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Research Article

Cost Analysis and Profitability of Major Rabi and Kharif Crops in Madhya Pradesh

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ABSTRACT

The study was conducted during the year 2007-08. The primary data were recorded on general information of respondents and regarding farm economy. The required secondary data were collected from Department of Agriculture, and other statistical data were collected through published record of Statistical Department. Among these villages, three villages having higher percentage of the cropped area under irrigation namely Khaddi, Ajgahara and Tola Ram Pyare were selected, for present study. The cropping intensity was on an average, 167.66 and 143.22 per cent on adoption and non-adoption farm situation respectively. The average gross return from cultivation of paddy on adopted farm was found to Rs.20138 per hectare which gave the net return to the average Rs.8926 per hectare. On the other hand the average gross return from non-adopted farms of paddy cultivation was on average Rs.17031 with the net return of Rs.7300 and 1.75 of cost benefit ratio respectively. The average gross return from cultivation of wheat on adopted farms was found to be Rs.26926 per hectare which gave net return to the average Rs.14056 per hectare. The average benefit cost ratio of wheat cultivation was found to be 2.08. On the other hand the gross return from non-adopted farms of wheat cultivation was found to on an average Rs.22214 with the net return of Rs.11072 and 1.99 of cost benefit ratio respectively. In case of gram the farm income of adopted farms was Rs.11955 per hectare against only Rs.9658 of non-adopted farms.

Key Word: Cost, Profitability, Rabi, Kharif, Madhya Pradesh

INTRODUCTION

Agriculture plays a dominant role in the Indian economy. From the human civilization with the progress of agricultural practices, human are directly or indirectly depend upon agriculture. The farming society in our country is not homogenous in respect of social, economic and other developmental process. Apart from the economic differentiation arising from land ownership, productivity and application of improved production technologies, there are the socio-economic gradations resulting from the deep rooted farming system. Agriculture is now growing on industrial footing. The present trend of population growth is putting heavy pressure on agricultural land, especially on the face of fact that with the growth of industries and civilization everything is increasing except agricultural land. The only alternative for boosting our economy now rests with increasing productivity on whatever land is available. The improved agricultural technology is based on high yielding variety seeds, heavy dose of fertilizer, frequent irrigation and use of insecticide and pesticides, which involve heavy expenditure towards production and created doubts in the mind of farmers, whether the adoption of improved technologies is actually beneficial to the cultivator or not? Or it may be say that whether improved technology giving better returns to the cultivators in proportion to investment made on their farm. In present study with the view of above statements, the emphasis has been given as to know that how many of this improve practices are being adopted by the respondents and what is the effect of these on agricultural production, employment and income. The study is paramount important to show the change occurred due to different dimensions as the rapid advancement of technological knowledge will become the part of the farming community. The result of this study will become a base for future technological adoption which would lead to further progress in agricultural production.

MATERIALS AND METHODS

The primary data was recorded on general information of respondents and regarding their farm economy. The data was also collected regarding input utilization pattern in production of these crops and their respective yield. The required secondary data was collected from Department of Agriculture, and other statistical data were collected through published record of Statistical Department.

The design of the study was three stages stratified sampling**.** Out of 9 blocks in Rewa district, Rewa block was purposively selected due to well acquaintance of the

researcher about the area. The selection of villages was made from a list of villages in the block which was prepared with their respective irrigated area under cultivation. Three villages having higher percentage of the cropped area under irrigation namely Khaddi, Ajgahara and Tola Ram Pyare were selected for present study. The list of all viable farmers in the selected villages was prepared. Further, these cultivators were categorized into three different size groups i.e. 1.00 to 2.00 ha. (Small), 2.00 to 5.00 ha. (Medium) and more than 5.00 ha. (Large) size groups respectively.

Statistical tools

Collected data was edited and checked for their adequacy and accuracy. The classified and tabulated data was further processed in terms of average and percentage to arrive at conclusive figures for interpretation of data. In present study following statistical and econometrics tools was used.

