EXTENT OF ADOPTION OF RAINFED AGRO TECHNOLOGY BY FARMERS

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ABSTRACT

This study is planned to measure adoption pattern of rainfed agro technology by both the types of respondents : those who where beneficiary of the watershed (BF) and the non-beneficiary of the watershed (NBF). It was also tried to identify relationship between the extent of adoption and selected characteristics of the farmers. The results of the study depicted that the adoption of use of short duration crops and their varieties occupied first rank followed by timely sowing (rank - II) and optimum plant population (rank - III) in case of BFs. In case of NBFs, the first rank was occupied by use of organic manure followed by opening of furrow in summer season (rank - II) and optimum plant population (rank - III). There was a positive and highly significant association between the extent of adoption of rainfed agro technologies and respondents' personal characteristics namely education, social participation, production and knowledge index.

INTRODUCTION

Agriculture is the back bone of Indian economy and it is largely depend on natural resources like soil, water & vegetation. On agricultural land, our target is to produce more alongwith conserving soil & water and sustaining crop yield and soil fertility. This is possible by adopting appropriate agronomic practices.

To mitigate the high requirements of food grains, fodder and fuel of towering population, food production is to be increased sufficiently. To achieve this, productivity in rainfed areas will have to be increased.

The productivity difference between irrigated and rainfed farming systems and the numerical dominance of rainfed farming regions have drawn the attention of policy makers, researchers and extension personnel. Realizing the importance of rainfed agriculture, the planners at the national level have given the top priority to rainfed agriculture.

An attempt is made to examine the level of adoption of rainfed agro technologies by the beneficiary farmers of the watershed (BFs) and the non-beneficiary farmers of the adjoining area of the watershed (NBFs) through this study.

METHODOLOGY

The research study was conducted in Junagadh district of Gujarat State. This district was purposively selected in view of the fact that the district has larger rainfed area.

Four talukas of Junagadh district were selected randomly by lottery method. Two villages viz. one from watershed area and another from adjoining non-watershed area were randomly selected. Thus, total eight villages were selected for this study. In all, 90 beneficiary farmers of the watershed (BFs) were selected from four watershed villages by proportionate random sampling method. The equal numbers of non-beneficiary farmers (NBFs) were also

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selected from non-watershed villages. Thus, in all, 90 BFs and 90 NBFs were selected from the eight villages.

The extent of adoption of rainfed agro technology and their potentiality of adoption were analyzed. The adoption index developed for the study was used. To assess the practice wise extent of adoption of rainfed agro technologies, the twenty improved practices of rainfed agro technology, scrutinized by the experts, were considered. A score (as standardized mean score) was assigned to each of the selected practice; making a total of 100. On the basis of the practice wise scores obtained by the respondents for adopting a particular practice, the mean scores were worked out for all the 20 practices. The mean scores were then converted into percentage. The ranks were assigned to each practice for BFs and NBFs. The relationship between extent of adoption of rainfed agro technologies and selected characteristics of the respondents was measured by correlation coefficient.

RESULTS AND DISCUSSION

The data in table-1 indicate that the adoption of use of short duration crops and their varieties occupied first rank in adoption pattern of rainfed agro technology by BFs. This was followed by timely sowing (rank II), optimum plant population (rank III), interculturing (rank IV), use of organic manures (rank V), opening of furrow in

Table 1 : Practice wise extent of adoption of BFs and NBFs with respect to rainfed agro technology

