

VARIABILITY AND GROWTH OF GRAM PRODUCTION IN MADHYA PRADESH

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ABSTRACT

Gram is a very important pulse crop in the leguminous family. It is highly nutritious and places third in the important list of the food that are cultivated throughout the world. In India Gram is grown in rain fed area and Madhya Pradesh produce major share of 42% in the Indian production. The secondary data were collected for area, production and productivity of Gram Pertains 41 years i.e.1972-73 to 2012-13 from various issues of govt. publication. The area, production and productivity of Gram increased in all the period. The compound growth rate of Gram was 1.46,2.97 and 1.6 per cent of area production and productivity in Madhya Pradesh respectively. The variation in area, production and productivity were 19.2, 37.10 and 22.77 per cent found in Madhya Pradesh.

KEYWORDS: Gram, Area, Production, Productivity, Variability

INTRODUCTION

Gram is a very important pulse crop in the leguminous family. It is highly nutritious and places third in the important list of the food that are cultivated throughout the world. India is the largest producer of Gram contributing to around 70% (around 6 MT) of the world's total production. In India Gram is grown in the rain fed areas as these are best suited for its production. Madhya Pradesh, Uttar Pradesh, Rajasthan, Maharashtra and Andhra Pradesh are major Gram producing states in India. Madhya Pradesh produces the major share of 42% in the Indian production. The area of Gram in Madhya Pradesh to be increased by 4.62% in the 2013-14(31.6l lakh) over the year 1999-2000. The production of Gram found to be increased by14.6% per cent in 2013-14 over the 1999-2000.While the average yield of Gram in Madhya Pradesh was found to 1064kg/ha by 10.53per cent in the 2013-14 over the year 1999-2000. This showed that production of Gram increased in the state by the effect of productivity not area. Therefore the present study was undertaken with an objective to know the nature of compound growth rate, variability and relative change.

RESEARCH METHODOLOGY

The time series secondary data on area, production and productivity pertains to last 41 years i.e. 1973 to 2012 were collected from various issues of Madhya Pradesh Agricultural Statics published by directorate of farmer welfare and Agriculture development Madhya Pradesh Bhopal and Commissioner of Land Records Gwalior. The Triennium average Compound Growth Rate, Variability and relative change were analyzed. The whole period further divided in two sub periods first is T₁ period (1972-73 to 1992) and T₂ (1992-93 to 2012-13). The whole period consider as period T₃.

RESULTS & DISCUSSIONS

The compound growth rate, variability, and relative change in percentage of area, production and productivity of Gram during the perids were worked out.

Relative Change in Area, Production and Productivity

The data presented in Table – 1 The area of Gram is increased in all the three periods with absolute change of 413.60, 264.33 and 1172 Th. ha. during T₁, T₂ and T₃ periods respectively. The relative change of area of Gram was found maximum in T₃ period (71.10 %) over T₁ (25.10 %) and T₂ (10.35%). The production of Gram is also shown same trends. The productivity of Gram was increased maximum in T₃ period as compared to other periods with 419.10 kg/ha. Absolute change. (ahirwar2007)

On the basis of above, it can be concluded that the production of Gram increased in all the periods and it was mainly brought by expansion of acreage during T₁ and T₃ periods while in T₂ period it was brought by productivity.

Table 1: Change in Area, Production and Productivity of Gram

Period		Base Year (Th.ha.)	Current Year (Th. tonnes)	Absolute Change (kg/ha)	Relative Change (%)
T1	A	1647.43	2061.00	413.60	25.10
	P	1060.95	1644.40	583.50	55.00
	Y	592.61	699.36	106.80	18.00
T2	A	2555.07	2819.40	264.33	10.35
	P	1988.27	2940.87	952.60	47.91
	Y	760.02	1011.74	251.72	33.12
T3	A	1647.43	2819.40	1172.00	71.10
	P	1060.95	2940.87	1879.90	177.20
	Y	592.61	1011.74	419.10	70.70

Growth in Area, Production and Productivity

The percentage growth rate shows the growth over the mean value of area production and productivity. The estimates on trend value and percentage growth rate for T₁, T₂ and T₃ periods are presented in Table 2. There were a positive growth in area of Gram in all the periods but it is significant in only T₁ period and T₃ period. The trend analysis indicates that the T₃ period shows highest linear growth rate of (1.40%) followed by T₁ (1.32%) and T₂ (0.43%) in area of Gram in total. The compound growth rate of area was also positive in all the periods. The production of Gram is increasing significantly in all the periods. The linear growth is highest in T₁ period as compared T₂ and T₃ periods. The productivity of Gram is also increasing significantly in all the periods. The linear growth is highest in T₃ (1.58%) period followed T₂ (1.36%) and T₁ (0.88%). (Gautam2013)

