Impact of Community Orgnizations (CO'S) on Rice Productivity in District Malakand Khyber Pukhtunkhwa, Pakistan

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Abstract
The research study was conducted in selected villages of district Malakand to study the impact of Community Organizations (CO's) on rice productivity. A total of 70 respondents having different characteristics were interviewed. The main dependent variable was rice productivity which was studied in relation to other variables, inputs and in their application. Contact with various government departments and private sector by (CO's) to the respondents. The results of the research study show that 7% of the farmers stated the problem of low productivity due to insect/pest attack, reasons were increase cost of the of the insecticides and pesticides. Majority of the respondents as 42.9 % purchased their seed for growing rice crop while the second dominant group was those with their own seed numbered about 32.9 %. Some of the respondents were those who used to grow seed of their own as well they also purchased some of the seed from market, were about 22.9 %. Majority of the sample respondents stated that their source of information regarding various inputs was (CO's) following by Agri. Extension and fellow farmers. The satisfaction level of the sampled respondents was 81.4 % while 82.9 % sampled respondents stated that their production was increased due to the assistance and credit provided to them by (CO's). The statistics of the paired T-test shows that the result was highly significant at the rate of 5% sample size and the production was increased by 10.39 % which show the effectiveness of (CO's) activities in the area. It was concluded from the study that majority of respondents were literate, got proper technical assistance from (CO's), agricultural extension departments and private companies. On the basis of findings it was recommended that all type of farmers should be involved in such activities and state should encourage the organizations to increase the productivity of various crops, the same techniques of assistance and credit should be adopted for other regions of the country.
Keywords: Community Organizations, Rice productivity, variables, statics, technical assistance.

Introduction

Development of rural areas is the primary concern to the social and economic development of a country like Pakistan as, 63% of the population resides in the rural areas of Pakistan, while agriculture sector contributes 21% to the GDP of Pakistan (GOP, 2010). Rural development does not mean merely agricultural growth, it calls for improving the economic and social conditions of the rural population by raising their income and providing them necessary amenities like better housing, paved street, water supply and sewerage, health services, education, roads, power, communication for participating in cultural and political activities Agriculture contributes to growth as supplier of raw materials to industry besides serving as market for industrial products and contributes substantially to Pakistan's exports earnings. Nearly 62% of the country's population lives in rural areas are directly or indirectly linked with agriculture. The nature has bestowed us a wide agro-climatic range which for field and fruit crops However, production of all crops in Pakistan is low as compared to the World's averages (Khan, 2004).

In order to improve farmers' conditions, there is a need to improve the agricultural production of their farms. Increase in agricultural production will enhance the demand for inputs but the majority of farmers lack financial resources for adopting agricultural innovations. Rural credit in the form of loans, cash or commodity is the only alternative left for the farmers' improvement purpose. Different institutions are providing credit for agriculture. These institutions are commercial banks, provincial co-operative banks, other provincial co-operative societies, central co-operative banks, agricultural co-operative societies, Zarai Taraqati Bank Limited (ZTBL), Khushali Bank, Governmental Organizations (GOs) and Non-Governmental Organizations (NGOs) like Agha Khan Rural Support Program (AKRSP), National Rural Support Program (NRSP), Punjab Rural Support Program (PRSP), and Baluchistan Rural Support Program (BRSP) Zarai Taraqiati Bank Limited (ZTBL) previously known as Agricultural Development Bank of Pakistan (ADBP), Commercial Banks, Domestic Private Banks (DPBs) and Punjab Provincial Cooperative Bank Limited (PPCBL). These sources have been playing an active role in the provision of agriculture credit for the last two decades (GOP, 2009).

Pakistan is an Agricultural country that mainly depends on output of agriculture exports. Most of the people of the country live in rural areas whose social and economical needs are met by income from agriculture sector. Many organizations launch schemes worldwide in this sector to provide inputs in various forms to improve the productivity and income of rural farmers. In Pakistan many CO's and GO's also working in this

regard to improve the living condition of rural people so, they are providing input for increasing productivity in form of small loans and credit. The proposed study was designed to study the impact of community organization on rice productivity in selected villages of District Malakand with the following major objectives.

