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Research article

AN ECONOMIC STUDY ON MARKETED SURPLUS OF CHICKPEA IN REWA DISTRICT OF MADHYA PRADESH

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ABSTRACT: The present study was formulated to determine an economic study on marketable and marketed surplus of chickpea in Satna District of Madhya Pradesh during agricultural year 2008-09. Primary data were collected by used suitable sampling technique. The secondary data were collected from the different sources i.e. from agricultural statistics of M.P. Total sample size was categorized according to land holding viz. small (0-2 ha), medium (2-4 ha) and large (4 and above ha). In addition for each category marketed and marketable surplus were calculated. 10 wholesalers and 10 retailers were also randomly selected from trading in Satna district. Area under chickpea was 1.72 ha,(2008-09) which contributed 26.91% of gross cropped area. Under the methodology multiple linear regression were used for evaluating the percent contribution of different recourses on marketed surplus. Correlation coefficient being calculated between each and every explanatory variable. Lack of knowledge of recommended practices was the first and foremost constraint faced by the producers i.e. 69.00 per cent. Some suggestions for formers and some for government were given for policy making strategy.
Key words: Chickpea, Regression Coefficient, Marketed surplus, Marketable surplus

INTRODUCTION

India is largest producer of pulses in the world with 25 per cent share in global production. Chickpea, pigeonpea, mungnean, uradbean, lintil, and fieldpea are important pulses crop contributing 39 per cent, 21 per cent, 11 per cent, 10 per cent, 7 per cent and 5 per cent to the total production of pulses in the country. The total production was estimated 14.56 million tonnes and an area of 23.63 million hectares with average productivity 625 kg/ha.. The share of Madhya Pradesh in area and production of Chickpea in the country comes to 274.5 thousand hectares and 2548.9 thousand tonnes, respectively (Agricultural Statistics, M. P. 2008-09). The average productivity of Chickpea is 9.28q/ha. In contrast to the potential yields of 15 to 20 q/ha. Obtained in the research farms. Chickpea commonly known as Gram or Bengal gram is the important pulse crop of India. India alone has nearly 52.5 per cent of the world acreage and production of gram with 5630 thousands tonnes production in an area of 6670 thousands hectares and productivity 544 kg/ha. Chickpea occupies about 38 per cent of area under pulses and contributes about 50 per cent of the total pulse production of India. M.P. accounts a nearly 44 per cent of the production of Chickpea of the India. The vital role of marketed and marketable surplus of agricultural products in economic development of a developing country like India can hardly be over emphasized as a level for promoting industrialization in predominantly agrarian economics like [1]. Thus, the rate at which agricultural production expands affording on increasing supply of food and raw materials largely determines the pace of economic development, proper planning for growth and high marginal propensity to consume, most of the increase in agricultural production is consumed by the producers themselves. [2The study of marketed and marketable surplus in the economic system is more important than the study of increase in agricultural production so as to find way to increase the tempo of marketed and marketable surplus.

MATERIAL AND METHODS

The study was confined to Rewa district of Madhya Pradesh. Both primary and secondary data were collected for the study. Primary data was collected by personal interview survey method from cultivators, Krishi Upaj Mandi , Satna , wholesale – dealers and retailers of chickpea. The secondary data were collected from the different sources i.e. from agricultural statistics of M.P. and records of village patwari, banks, "Satna Krishi Upaj Mandi" (regulated market). The present study is related to Agricultural year 2008-09. Five villages fell in a radius of more than 10 km, three villages in a radius of 5-10 km and two villages in a radius of 5 km were selected. A sample of 10 chickpea growers from each village were selected for this study. Thus, from 10 villages 100 farmers were selected for the purpose of this study. Total sample size was of categorized according to land holding viz. small (0-2 ha), medium (2-4 ha) and large (4 and above ha). In addition for each category marketed and marketable surplus was calculated.10 wholesalers and 10 retailers were also randomly selected from trading in Satna district. The data were analyzed to focus the stated objectives using mean, percentage, correlation coefficient, regression coefficient and linear function. Marketable surplus refers to the residual quantity left with the producers after meeting their requirement for family consumption, seeds, wages and other requirements. The marketable surplus 'M' is calculated as per the formula[3].

$$M = Q - C$$

Where,

M = Marketable surplus. Q = Total production.

