DYNAMICS OF GRAM PRODUCTION IN MAJOR GRAM PRODUCING

DISTRICTS OF MADHYA PRADESH

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ABSTRACT

An attempt was made to ascertain the growth pattern of Gram production in major Gram growing districts of Madhya Pradesh the study was conducted during the year 1992-93 to 2012-13. The result lead to conclude that the higher and significant linear growth (3.19 %) in production of Gram in the these districts, was due to significantly higher growth (7.64 %) of area followed by better growth in productivity.. The overall compound growth of Gram production in these districts was 3.28 per cent. During the study period acreage of Gram was found negative growth in Narsinghpur and Gunn districts. All other district have positive compound growth rate and significant in most of the districts. Production of Gram increased in all the districts but it was significantly in Jabalpur, Sager, Damoh, Panna, Dewas, Guna, Sehore, Raisen, Vidisha and Rajgarh districts. The compound growth rates measure in different districts between 0.67 to 6.23 per cent. The productivity of Gram is static around 1 tones/ha. so there is a big scope to increase production without increase of acreage.

KEYWORDS: Gram, Production, Growth, Different

INTRODUCTION

Pulse crops are one of the most important group of crops in our country. That group comprises of twelve crops, Chickpea, Pigenopea, Greengram, Blackgram and Lentil are the important pulses of the group. Chickpea (*cicer arictinum*) commonly known as Gram or Bengal Gram, undisputedly enjoys a pre-eminent situation in area of 99.27 lakh ha. and account for about 39.37 per cent of pulses output during 2013-14 in india. Madhya Pradesh is the largest Gram Producing state of India Gram with a area of 31.60 lakh ha. and production of 32.99 M. tones with 1044kg/ha. Productivity (2013-14) which accounts for 71.03 per cent of total pulses. Gram production problem and instability results in replacement of its acreage by substitute and competing crop due to low productivity (1044 kg/ha) consequently low marketed surplus and finally become income instability. The study was conducted during the year 1992-2013 and based on secondary data of area, and productivity of Gram. The Present Study was undertaken to diagnose the nature of chickpea production, instability and trend of growth in Major Gram Growing districts of Madhya Pradesh.

MATERIALS AND METHODS

The State was divided into 51 districts, for the purpose of the study, out of which 12 districts i.e. Jabalpur, Narsinghpur, Sagar, Damoh, Panna, Ujjain,Dewas, Shajapur, Guna, Sehore, Raisen, Vidisha and Rajgarh districts were selected. These districts contributing 68.33 per cent area of Gram in the State. Study was based on secondary data of area, production and productivity pertains to last 21 years i.e. 1992-93 to 2012-13 in Major Gram Producing districts collected from various issues of Madhya Pradesh Agricultural Statistics published by Directorate of Farmer Welfare and Agriculture

Development Madhya Pradesh Bhopal and Commissioner of Land Records Gwalior. Absolute and relative percentage change values of area, production and productivity were worked out through the statistical tools, besides that per annum Linear and compound growth rate of area, production and productivity have also been worked out with the help of time series analysis based on exponential trend equation.

RESULTS AND DISCUSSIONS

The compound growth rate, variability, and relative change in percentage of area, production and productivity of Gram during 1992-93 to 2012-13 was worked out.

Relative Change of Area, Production and Productivity of Gram

The data presented in Table – 1 indicates that the area of Gram increased in all the districts accept Narsinghpur district in current year over the base year, It decreased 19.28 Th.ha.with -15.13% relative change while the highest relative change(151.62 %)found in Dewas district. These 13 district account for 1758.17 Thound ha. area in current year which is more than 566.51 Thoumd. ha. on base year and sharing about 47.54% relative change during period.

The production is also increased in all that major Gram growing districts in current year (1728 Thousand. tonnes) over the base year (1016.10 Thousand tonnes) it is more than 70.15%. Narsinghpur district again show similar trend as acreage, the production of Gram decreased in current year over the base year. The highest production is 131.70 Thousand tonnes found in Narsinghpur district and lowest is 38.23 Thousand tonnes in Panna district during the base year. In current year ranged between 92.40 Thousand tonnes (in Jabalpur) to 24.98 Thousand tonnes (in Guna district). The relative change for production was positive in all the districts accept Narsinghpur district (-4.16%), it was highest in Dewas district (203.41%). (Ahirwar 2007)