Objectives

- To study the impact of activities launched by community organization in dealing with the problems relating to the rice crop.
- To suggest the recommendations to improve the rice productivity through self help in the area.

Materials and Methods

This chapter includes the methodology used for the study. The study was designed to study and analyze the role and performance of NRSP in Malakand district with respect to rice productivity.

Universe of the study

Universe of study was District Malakand from which three villages namely Thana, Jalala and Bathram were selected purposively to achieve the desire objectives. The main purpose of selecting these villages was that a number of developmental projects have been executed there by various community organizations.

Sample Design

To select the sample from the selected villages, a list of the total beneficiaries were obtained with a total household's number of 1400 from NRSP local office. Larger sample size gives more accuracy and better results, but due to imitated time and financial resource only 70 respondents at the rate of 5% were randomly selected for the proposed study through Simple Random Sampling technique.

Table3.1 Sample Size from Selected Villages

No.	Villages	No. of Households	Selection of sample size at 5%
1	Thana	650	32
2	Jalala	250	13
3	Bathram	500	25
Total		1400	70

CO'S Office

Questionnaire

To collect the primary data a questionnaire was designed on the basis of the study objectives. The questionnaire was first Pre-tested, to make it more effective and the required changes were incorporated in it.

Data collection

The primary data was collected by interviewing the sample respondents in person. To obtain the reliable information, the objectives of the study were explained to the respondents.

Data Analyses

After the collection of data through the questionnaire, it was analyzed through SPSS and MS Excel. Data was presented in counts and percentages form, and for the comparison of the data before and after the intervention, a paired sample t- test was used.

Paired sample t-test

Paired t-test is defined as

$$t = \frac{\bar{d}}{s_d / \sqrt{n}}$$

Which under the null hypothesis (H_0), follows a t-distribution with $(n-1)$ degrees of freedom.

Where,

n = number of pairs,

$d = X_A - X_B$;

$$\bar{d} = \sum d / n$$

and

$$s_d = \sqrt{\frac{1}{n-1}\left[\sum d^2 - \frac{(\sum d)^2}{n}\right]}$$, is the standard deviation.

Results and Discussion

Age wise Distribution

Table 4.1 shows the details of age of the sampled respondents where 30 % of the sampled respondents

were of the age group between 15 to 25 years followed by 28.6 % of the age group of 26 to 35 years, 21.4 % of the respondents were between the age group of 36 to 45 years. Where 12.9 % were between the age group 46 to 55 years and at last 7.1 % of the sample respondents were above 56 years of age. Table 4.1 also show that majority of the respondents were from 15 to 25 years which reveals that they were motivated to take part in activities which may cause an increase in their productivity and ultimately increase income and standard as well as social level of their lives. The age group of those ranges from 36 to 45 years with 21.43 percent was also reported by (Siddque and Mirani, 2012) for data collection during their research study.

Education status

Table 4.2 reveals the education status of the sampled respondents where 18.6 % of the sampled respondents were Illiterate and 81.43 % of the sampled respondents were literate. Among the literate respondents, 25.7 % of the respondents were educated up to primary level and 22.9 % were educated up to middle and 10 % were educated other than mentioned as higher level. The table shows that in Thana village among 32 respondents 18.8 % were uneducated while in Jalala and Bathram village this level was 23.1 % and 16 %, respectively. In Thana village, 25 % of sampled respondent were educated up to primary level, 31.3 % respondents were educated up to middle while in Metric this level was 15.6 % and other were 9.4 %. In Jalala this ratio was 30.8 % for primary, 15.4 % for middle and for Metric and other this ratio was 23.1 and 7.7 %. In Bathram, education ratio was 24 % for primary, 16 % for middle, 32 % for metric and 12 % for other level of education. As a whole the education status shows that all the respondents were mostly educated and were aware of the importance of the education. Those illiterate percentages were in good agreement with (Siddique and Mirani, 2012) who reported this value as 21 %, while for primary level his value was 25.7 % and for Metric it was 23 % which are in good agreement with his results.