Sr. No.	Name of practice	Possible score value	Category of respondents					
			BFs(N = 90)			NBFs (N = 90)		
			Mean Score achieved	Per cent	Rank	Mean Score achieved	per cent	Rank
1	Deep Ploughing	5	2.81	56.20	XV	2.00	40.00	XVI
2	Opening of farrow in summer season	5	4.03	80.60	VI	3.50	70.00	II
3	Timely Sowing	8	6.70	83.75	II	5.33	66.63	IV
4	Sowing across the slope	6	2.43	40.50	XVI11	1.91	31.83	XVII
5	Use of short duration crops and their varieties	6	5.04	84.00	I	3.86	64.33	V
6	Sowing of cover crop	3	1.92	64.00	XII	1.38	47.33	XV
7	Optimum plant population	5	4.17	83.40	III	3.42	68.40	III
8	Use of organic manures	7	5.76	82.29	V	4.98	71.14	I
9	Use of chemical fertilizers	4	3.00	75.00	IX	2.24	56	X
10	Weeding	6	4.82	80.33	VII	3.46	57.67	VIII
11	Intercuhuring	6	4.96	82.67	IV	3.41	56.83	IX
12	Earthing Up	4	1.98	49.50	XVI	2.19	54.75	XI
13	Mixed / inter /relay cropping	5	3.14	62.80	XIII	2.58	51.60	XIII
14	Plant Protection measures	4	2.98	74.50	X	1.99	49.75	XIV
15	Mid season correction	3	2.02	67.33	XI	1.83	61.00	VI
16	Supplementary irrigation	6	4.76	79.33	VIII	3.51	58.50	VII
17	Mulching	5	1.80	36.00	XIX	1.43	28.60	XVIII
18	Vegetative filter strips	4	1.75	43.75	XVII	0.80	20.00	XX
19	Contour vegetative hedge	4	0.89	22.25	XX	0.90	22.50	XIX
20	Crop rotation	4	2.47	61.75	XIV	2.14	53.50	XII
Grand Total		100	67.43	-	-	52.86	-	-
= 0.173			= 4.33**					

Table 2 : Association between extent of adoption of BFs and NBFs and their selected characteristics with respect to rainfed agro technology.

Sr. No.	Characteristics	" r " Values	
		BFs (N = 90)	NBFs (N = 90)
1	(XI) Age	-0.1321 ^{NS}	-0.1 677 ^{NS}
2	(X2) Education	0.3957 "	0.4483 "
3	(X3) Size of land holding	0.1489™	0.1303^{NS}
4	(X4) Herd size	0.091 9 ^{NS}	0.1970^{NS}
5	(X5) Social participation	0.2559*	0.3462 "
6	(X6) Employment status	0.1354^{NS}	0.1144™
7	(X7) Irrigation Potentiality	0.2873 "	0.1109™
8	(X8) Cropping Intensity	0.2208*	0.0908™
9	(X9) Production	0.2256*	0.3823"
10	(X10) Overall Modernity	0.0502^{NS}	0.0125^{NS}
11	(XI 1) Extension Participation Index	0.2957"	0.1267^{NS}
12	(X12) Training received	0.3217"	0.0619^{NS}
13	(XI 3) Level of attitude	0.2893"	0.1605^{NS}
14	(XI 4) Knowledge index	0,8638"	0.5770"

* = Significant at 0.05 Level
** = Significant at 0.01 Level
NS = Not significant

Critical Value : (0.05 level) ± 0.2074
(0.01 level) ± 0.2702

summer season (rank VI) and weeding (rank VII).

In case of NBFs, it can be observed that first rank was occupied by use of organic manure followed by opening of furrow in summer season (rank II) and optimum plant population (rank III).

It can be concluded that in general, BFs and NBFs had similar priorities in their ranks of adoption of rainfed agro technologies. However, they differed in their aggregate extent of adoption.

The practices like contour vegetative hedge, vegetative filter strips, mulching, deep ploughing, sowing across the slope, sowing of cover crop, earthing up, crop rotation and mixed / inter/ relay cropping, etc secured lower position in rank order. As these practiced are complicated in nature; they need special knowledge and skills, which might be lacking in most of the respondents.

It is evident from the results presented in table -2 that there was positive and significant association between BFs extent of adoption of rainfed agro technologies and their characteristics like education, social participation, irrigation potentiality, cropping intensity, production, extension participation index, training received, level of attitude and knowledge index. In case of NBFs extent of adoption of rainfed agro technologies and their characteristics like education, social participation, production and knowledge index was positively and significantly associated. These finding were supported by Bhutiya (1993) and Patel (1995).

CONCLUSION

It can be concluded on the basis of the results of this study that so far as the adoption of rainfed agro technologies are concerned, the use of short duration crops and their varieties occupied first ranked followed by timely sowing and optimum plant population in case of BFs. In case of NBFs, the first rank was occupied by use of organic manure followed by opening of furrow in summer season and optimum plant population. In general, BFs and NBFs had similar priority in their ranks of adoption of

rainfed agro technologies. However, they differed in their aggregate extent of adoption. There was a positive and highly significant association between BFs and NBFs extent of adoption of rainfed agro technologies and their characteristics like education, social participation, production and knowledge index.

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