Damoh, Ujjain and Shajapur district shown decline trend in respect of productivity of Gram. The productivity is increased almost double in Guna district in current year. The productivity ranged between 688.19 to 1033.21 kg/ha during the base year and between 664.44 to 1247.24 kg/ha during the current year. On the basis of above discussion concluded that all the major Gram producing districts as a whole the area, production and productivity of Gram were increased in current year over base year.(Nahatkar at all 2005)

Trend & Growth in Area, Production and Productivity of Gram

From the table 2 it concluded that all major Gram producing district (total) showed significant increasing trend in acreage production and productivity during the study period. The overall compound growth of Gram production in these districts was 3.28 per cent. During the study period acreage of Gram was found negative growth in Narsinghpur (-0.15 %) and Guna (-0.34) districts. All other district have positive compound growth rate and significant in most of the districts.

Production of Gram increased in all the districts but it was significantly in Jabalpur(4.44 %), Sager(5.34 %), Damoh (6.20 %), Panna (5.51 %), Dewas (6.23 %), Guna (2.45 %), Raisen (3.77 %), Vidisha (2.91 %),Ujjain(2.83 %) (3.25 %) and Rajgarh districts. The compound growth rates measure in different districts between 0.67 to 6.23 per cent.

The productivity of Gram crop also increased during the study period accept Ujjain and Shajapur districts. The growth of Gram productivity was significant in Narsinghpur, Sagar, Panna, Dewas, Guna and Vidisha districts. (Ahirwar)

Above overall results shows that production of Gram crop increased mainly due to increased in acreage.

Extent of Variation in Area, Production and Productivity of Gram

The data on mean value and associated variability is given in Table – 3. The highest acreage of Gram crop is noted for Vidisha district (182.29 Th.ha.) and lowest in Rajgarh district (79.19 Th.ha.). The lowest variability in acreage of Gram was found for Narsinghpur district (10.24%) and highest in Damoh district (29.47%).

The average production of Gram ranged between 59.91 (Panna) to 184.07 (Vidisha) Th.tonnes. The production variability higher in all the districts as compared to acreage and productivity variability. The average productivity was found between 7.50 to 11.50 qt./hact in these districts.

The variability of productivity was higher as compared to acreage, found in Jabalpur and Katni, Narsinghpur, Panna, Guna, Raisen and Vidisha districts. on the basis of above concluded that in general the district with lower productivity have higher acreage variability which ultimately resulted in higher production variability of Gram in different districts.

CONCLUSIONS

The production of Gram increased in all Major Gram Producing districts due to high expansion in area as compared to productivity. The growth rate of area was higher as compared productivity under study period, while the variability of productivity was found higher as compared to area. There is necessary to increase higher yielding varieties in different conditions of the state specially early maturing varieties to protect weather conditions. A well organized infrastructure system should be develop for multiplication and distribution of seed. Productivity showed static trend around 1 tones/ha there is a huge gap to increase it 1.5 to 2.0 tones/ha by adopt efficient crop production technologies.

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APPENDICES

Table 1: Change in Area, Production and Productivity

District	Area				Production				Productivity			
	Base Year	Current Year	Absolute Change	Relative Change %	Base Year	Current Year	Absolute Change	Relative Change %	Base Year	Current Year	Absolute Change	Relative Change %
Jabalpur	71.33	92.57	29.23	29.77	61.63	92.40	30.77	49.92	864.02	998.20	134.18	15.53
Narsinghpur	127.47	108.19	-19.28	-15.13	131.70	126.23	-5.47	-4.16	1033.21	1166.75	133.54	12.92
Sagar	99.10	172.60	73.50	74.16	68.20	160.39	92.16	135.17	688.19	929.26	241.06	37.05
Damoh	60.80	117.95	57.15	94.00	56.23	104.84	48.61	86.44	924.89	888.85	-36.04	-3.90
Panna	54.37	84.18	29.81	54.83	38.23	38.23	46.11	120.59	703.25	1001.94	298.69	43.47
Ujjain	110.20	197.68	87.48	79.38	87.90	154.24	66.34	75.47	797.64	780.23	-17.41	-0.89
Dewas	49.27	123.96	74.70	151.62	48.73	147.86	99.13	203.41	989.17	1192.80	203.62	20.59
Shajapur	89.90	147.33	57.43	63.88	80.77	97.89	17.12	21.20	898.41	664.44	-233.96	-24.04
Gunna	158.83	196.42	37.59	23.66	118.63	244.98	126.35	106.50	746.90	1247.24	500.34	66.99
Sehore	64.83	105.31	40.47	62.43	58.27	95.23	36.96	63.43	989.71	904.28	5.56	0.62
Raisen	95.10	120.32	25.22	26.52	89.03	145.38	56.35	63.29	936.21	1208.28	272.07	29.06
Vidisha	148.60	175.50	26.90	18.10	119.10	201.84	82.74	69.47	801.48	1150.11	348.63	43.50
Rajgarh	61.87	116.18	54.32	87.80	57.67	118.43	60.74	105.36	932.11	1019.31	87.20	9.35
Total	**1191.67**	**1758.17**	**566.51**	**47.54**	**1016.10**	**1728.97**	**712.87**	**70.11**	**952.67**	**983.39**	**130.72**	**15.20**