Tenure status

Table 4.3 show the tenure status of respondents where 32.9 % of the respondents were owner operator among which 37.5 % were from Thana, 38.5 % were from Ala Dan and 24 % were from Bathram village. Only 25.7 % were owner cum tenant among in which15.6 % were from Thana village, 23.1 % were belonging to Ala Dan village and 40 % were from Bathram village at last 41.43 % were tenant in which 46.9 % respondent were from Thana village, 38.5 % were from Ala Dan village and 36 % among tenants were from Bathram village. The values recorded for owner operator and tenants are in good matching with (Siddique and Mirani, 2012) who reported these values as 33 % and 27 %, respectively.

Farm size of sample respondents

Table 4.4 show the farm size of the sample respondents where 32.9 % were small farmers in which 40.6 % were from Thana village, 23.1 % were from Ala Dan village. Among the sample respondents 42.9 % were medium farmers in which the distribution village wise 37.5 % belonged to Thana village, 46.2 % were from Ala Dan village and 48 % were from Bathram. At last the large farmers were 22.9 % in which 10 % belonged to Thana village, 21.9 % were from Ala Dan village and 30.8 % large farmers were from Bathram village. As the table show the land holding of the farmer which reveals that majority of respondents were small farmers followed by large farmers in the study area while the third majority was medium farmers. As a whole the contribution of the sampled respondents was equally distributed among all classes of farmers. The farm size calculated for medium size farmers is in good relation with that calculated by (Siddique and Mirani, 2012) who expresses this range as 34 % for those whose plot size ranges up to 10 acres.

Causes of low productivity of rice in study area

Table 4.5 show details of causes for low productivity of rice in study area which states that in Thana area 25 % of the sampled respondents states that the one of the cause responsible for low productivity of rice was lack of improved varieties to them while in Ala Dan same problem was faced by 23.1 % of the sampled respondents and in Bathram village 32 % of sampled respondents argue that due to lack of improved seed availability, the production was low whereas a whole 27.1 % of the sampled respondents said that due to lack of improved seed, there production was lower as compared to improved varieties. The second problem in study area was powdery mildew disease which also reduces the rice production and this problem was faced by 10 % of the sampled respondents among which 12.5 % were from Thana, 7.7 % was from Ala Dan and 2.86 % were from Bathram village whose production was affected by this disease. As 8 % of the sampled respondents among the villages stated that insect/pest also affect the production of rice which 6.25 % were from Thana, 15.4 % were from Ala Dan and 4 % of the respondents were from Bathram. While 20 % of the sample respondents stated that the poor quality of seed was responsible for low productivity of rice among in which 21.9 % were belonging to Thana village while 23.1 % were from Ala Dan and rest of 16 % were from Bathram village. About 8.6 % of the sampled respondents argued that due to lack of technical assistance the production of rice was lower in which 9.4% of respondents were from Thana, while 7.7 % of the respondents from Ala Dan villages stated this problem responsible for low productivity and 8 % respondents from Bathram village said that cause of low productivity was lack of technical assistance. In case of improper irrigation, 10 % of the sample respondents stated improper irrigation as one of the cause responsible for lower productivity of rice in which 12.5 % were from Thana while in Ala Dan village none of the respondents stated this factor as a cause of low productivity and in Bathram 12 %

respondents said that improper irrigation was one of the problem in this regard, as a whole 8.6 % of the respondents stated that poor credit facilities and poor marketing channels were also causes of low productivity of rice crop. The same causes of low productivity with 7.1 % for pest attack and 10 % for irrigation along with adulterated seed were also reported by (Rola *et al.,* 1993) In case of India and Indonesia where the production was low due to many reason but the those as observed in the study area like poor seed, improper irrigation etc. were major reasons.

Seed classification of sample respondents

Table 4.6 shows that majority of the sampled respondents purchased seed for growing rice crop where as 42.9 % of the sampled respondents purchased seed in which 37.5 % were from Thana village, while 46.2 % of the sampled respondents were from Ala Dan village while 48 %, were belonging to Bathram village. Followed by 32.9 %, of the sample respondents who has their own seed for growing rice where among those 40.6 % of the sampled respondents having own seed were from Thana, 23.1 % were from Ala Dan village with own seed and 32 % were from Bathram village which have their own source of seed for growing rice crop. Later 22.9 % of the sampled respondents were those who has both purchased and owned seed for growing rice, among those with both type of seed source, 21.9 % were originated from Thana. While 30.8 % were from Ala Dan and 20 % were from Bathram villages with both type of sources regarding seed for growing rice crop. The same result with best matching was also mentioned by (Rola *et al.,* 1993) for India and China where 65 % of the farmers use to purchase good quality seed for growing rice crop.