C = Total consumption (seed + wages in kind +social application etc.)

The variables affecting the production are also related to marketed and marketable surplus of chickpea. These variables may be expressed in the form of following equation which is called linear production function.

$$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7$$

Where,

Y = Marketed surplus of chickpea.

X_1= Size of holding.

X_2= Production of chickpea.

X_3= Distance from the Mandi

X_4= Yield (q/ha).

X_5= Number of permanent labour.

X_6= Size of family.

X_7= Income from other sources.

Linear production function was used to establish relationship between marketed surplus and factors of production chickpea growers [4].

Calculation of correlation coefficient: It (r) was used to find out the relationship between independent and dependent variables and is defined as:

$$r_{xy} = \frac{\sum xy - \frac{(\sum x)(\sum y)}{n}}{\sqrt{\left\{\sum x^2 - \frac{(\sum x)^2}{n}\right\}\left\{\sum y^2 - \frac{(\sum y)^2}{n}\right\}}}$$

Where,

n = Number of respondents x = Independent variables

y = Dependent variable r = Correlation coefficient

$\sum xy$ = Sum of the product of x and y, $\sum x$ =Sum of the independent variable

$\sum y$ = Sum of the dependent variable,

$\sum x^2$ = Sum of the squared independent variable

$\sum y^2$ = Sum of the squared dependent variable

$(\sum x)^2$ = Square of the summation of the independent variable

$(\sum y)^2$ = Square of summation of the dependent variable.

Test of significance of regression co-efficient:

For this purpose't' statistic was used, with the following formulae:

't' = b / S.E. of b

Standred error of co- efficient was calculated as follow:

$$S.E.\,of\,b = \sqrt{\frac{\left\{\sum y^2 - \frac{(\sum y)^2}{n}\right\} - b\left\{\sum x^2 - \frac{(\sum x)^2}{n}\right\}}{(N-2)\left\{\sum x^2 - \frac{(\sum x)^2}{n}\right\}}}$$

Where,

b : Regression co-efficient. S.E.of b : Standard error of co-efficient.

RESULTS AND DISCUSSION

The results from table 1 indicates that out of seven distance from mandi and no. of permanent labour was found not significant it indicates that these two variable have no effect on marketed surplus. Yield/ha and size of family indicates that they are significant at 5% and rest all three variables are significant at 1% level (means highly affected on marketed surplus. The total effect of these variables jointly affected on marketed surplus 93.25. The results of the analysis were obtained from chickpea growers. The results in table 2 indicates that the correlation coefficients between the different factors affecting marketed surplus. The marketed surplus was positively, significantly and highly correlated with the total production, followed by size of land holding, income from other sources, size of family, yield/ha and numbers of permanent labours with the values 0.994,0.843,0.830,0.694,0.679 and 0.632 respectively. Distance from mandi found not significant with any variable and negative effect on marketed surplus (it means distance will increase marketed surplus have negative effect) table 2.

Table 1: Regression analysis of factors affecting the marketed surplus

S. No.	Particulars	*Coefficients*	*Standard Error*	*t Stat*
1.	Intercept	1.587	1.000	1.587
2.	Size of land holding	0.362*	0.112	3.232
3.	Production	0.784*	0.034	22.997
4.	Distance from Mandi	0.023 ^{NS}	0.016	1.423
5.	Yield/ ha	-0.243**	0.113	2.146
6.	Number of permanent labour	-0.142 ^{NS}	0.119	1.195
7.	Size of family	0.027**	0.012	2.186
8.	Income from other sources	0.086*	0.035	2.466
R^2%		93.25		