Profitability concept:

For the estimation of profitability, the following efficiency measures were used in this study:

$$\text{Cost of production (Rs /quintal)} = \frac{\text{Total cost (Cost } C_3\text{)-Value of by product}}{\text{Main product}}$$

Profitability concept: For estimation of farm profitability the following income measures were used.

1. Net Farm Income = Gross Income – Cost C_3
2. Farm Business Income = Gross Income – Cost A_1
3. Family Labour Income = Gross Income – Cost B_2
4. Benefit cost ratio = $\frac{\text{Gross income}}{\text{Gross expenses}}$

RESULTS AND DISCUSSION

Economic analysis of different crops on adopters and non-adopters farms:

Return from paddy production:

Paddy has become very popular and common kharif crop growing in the area. It was found that on an average 33.47 per cent of total gross cropped area was captured by the paddy in the farm of selected farmers under study. The Table 1(A) represented the detail analysis of economic of production of paddy and wheat on the sample farmers in different size of group as well as to show the variation accord in the costs on the farm of adopter and non-adopter farm situations.

The average gross return from cultivation of paddy on adopter farm was found to Rs.20138 per hectare which gave the net return to the average Rs.8926 per hectare. The return found to decrease with decrease in size of farm due to lower yield on per unit of area which was caused by the lower use of yield attributing inputs on small and medium farm respectively. The average benefit cost ratio of paddy cultivation was found to 1.80. It is interesting to note that on investment of per rupees the return was found to increase with decrease of size of holding. On the other hand the average gross return from non-adopter farms of paddy cultivation was Rs.17031 with the net return of Rs.7300 and 1.75 of cost benefit ration respectively Soni (1997) also confirmed these findings. The return on different size group shows that the large farms produced highest return.

The level of output on adopter farm situation was maximum i.e. 20.78 quintal per hectare with large farm to 18.95 quintal/hectare with small farm size and average yield was obtained 19.58 quintal/hectare. This was found quite satisfactory and reasonable with the adoption level of improved technology used in paddy production. The average productivity of paddy on non-adopter farm was quite below than the obtained from adopter farm i.e.16.53 quintal per hectare. The yield was found to decrease with the decrease in the size of holding. This was mainly due to lower use of yield attributing inputs by small and medium farmers in the area.

Return from wheat production:

The average gross return from cultivation of wheat on adopter farm was found to be Rs.26926 per hectare which gave the net return to the average Rs.14056 per hectare. The return found to decrease with decrease in size of farm holding due to lower yield on per unit of area which was caused by the lower use of yield attributing inputs on small and medium farm respectively. The average benefit cost ratio of wheat cultivation was found to 2.08. It is interesting to note that on investment of per rupees the return was found to increase with increase of size of holding. On the other hand the average gross return from non-adopter farms of wheat cultivation was Rs.22214 with the net return of Rs.11072 and 1.99 of cost benefit ration respectively. The return on different size group shows that the large farms produced highest net return and higher benefit cost ratio also.

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Table 1(A): Economics of Paddy and Wheat production on different size groups

Cost particulars	Paddy								Wheat							
	Size group (Adopter)				Size group (Non-Adopter)				Size group (Adopter)				Size group (Non-Adopter)			
	Small	**Medium**	**Large**	**Average**	**Small**	**Medium**	**Large**	**Average**	**Small**	**Medium**	**Large**	**Average**	**Small**	**Medium**	**Large**	**Average**
Cost of cultivation (Rs./ha.)																
Cost C3	10441	10847	12348	11212	8958	9592	10642	9730	11773	12980	13856	12870	10056	11256	12113	11142
Total yield (quintal)																
Main product	18.95	19.02	20.78	19.58	15.26	16.42	17.90	16.53	20.80	23.72	25.31	23.27	18.10	29.25	20.10	19.15
By product	37.50	38.10	42.27	39.60	30.00	33.40	34.10	32.50	38.10	44.30	45.72	42.70	34.30	35.32	38.10	35.91
Gross income (Rs.)	19160	19629	21626	20138	15707	16955	18430	17031	24128	27278	29372	26926	20996	22330	23316	22214
Net income (Rs.)	8719	8782	9278	8926	6749	7363	7788	7300	12355	14298	15516	14056	10940	11074	11203	11072
Benefit cost ratio	1.83	1.80	1.75	1.80	1.75	1.77	1.73	1.75	2.04	2.10	2.11	2.08	2.08	1.98	1.92	1.99
Labour income (Rs.)	2807	2599	2823	2743	2541	2334	2487	2454	2926	3021	2994	2980	2631	2792	2799	2741

Table 1 (B): Economics of gram production on different size groups.