Source of Information about Seed

Table 4.7 shows the sources of information about seed among the respondents was 27.1 % those who got information from NRSP, among those 56.25 %, of the sampled respondents were from Thana Village, 53.8 % of respondents originating from Ala Dan and 56 % of respondents from Bathram were informed by NRSP about best quality of seed. While 10 % of the total respondents were informed by Agricultural Extension Department about seed in which those who was from Thana counted up to 12.5 % while from Ala Dan. This range was 23.1 % and from Bathram this ratio was 20 %. While 7.1 % of the sampled respondents were informed by newspaper and 20 % of the respondents were informed from fellow farmers.

Type of Fertilizers used by sample respondents

Table 4.8 shows that majority of the sampled respondents who grow rice crop use NPK in study area with 45.7 % in number in which 40.62 % were from Thana, 46.2 % were from Ala Dan and 52 % were from Bathram village. While the mostly used fertilizer among rice grower was NP which was used by 18.6 % of the sampled respondents followed by urea which was used by 11.4% of the sampled respondents and FYM was used by 24.3 % of the sampled respondents.

Problem faced in getting agricultural inputs

Table 4.9 shows that 22.9 % of the sampled respondents got problem in technical assistance. Among those, 25 % were from Thana, 23.1 % were from Ala Dan and rest of them belonged to Bathram village. It also states that 32.9 % of the sampled respondents faced problem in getting credit for the rice crop. Among which, about 28.1 % were from Thana, 38.5 % from Ala Dan and again about 36 % were from Bathram village that faced problems in getting credits. About 25.7 % of the sampled respondents were those that faced problem regarding contact with Agriculture Extension department in which the proportion of each village was as about 34.4 % were from Thana, 15.4 % originating to Ala Dan and 20 % were from Bathram village. About 18.6 % of the sampled respondents were those who argued that they have faced problem in field days arranged by NRSP, in which 12.5 % were from Thana, 23.1 % were from Ala Dan and rest of the sampled respondents were from Bathram.

Impact of credit on rice productivity

Table 4.10 shows that the productivity of rice crop in study area was increased as about 82.9 % of the sampled respondents. They stated that their productivity was increased due to the availability of credit and due to the help of providing different kinds of inputs. Among 82.9 % of the sampled respondents, 81.3% were from Thana Village while 76.9 % were belonging to Ala Dan and 88 % were those from Bathram area who stated that their production is increased. About 3 % of all the respondents stated that the productivity of rice was decreased due to available credit provided by NRSP in which 3.1 % were from Thana and 1 % from Bathram while no one stated this from Ala Dan. Only 14.3 % of the sampled respondents stated that the production of their crop was same as no change was observed in productivity due to NRSP credit scheme in class of respondents about 15.6 % were from Thana while 23.1 % was from Ala Dan and 8 % from Bathram. The results are in close matching with (Saleem and Farzand, 2010) who stated that the impact of micro credit on crop that 6 % of the respondents production was same and that 88 % of the sampled respondent production was increased.

Satisfaction of the sampled respondents from NRSP

Table 4.11 shows that majority (81.43 %) of the sampled respondents from all the villages were satisfied from the activities executed by NRSP in their area. It show that 81.4 % of the sample respondents were satisfied from the activities in which about 78.1 % were from Thana Village, 76.9 % were from Ala Dan and 88 % were from Bathram. While about 18.6 % were not satisfied from the activities of NRSP the result of not

satisfaction was due to their lack of interest in scheme. The satisfaction level of the sampled respondents is much similar with that of observed by (Bashir *et al., 2010*) who stated that 80% of the sampled respondents were satisfied by the micro credit scheme launched in their area.

Impact of NRSP on Rice Productivity (Without and With)

Table 4.12 shows the increase in production of rice crop in the study area where for comparing those without NRSP credit and those with NRSP credit impact on their production where sample SPSS package was utilized and Paired T-test was used for analyses of data which is highly significant at 5 % sample size and indicates that with NRSP involvement in the production of rice productivity was increased by 10.39 % which is positive change. While the result are in good agreement with (Basher *et al.,* 2010) who stated that due to micro credit the production of the respondents wheat crop was increased by 13 %.