* Significant at 1% level ** Significant at 5% level ^{NS} Non- significant

Table 2: Correlation coefficient between two factors

Particulars	Size of land holding (X_1)	Production (X_2)	Distance from Mandi (X_3)	Yield per hectare (X_4)	Number of permanent labour, (X_5)	Size of family (X_6)	Income from other sources (X_7)	Marketable surplus (Y_1)
Size of land holding (X_1)	1.000							
Production (X_2)	0.869*	1.000						
Distance from Mandi (X_3)	-0.241 ^{NS}	-0.267 ^{NS}	1.000					
Yield per hectare (X_4)	0.310**	0.644*	-0.159 ^{NS}	1.000				
Number of permanent labour (X_5)	0.832*	0.664*	-0.176 ^{NS}	0.212 ^{NS}	1.000			
Size of family (X_6)	0.794*	0.720*	-0.254 ^{NS}	0.289**	0.630*	1.000		
Income from other sources (X_7)	0.889*	0.845*	-0.300 ^{NS}	0.379*	0.702*	0.720*	1.000	
Marketed surplus (Y_1)	0.843*	0.994*	-0.248 ^{NS}	0.679*	0.632*	0.694*	0.830*	1.000

* at 1% level of significance ** at 5% level of significance ^{NS} Non- significant

The table 3 indicates that ten problems (taken from the interview method of wholesale-dealers and retailers of chickpea grower) faced against high profitable marketed surplus.[5] The major problem in marketed surplus faced was Lack of knowledge about recommended dose of fertilizers fallowed by lack of improved variety seeds, low price at the time of harvesting , lack of knowledge of recommended practices, Lack of irrigation facilities, Inadequate facilities in the market, Non-availability of roads, Lack of market news, Lack of fund for adopting improved production technology and Lack of plant protection materials in time with the value 71%, 69%, 65%, 64%, 63%, 47%, 33%, 29%, 27% and 25% respectively.

Table 3: Constraints faced by chickpea grower in the way of increasing marketed surplus

S. No.	Constraints	Distance from Mandi in km			Total (N = 100)
		5 km (N= 20)	5-10 km (N = 30)	Above 10 km (N = 50)	
1.	Lack of improved variety seeds	11 (55.00)	20 (66.67)	38 (76.00)	69
2.	Lack of knowledge of recommended practices	9 (45.00)	22 (73.34)	33 (66.00)	64
3.	Lack of knowledge about recommended dose of fertilizers	15 (75.00)	19 (63.34)	37 (74.00)	71
4.	Lack of irrigation facilities	6 (30.00)	19 (63.34)	38 (76.00)	63
5.	Lack of plant protection materials in time	5 (25.00)	8 (26.67)	12 (24.00)	25
6.	Non-availability of roads	7 (35.00)	13 (43.34)	13 (26.00)	33
7.	Low price at the time of harvesting	13 (65.00)	22 (73.34)	30 (60.00)	65
8.	Inadequate facilities in the market	6 (30.00)	14 (46.47)	27 (54.00)	47
9.	Lack of fund for adopting improved production technology	5 (25.00)	8 (26.67)	14 (28.00)	27
10	Lack of market news	4 (20.00)	8 (26.67)	17 (34.00)	29

CONCLUSION

The work of the paper based on marketed surplus and divided in to three parts. First part of the study was the effect of the Size of holding, Production of chickpea, Distance from the Mandi, Yield (q/ha), Number of permanent labour, Size of famil and Income from other sources and out of seven two variable (Distance from the Mandi and Number of permanent labour) have no effect but all the variables (jointly) affected of these variables on marketed surplus was 93.25 % which was significant at 1% level.

The study of correlation between these unit with each other and one by one with marketed surplus production, followed by size of land holding, income from other sources, size of family, yield/ha and numbers of permanent labours with the values 0.994,0.843,0.830,0.694,0.679 and 0.632 respectively. Distance from mandi found not significant with any variable and negative effect on marketed surplus in second section.

The third section of results indicates that problem in marketed surplus and ten major problems taken under study of 100 peoples (farmers + wholesalers and retailers) and found that Lack of knowledge about recommended dose of fertilizers fallowed by lack of improved variety seeds[6] etc. some suggestion were made for improved marketed surplus.

RECOMENDATIONS

1. Increase the marketed surplus, per unit productivity should be enhanced along with the intensive extension efforts for this purpose.
2. Easy transportation of produce in time, the village should be connected with fair weather roads.
3. Efforts should be made to keep the producer well informed about market new.
4. Fair steps should be taken by the government to increase the market surplus of farmers through the credit and high yielding variety in the district, as marketed surplus is the function of area and productivity.
5. Rate of chickpea should be decided before crop season.
6. Central and state govt. should be active against the problem of roads.
7. Demonstration should be necessary for improved verities, doses of fartilizers.

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