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Impact of watershed programme practices of production and productivity of paddy on adoption level of farmers

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ABSTRACT

The study conducted in Dharwad district of Karnataka during 2007-08 on adoption level of farmers about individual watershed programme practices and impact of the programme on production and productivity of paddy in project area revealed that a majority (58.00%) of the respondents belonged to medium adoption level category with mean adoption score of 13.78. There was increase in the number of respondents with respect to adoption of soil and water conservation practices like contour bunds (55.34%), water ways (44.00%), strengthening of existing bunds (42.67%) and ploughing across the slope (29.33%) due to the programme. The average production and productivity obtained by the respondents from Kharif season increased by 25.00 and 27.77 per cent, respectively, over production and productivity of base year.

Key words : Adoption level, watershed programme practices, production, impact.

INTRODUCTION

Indian agriculture is primarily rainfed. Rain is the only source of water for dry land crops. Rainfed agriculture supports 40.00 per cent of human population contributing 44.00 per cent to the total food production. The affact of rainfed agriculture oscillates with the quantity and spatial distribution of monsoon. The treatment to stabilize and to enhance productivity in dryland agriculture depends upon conservation of rain water. To meet the evergrowing demand of foodgrains and other agricultural commodities, judicious use of natural resources is essential (Hemalatha et al 1996).

In order to achieve economic upgradation of human life in rainfed areas, it becomes imperative to improve rainfed agricultural systems through adoption of watershed technology. The watershed management is an endeavour to achieve sustainable production and gain ecological balance in an area.

Hence, the present study was conducted with the objectives to study the adoption level of respondents about

individual watershed programme practices and impact of the programme on production and productivity of paddy in project area.

METHODOLOGY

A list of all the farmers of the selected villages who were covered by the Sujala Watershed Project and availed facility of the project was prepared. The study was carried out in 10 villages of two Talukas, five from each Taluka. The villages were purposively selected based on maximum area covered under watershed.

A total of 150 respondents were randomly selected to study their socio-economic profile and knowledge about individual watershed programme practices. The data were collected by personal interview method with the help of well structured interview schedule. Frequency, percentages, mean and standard deviation were the statistical tools used to analyze the data.

RESULTS AND DISCUSSION

The results presented in Table 1 reveal that majority of the respondents (58.00%) belonged to medium adoption category, whereas, 11.33 and 30.67 per cent of the respondents belonged to low and high adoption level categories, respectively. Probable reasons for the respondents to be in medium adoption category might be the medium to high knowledge possessed by majority of the respondents. Since, knowledge limits the action of individuals, as it is the basic pre-requisite for any individual to think of the pros and cons in making a decision either to adopt or reject a practice, majority of the respondents never contacted extension personnel. The findings are in conformity with the results of Sundarmbal (1994), Khade et al (1998) and Jandhale et al (2000).

The results presented in Table 2 indicated that there was comparatively low change with regard to adoption of soil and water conservation practices namely land smoothening, opening of furrows, construction of small section bunds, vegetative bunds and use of improved agricultural implements. The reasons for low adoption by the respondents were given as these practices being not suitable and time consuming, difficult to do intercultivation, scattered land holding and non-availability of required plant types in time.

In the present study, it was observed that all the respondents interviewed had adopted recommended time of sowing. This could be due to the reason that under the programme sowing of rice was recommended before June and the rains were also experienced during this period. The above finding were in congruity with the findings of Balamatti (1993) and Saikrishna (1998).

Table 1. Adoption level of the respondents about watershed programme practices n=150

S No	Adoption category	Frequency	Percentage	Mean adoption score
1.	Low (mean –SD) <8.06	46	30.67	6.92
2.	Medium (mean + SD) 8.07-16.58	87	58.00	13.78
3.	High (mean + SD)> 16.58	17	11.33	20.50

Mean =12.32 SD =4.26

Among the various paddy crop production practices more than forty per cent increase was observed in case of practices like recommended seed rate (45.34%), spacing (51.33%) and improved varieties (41.33%). This might be due to simplicity and low cost of the practices and interest of the farmers to get more yield. It might also be due to their experience and guidance received from the extension personnel.

It is also evident from Table 2 that very few (18.67%) respondents had adopted seed treatment and plant protection. The possible reason for this might be that very few respondents had knowledge about seed treatment.

No respondent had adopted the silvi-pasture land use system. The possible reason could be non-availability of planting material and inadequate knowledge of the system to the respondents.

These findings are in conformity with the results of Balamatti (1993) and Saikrishna (1998).

The results presented in Table 3 give an idea about the difference in crop production and productivity in the pre- and post-project period by virtue of implementation of Sujala Watershed Project. It can be inferred that increase in crop production and productivity obtained by the farmers was considerably higher over pre-project period.

The possible reasons that could be attributed to it is that owing to watershed treatment, there was additional storage of moisture in the soil profile due to the in situ conservation, groundwater recharge and

Table 2. Adoption of the respondents about individual watershed practices

S.No.	Description	Before watershed		After watershed		% increase
		Freq.	%	Freq.	%	
I	**Soil and water conservation practices**					
1	Ploughing across the slope	62	41.33	106	70.66	29.33
2	Land smoothening	102	68.00	138	92.00	24.00
3	Contour bunds	22	14.66	105	70.00	55.34
4	Strengthening of existing bunds	38	25.33	102	68.00	42.67
5	Vegetative bunds	6	4.00	21	14.00	10.00
6	Water ways	23	15.33	89	59.33	44.00
7	Construction of small section bunds	66	44.00	74	49.33	5.33
8	Opening of furrows	71	47.33	88	58.66	11.33
9	Use of improved Agril implements	4	2.66	19	12.66	10.00
10	Farm pond	0	0.00	22	14.66	14.66
II	**Crop production practices (paddy)**					
1	Variety → Intan, Abhilash	12	8.00	74	49.33	41.33
2	Seed rate →30-35kg/ac	67	44.66	135	90.00	45.34
3	Seed treatment	14	9.33	42	28.00	18.67
4	Time of sowing (May-June)	150	100.00	150	100.00	--
5	Spacing → 20cm x 10cm	54	36.00	131	87.33	51.33
6	Method of planting					
A	Sowing by seed drill*	138	92.00	148	98.60	6.60
B	Transplanting *	27	18.00	38	25.33	7.33
6	Application of FYM	107	71.33	126	84.00	12.67
7	Fertilizer application	58	38.66	112	74.66	36.00
III	**Alternate land use system**					
1	Agro-forestry	12	8.00	43	28.66	20.66
2	Agro-horticulture	8	5.33	36	24	18.67
3	Silvi-pasture	0	0	0	0	0

* Multiple responses possible

Table 3. Production and productivity level of paddy

S. No.	Category	Before watershed programme	After watershed programme	% increase
1	Mean production (q/acre)	12	15	25.00
2	Mean productivity (kg / acre)	1300	1650	27.77

surface storage. As a result, production and productivity increased considerably in the project area. The results are in conformity with the findings of Singh et al (1995), Hazra (1998) and Patil (1999).

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