Summary

The research study was conducted in district Malakand where three villages were selected namely Thana, Ala Dan and Bathram The purpose of the study was to determine the impact of NRSP on rice productivity, whereas from selected villages, 70 Sampled respondents were selected who were beneficiaries of NRSP scheme Among those 70 respondents all type of farmers were selected in which small, medium and large land holdings farmers were selected. From the results acquired, it is clear that 7% of the farmers stated the problem of low productivity due to insect/pest attack reasons were increase in cost, 27 % stated that reason was non availability at proper time. Majority of the respondents (42.9 %) purchased their seed for growing rice crop while the second dominant group was those with their own seed was about 32.9 % and some of the respondents were those who used to grow seed of their own as well they also bought some were about 22.9 %. Majority of the sample respondents stated that they were informed about seed and fertilizers by NRSP as about 27 % stated this, while the second group of respondents stated that their source of information about seed was agricultural extension departments and fellow farmers were about 20 % in numbers. Mostly used fertilizer in the area was NPK were about 45.7 % respondents and some amount of Urea and FYM were also used whose statistics were 11 and 24 %, respectively.

Most of the sampled respondents reported that their rice productivity was increased as the data shows that about 82.9 % people told that their production increased. Further the satisfaction level of the sampled respondents was 81.4 %. The statistics of the paired t-test showed that the result was highly significant at 5% significance level and as a whole the production was increased by 10.39 % which show the effectiveness of NRSP activities in the area.

Conclusion

The study concludes that majority of respondents were literate, got proper technical assistance form NRSP, agricultural extension departments and private companies. By attending field days and other programs which were good for their learning faced less problems and their rice productivity was increased. On the other side the illiterate and less educated respondent were not interested in getting technical help, farmer days attendance and other likely programs were unable to improve their rice productivity.

Table 4.1 Age wise Distribution of the sample Respondents in the study area

Villages	**Age group**										**Total**
	15-25		**26-35**		**36-45**		**46-55**		**above 55**		
	No.	%	No.	%	No.	%	No	%	No.	%	
Thana	12	37.5	8	25	6	18.8	4	12.5	2	6.25	32
Ala Dan	4	30.8	5	38.5	1	7.7	2	15.4	1	7.7	13
Bathram	5	20	7	28	8	32	3	12	2	8	25
Total	21	30	20	28.6	15	21.4	9	12.9	5	7.1	70

Source: Field Survey, 2013

Table 4.2 Educational status of sample the sample respondents in the study area

Villages	**Illiterate**		Literate								**Total**
			Primary		**Middle**		**Matric**		**Above Matric**		
	No.	%	No.	%	No.	%	No.	%	No.	%	
Thana	6	18.8	8	25	10	31.3	5	15.6	3	9.4	32
Ala Dan	3	23.1	4	30.8	2	15.4	3	23.1	1	7.7	13
Bathram	4	16	6	24	4	16	8	32	3	12	25
Total	13	18.6	18	25.7	16	22.9	16	22.9	7	10	70

Source: Field Survey, 2013

Table 4.3 Tenure status of sample respondent in the study area

Villages	Tenure status of respondents						Total
	Owner operator		Owner cum tenant		Tenant		
	No.	%	No.	%	No.	%	
Thana	12	37.5	5	15.6	15	46.9	32
Ala Dan	5	38.5	3	23.1	5	38.5	13
Bathram	6	24	10	40	9	36	25
Total	23	32.9	18	25.7	29	41.4	70

Source: Field Survey, 2013

Table 4.4 Farm size of the sampled respondents in the study area

Villages	Farm Size						Total
	2-5 acre		6-10 acre		Above 10 acre		
	No.	%	No.	%	No.	%	
Thana	13	40.6	12	37.5	7	21.9	32
Ala Dan	3	23.1	6	46.2	4	30.8	13
Bathram	8	32	12	48	5	20	25
Total	23	32.9	30	42.9	16	22.9	70

Source: Field Survey, 2013

Table 4.5 Causes of low productivity as stated by the sample respondents of rice in the study Area

