area, production and yield in recent decade.

Mean yield change accounts for 13.18% of the increase in groundnut production in West Bengal as revealed by Table-4. On the other hand, changes in area contribute 63% of change in average production between the phases. Thus, area change is the major component of change in groundnut production. Area effect has been dominated in all the eastern states. Changes in covariance between areas and yields are not important in accounting for increases/decreases in production across the states. The interaction effect between changes in mean yield and mean area is relatively large for West Bengal.

Table 4: Components of Change in Average Production between Two Phases (in per cent)

Source of change	W.B.	Orissa	Bihar	Jharkhand
Yield effect	13.18	-35.63	-19.54	35.57
Area effect	62.68	-86.36	107.48	51.44
Interaction effect(mean area and mean yield)	28.92	16.76	14.81	4.57
Area & yield covariance effect	-4.79	5.23	-2.75	8.40

CONCLUSION

There is a need for identification of the niche areas of groundnut in eastern regions, particularly in West Bengal & Jharkhand. It is reported that groundnut is gaining importance in Red Laterite region in W.B. That area is relatively rain-fed area. The possibility of groundnut cultivation in large scale under existing systems in those areas needs to be examined in depth. Similarly, large tracts in Jharkhand are deprived of irrigation. A growth of area, production & yield of groundnut in West Bengal ushers is a new hope with this crop in future.

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