Table 2: Growth in Area, Production and Productivity in M.P

Period	Particulars	Area	Production	Yield
T1	b value	25.28**	36.96**	5.48
	t value	4.21	6.27	1.88
	L.G.R. (%)	1.32	2.97	0.88
	C.G.R. (%)	1.36	3.03	0.89
T2	b value	11.54	51.29*	12.06**
	t value	1.46	2.33	2.98
	L.G.R. (%)	0.43	2.22	1.36
	C.G.R. (%)	0.43		1.30
T3	b value	32.19**	50.85**	11.99**
	t value	11.34	14.59	9.29
	L.G.R. (%)	1.40	2.83	1.58
	C.G.R. (%)	1.46	2.97	1.58

Extent of Variation

The data on variability in area, production and productivity of Gram is presented in Table – 3 for Madhya Pradesh. The low variability in acreage of Gram was noted for T₂ period (8.50%) while it was moderate in T₁ period (11.10%) and it was higher in T₃ Period (19.20%).

The data on average production of Gram in different periods, that was highest during T₂ period followed by T₃ period and T₁ period. Production variability in all the periods was higher as compared to acreage and productivity. The variability in production ranged between 18% (in T₂ periods) to 37.90% (in T₃ periods).

The mean productivity data of Gram ranged between 623.71 to 1043 kg/he. with variability in the range of 12.80% to 22.77%. The variability in productivity is higher as compared to variability in acreage during the study period. (shirish et al 2014)

Table 3: Extent of variation in Area, Production and Productivity in Madhya Pradesh

Period	Particulars	Area (th.ha.)	Production (th. tonnes)	Yield
T1	Base Year	1647.43	1060.95	644
	Current Year	2061.00	1644.40	797.86
	Mean	1908.72	1245.42	652.48
	Relative Change (%)	25.10	-55.00	23.89
	C.V. (%)	11.10	21.20	12.8
T2	Base Year	2555.07	1988.27	783.77
	Current Year	2819.40	2940.87	1043.08
	Mean	2666.13	2311.24	889.78
	Relative Change (%)	10.35	47.91	33.09
	C.V. (%)	8.50	29.25	14.90
T3	Base Year	1647.43	1060.95	644.00
	Current Year	2819.40	2940.87	1043.08
	Mean	2296.66	1795.81	781.92
	Relative Change (%)	71.10	177.20	73.06
	C.V. (%)	19.20	37.10	22.77

The above result shows as a whole the Gram production increased and this change was brought by the acreage.

CONCLUSIONS

The production of Gram increased in all the periods and it was mainly brought by expansion of acreage. Cultivation of Gram is still in traditional mode of cultivation, because we are roving around 8-11 qt./ha. Productivity. However, the potential productivity of available varieties are 15 qt/ha. Therefore only through gradually replacement of traditional Gram varieties can increase the production by more than 75%. The efforts should be made to increase its production through higher bonus price, crop insurance, community plant protection, early maturing, verdict etc.

REFERENCES

- Ahirwar, R.F., Nahatkar S.B and Sharma, H.O. (2007) Variability and growth of Pigeonpea production in India, JNKVV Res J. 41(1) : 87-91
- Singh, N.P., Kumar, Ranjit, Singh R.P. and Jain P.K. (2005) Rice economy in India, Agricultural Situation in

India 42(6) : 427-435

- Ravi Kumar, K.N., Shree Lakshmi, K and Bapuji Rao, 13 (2005) Production and Marketing scenarios of oil seed in the Era of Globalization, Agriculture Situation in India 42 (6) : 437-457
- Dr Shirish Sharma and I.P. Singh Growth and Instability in Cotton Production in Rajasthan Agricultural Situation in India VOL. LXX MARCH, 2014 page 15-19
- Jain BL, Atri PM, Sharma HO (1988) Analysis of growth trends in area, production and productivity of Chickpea in Madhya Pradesh. Indian J Pulses Res 1: 38-42
- Rama Rao IVY, Raju VT, Krishna Rao GV (2005) Districtwise growth and instability in Red Gram in Andhra Pradesh, Agricultural Situation in India 41: 855-868