Area in th. ha. **Production in th. Tones** **Productivity in kg/hact**

Table 2: Variation in Area, Production and Productivity

District	Area				Production				Productivity			
	b	t	LGR (%)	CGR (%)	b	t	LGR (%)	CGR (%)	b	t	LGR (%)	CGR (%)
Jabalpur	1.68**	5.01	2.17	2.21	2.73**	4.39	3.90	4.44	15.38*	1.87	1.72	2.18
Narsinghpur	-0.15	-0.3	-0.11	-0.15	1.48	1.40	1.10	1.51	13.76*	1.74	1.30	1.66
Sagar	5.41**	5.04	3.44	3.92	6.07**	5.41	5.04	5.34	12.85	1.84	1.67	1.37
Damoh	5.24**	4.43	4.53	5.47	5.20**	4.42	5.64	6.20	6.03	0.77	0.75	0.69
Panna	2.16**	6.65	2.77	3.03	3.18**	8.17	5.31	5.51	19.31**	4.10	2.57	2.41
Ujjain	4.12**	2.85	3.25	3.02	3.15*	2.13	2.95	2.83	-1.30	-0.21	-0.16	-0.19
Dewas	3.69**	5.43	4.34	4.66	5.38**	6.58	5.66	6.23	16.42**	3.85	1.51	1.50
Shajapur	1.60	1.21	1.42	1.59	0.43	0.33	0.46	0.67	-7.11	-1.08	-0.85	-0.90
Guna	0.10	0.05	0.06	-0.34	4.47*	2.37	2.61	2.45	30.14*	2.06	2.65	2.80
Sehore	2.30**	3.15	2.70	2.75	2.40	4.19	2.95	3.22	4.33	0.78	0.45	0.46
Raisen	2.28**	5.14	1.92	2.00	5.42**	5.51	3.63	3.77	19.60	3.09	1.88	1.74
Vidisha	2.51**	3.45	1.38	1.47	4.84**	3.92	2.63	2.91	14.05**	2.15	1.39	1.42
Rajgarh	2.42**	2.96	3.06	2.90	2.71*	2.53	3.47	3.25	4.22	0.71	0.44	0.34
Total	**33.39****	**7.64**	**2.21**	**2.28**	**44.81****	**5.48**	**3.19**	**3.28**	**9.29***	**1.96**	**1.00**	**0.98**

b – Trend value LGR – Linear growth Rate *** Significant at 1% level of probality

t – Calculate value CGR – Compound Growth Rate :**Significantat5%levelofprobality

Table 3: Extant of Variation in Area, Production and Productivity

District	Area		Production		Productivity	
	Mean	CV (%)	Mean	CV (%)	Mean	CV (%)
Jabalpur	77.53	17.87	68.85	34.12	894.98	27.04
Narsinghpur	127.11	10.24	134.22	22.35	1057.16	21.74
Sagar	157.29	28.23	120.48	40.19	767.25	26.67
Damoh	115.69	39.47	92.11	49.16	802.33	26.90
Panna	78.17	20.53	59.91	37.40	752.23	23.23
Ujjain	126.93	36.85	106.65	47.67	835.63	20.27
Dewas	85.12	34.54	95.01	42.13	1087.26	14.15
Shajapur	112.52	32.97	93.96	37.35	837.84	21.84
Guna	162.95	31.99	171.11	33.94	1137.02	38.54
Sehore	85.07	21.94	81.43	26.41	957.95	13.86
Raisen	118.74	15.63	124.70	28.69	1040.79	20.19
Vidisha	182.29	13.78	184.07	24.37	1008.34	19.53
Rajgarh	79.19	33.82	78.24	42.80	968.62	16.78
Total	**1508.60**	**15.81**	**1405.30**	**25.29**	**925.10**	**15.20**