Causes of low productivity	Villages						Total	
	Thana		Ala Dan		Bathram			
	No.	%	No.	%	No.	%	No.	%
Lack of Improved Varieties	8	25	3	23.1	8	32	19	27.1
Powdery Mildew	4	12.5	1	7.7	2	8	7	10
Insect/Pest	2	6.25	2	15.4	1	4	5	7.1
Poor Quality Seed	7	21.9	3	23.1	4	16	14	20
Lack of Technical assistance	3	9.4	1	7.7	2	8	6	8.6
Improper irrigation	4	12.5	-	-	3	12	7	10
Poor credit facilities	3	9.4	2	15.4	1	4	6	8.6
Poor marketing channels	1	3.1	1	7.7	4	16	6	8.6
Total	32	100	13	100	25	100	70	100

Source: Field Survey, 2013

Table 4.6 Seed classification of respondents in the study area

Villages	Seed classification						Total
	Owned		Purchased		Both		
	No.	%	No.	%	No.	%	
Thana	13	40.6	12	37.5	7	21.9	32
Ala Dan	3	23.1	6	46.2	4	30.8	13
Bathram	8	32	12	48	5	20	25
Total	23	32.9	30	42.9	16	22.9	70

Source: Field Survey, 2013

Table 4.7 distribution of the sampled respondents on the basis of source of information about seed in the study area

Source of information about seed	Villages						Total	
	Thana		Ala Dan		Bathram			
	No.	%	No.	%	No.	%	No.	%
NRSP	18	56.25	7	53.8	14	56	19	27.1
Agric extension department	4	12.5	3	23.1	5	20	7	10.0
News paper	2	6.25	1	7.7	4	16	5	7.1
Fellow Farmers	8	25	2	15.4	2	8	14	20.0
Total	32	45.71	13	18.57	25	35.7	70	100

Source: Field Survey, 2013

Table 4.8 Type of Fertilizers used by sample respondents in the study area

Type of Fertilizer	Villages						Total	
	Thana		Ala Dan		Bathram			
	No.	%	No.	%	No.	%	No.	%
NPK	13	40.62	6	46.2	13	52	32	45.7
NP	6	18.75	4	30.8	3	12	13	18.6
Urea	5	15.62	1	7.7	2	8	8	11.4
FYM	8	25	2	15.4	7	28	17	24.3
Total	32	45.7	13	18.6	25	35.7	70	100

Source: Field Survey, 2013
NPK= Nitrogen Phosphorus Potassium NP= Nitrogen Phosphorus FYM= Farm Yard Manure

Table 4.9 Problems faced in getting agricultural inputs

Villages	Problem faced in getting agriculture inputs								Total
	1		2		3		4		
	No.	%	No.	%	No.	%	No.	%	
Thana	8	25	9	28.1	11	34.4	4	12.5	32
Ala Dan	3	23.1	5	38.5	2	15.4	3	23.1	13
Bathram	5	20	9	36	5	20	6	24	25
Total	16	22.9	23	32.9	18	25.7	13	18.6	70

1. In getting technical Assistance 2.In getting credit
3. In contact with Agri. Extension Deptt. 4. In Field days

Table 4.10 Impact of credit on rice productivity of sampled respondents

Villages	Impact of credit on rice productivity						Total
	Increase		Decrease		No change		
	No.	%	No.	%	No.	%	
Thana	26	81.3	1	3.1	5	15.6	32
Ala Dan	10	76.9	-	-	3	23.1	13
Bathram	22	88	1	4	2	8	25
Total	58	82.9	2	2.9	10	14.3	70

Source: Field Survey, 2013

Table 4.11 Satisfaction levels of the sampled respondents

Villages	Satisfaction level of Respondents				Total
	Satisfied		Not satisfied		
	No.	%	No.	%	
Thana	25	78.1	7	21.9	32
Ala Dan	10	76.9	3	23.1	13
Bathram	22	88	3	12	25
Total	57	81.4	13	18.6	70

Source: Field Survey, 2013

Table 4.16 Impact of NRSP on Rice Productivity (results of T-test)

	Average Yield (kg/acre)				
Crop	Without NRSP	With NRSP	Difference	T-value	Significance
Rice	1009.9	1104.7	103 (10.39% kg/acre)	23.73	0.000*

Source: Field Survey *level of significance at 5%

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