S.N.	Particular	Size group (Adopter)				Size group (Non adopter)			
		Small	**Medium**	**Large**	**Average**	**Small**	**Medium**	**Large**	**Average**
Cost of cultivation (Rs./ha.)									
Cost C3		10170	11037	12606	11271	8310	9206	9707	9074
Total yield (quintal)									
A.	Main product	10.25	11.00	11.93	11.06	8.10	8.95	9.70	8.92
B.	By product	11.10	12.90	13.42	12.47	9.20	9.49	10.21	9.63
3.	Gross income (Rs.)	21525	23100	25053	23226	17010	18795	20370	18732
4.	**Net income (Rs.)**	11355	12063	12447	11955	8700	9589	10663	9658
5.	**Benefit cost ratio**	2.11	2.09	1.99	2.06	2.04	2.04	2.09	2.06
6.	**Labour income (Rs.)**	2569	2516	2564	2550	2172	2137	2092	2134

The level of output on adopter farm situation was maximum i.e. 25.31 quintal per hectare with large farm to 20.80 quintal per hectare with small farm size and average yield was obtained 23.27 quintal per hectare. The average productivity of wheat on non-adopter farm was quite below than the obtained from adopter farm i.e.19.15 quintal per hectare.

Return from gram production: Data in Table 1(B) presents the average gross return from cultivation of gram on adopter farm was found to Rs.23226 per hectare which gave the net return to the average Rs.11955 per hectare. The return found to decrease with decrease in size of farm due to lower yield on per unit of area which was caused by the lower use of yield attributing inputs on small and medium farm respectively above findings also showed by Singh *et.al* (2002). The average benefit cost ratio of gram cultivation was found to 2.06. The highest benefit cost ratio of this crop was found to 2.09 in case of medium farm. On the other hand, the gross return from non-adopter farms of gram cultivation was found to on an average Rs.18732 with the net return of Rs.9658 and 2.06 of cost benefit ratio respectively. The return on different size group shows that the large farms produced highest return.

The level of output on adopter farm situation was maximum i.e. 11.93 quintal per hectare with large farm to 10.25 quintal per hectare with small farm size and average yield was obtained 11.06 quintal per hectare. The average productivity of gram on non-adopter farm was quite below than the obtained from adopter farm i.e.8.92 quintal per hectare. The yield was found to decrease with the decrease in the size of holding.

Suggestions

1. The result of the study showed that adoption of new agricultural technology has lagged far behind and only small proportions of the farmers have adopted on their farms. The crop productivity could be increased in the area through the higher adoption of improved inputs and practices. For that purpose required amount should be financed by the financing agencies.
2. The technological development involves a fair balance between welfare and productive services. This feature departs a great deal from the present methods of cultivation and allocation of resources on redrawn priorities. Hence, farmers should be given priority to use their resources on the basis of economic viability with proper management of their farm.
3. Social services in respect of agricultural development such as education, training and other extensive activities have a strong case both on economic and welfare grounds. But if they do not lead to productive efficiency then they are sterile and consume an over increasing recurrent allocation causing depletion of resource for productive purposes. Hence, even in the sphere of education and extension works emphasis needs to

be laid on enhancing productive capacity of the population and the agricultural field.

4. The extension worker and agencies engaged in extension activities must be strengthened for advocating adopting improved technology on their farms. They should be exhibited the impact of improved technology on farmers field. This process will be helpful in solving food scarcity and unemployment problems in the area. \

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