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Impact of Soil Conservation Programme on Improved Farm Practices

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INTRODUCTION

The soil and water conservation approach helps to improve the productivity of both lands and crops. Location specific technology based on soil and water is playing a major role for sustainable food production in farming. The soil conservation scheme was funding since last so many years, but there was no clear response to it from the side of the farmers. Most of the area and production of M. P. state is under rainfed conditions and very little area is under irrigation. Many of agricultural practices developed in areas of rainfed agriculture are concerned primarily with the conservation of soil and water. The present study has been undertaken with a view to evaluate the impact on farmers, who have adopted or not adopted the soil conservation programme in Katni block of Jabalpur district (M.P.)

OBJECTIVES

1. To identify the factors leading to the adoption and nonadoption of soil conservation programme.
2. To study the soil conservation programme on adoption of improved farm practices namely high yielding varieties of wheat and chemical fertilizers.
3. To find out the relationship between soil conservation practices with the personal attributes of the respondents.

METHODOLOGY

Katni block of Jabalpur district of M.P. state was purposively selected for the study. All the six villages where the soil conservation programme was carried out were selected. A list of villages falling under the soil conservation programme was prepared and all the participants were listed. Among the participants in the programme, a random sample of 50 farmers was drawn. The interview schedule was also administered to the adopters and also to an equal number of non-adopters of the same universe to have a comparative picture of adopters and non-adopters of the soil conservation programme. The data have been presented in frequency as well as percentage. Statistical analysis was done to test the association between personal and socio-economic variables with adoption of improved farm practices (Improved seed and chemical fertilizers), chi-square test was used. Independent vaiables were-Age (below 30 and above 30 years), Education (illiterate and literate), size of land holding (small land holding and big holding) and income (upto Rs. 6000 and above Rs. 6000/year). Dependent variables were high yielding varieties and chemical fertilizers (Nitrogen, phosphorus and potashic fertilizers).

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Table 1 : Relationship between adoption of high yielding varieties of wheat and socio-personal characteristics of adopters and non-adopters of soil conservation programme

Variables	Soil conservation programme adopted farmers			X^2 value "C"	Soil conservation programme Non-adopted farmers			X^2 value "C"
	Low	High	Total	Value	Low	High	Total	value
(A) Age								
1. Young age	8	10	18	0.0689 NS	19	11	30	0.2376 NS
2. Old age	13	19	32	(0.0360)	14	6	20	(0.0685)
(B) Education								
1. Illiterate	11	17	28	0.1924 NS	18	10	28	0.0833 NS
2. Literate	10	12	22	(0.0616)	15	7	22	(0.0400)
(C) Size of land								
1. Small land holding	14	8	22	7.549**	24	6	30	6.484*
2. Big land holding	7	21	28	(0.3620)	9	11	20	(0.3386)
(D) Income								
1. Low income	14	7	21	9.043**	25	6	31	6.665**
2. High income	7	22	29	(0.3981)	8	11	19	(0.3429)
TOTAL	21	29	50		33	17	50	

NS = Non-significant; * Significant at 0.05 per cent level ** Significant at 0.01 per cent level

RESULTS AND DISCUSSION

Association between personal attributes and adoption of high yielding varieties of wheat

The Table 1 reveals the association between the age of the farmers who have adopted the soil conservation programme and those who had not adopted the soil conservation programme with adoption of high yielding varieties of wheat. It is observed from the table that Chi-square was found to be 0.0692 in case of farmers who have adopted the soil conservation programme, while Chi-square value was found to be 0.238 in the case of farmers who have not adopted the soil conservation programme. In both the cases Chi-square value are non-significant which conclude that there is no association between age of the farmers who have adopted or not-adopted the soil conservation programme with the adoption of wheat varieties. In case of education, X^2 value was found to be 0.192 of farmers who have adopted the soil conser vation programme while Chi-square value was found to be 0.0833 in case of farmers who have not adopted the soil conservation programme. In both the cases values are non-significant.

The values of X^2 in case of size of land holding with high yielding varieties of wheat are significantly associated in both the cases, which conclude that there is association between size of land holding of the farmers who have adopted or not adopted the soil conservation programme with adoption of wheat.

In case of income, the value of Chi-square was found to be 9.043 who have adopted the soil conservation programme, while 6.665 in the case of farmer who have not adopted the soil conservation programme. In both the cases values are highly significant hence there is association between income of the farmers who have adopted or not-adopted the soil conservation programme with the adoption of wheat.

Association between personal attributes and adoption of Nitrogenous fertilizers

The Table 2 reveals about the association between the personal characteristics of the farmers who have adopted the soil conservation programme and those who have not adopted the soil conservation programme with the adoption of nitrogenous fertilizer. It is observed from the contingency table that Chi-square value was found to be 0.4995 in case of farmers who have adopted the soil conservation programme, while X^2 value was found to be 4.088 in the case of farmers who have not-adopted the soil conservation programme. In both the cases Chi-square values were not significant at 0.05 level of probability.

In case of education, the X^2 value 2.297 and 1.333 for the farmers who have adopted the soil conservation programme and who have not-adopted the soil conservation programme. In both the cases the Chi-square values were non-significant which conclude that there is no association between education of farmers who have adopted/not-adopted the soil conservation programme with the adoption of nitrogenous fertilizers.

The values of X^2 in case of size of land holding with adoption of nitrogenous fertilizer for wheat crop were significantly associated

Table 2 : Association between personal attributes and adoption of nitrogenous fertilizer

Independent Variables	Soil conservation programme Adopted farmers			X^2 value "C"	Soil conservation programme Non-adopted farmers			X^2 value "C"
	Low	High	Total	Value	Low	High	Total	value
(A) Age								
1. Young age	9	14	23	0.499 NS	22	9	31	4.088 NS
2. Old age	8	19	27	(0.0989)	8	11	19	(0.2747)
(B) Education								
1. Illiterate	10	12	22	2.297 NS	17	8	25	1.333 NS
2. Literate	7	21	28	(0.2095)	13	12	25	(0.1609)
(C) Size of land								
1. Small land holding	10	9	19	5.688 *	22	7	29	7.238 **
2. Big land holding	7	24	31	(0.3195)	8	13	21	(0.3555)
(D) Income								
1. Low income	11	10	21	5.451 *	23	9	32	5.222 *
2. High income	6	23	29	(0.3135)	7	11	18	(0.3074)
TOTAL	17	33	50		30	20	50	

NS = Non-significant; * Significant at 0.05 per cent level ** Significant at 0.01 per cent level

in both the cases, which conclude that there is association between size of land holding of the farmers who have adopted or not-adopted the soil conservation programme with the adoption of nitrogenous fertilizer.

In case of income, the value of Chi-square was found to be 5.451 who have adopted the soil conservation programme, while 5.222 in case of farmer who have not adopted the programme. In both the cases values were significant. Hence, there was association between income of farmers who have adopted/ not-adopted the soil conserveation programme with the adoption of nitrogen fertilizer.

Association between attributes and adoption of phosphatic fertilizer

The Table 3 reveals the association between the age of the farmers who have adopted the soil conservation programme and those who have not adopted the soil conservation programme with adoption of phosphatic fertilizer. The Chi-Square values were 0.9353 and 2.605 in case of adopters and non-adopters of soil conservation programme with age, respectively. This concludes that there is no association between age of the farmers who have adopted or not-adopted the soil conservation programme with the adoption of phosphatic fertilizer.

In case of education, the Chi-square value was found to be 0.6432 for the adopters of the soil conservation programme while Chi-square value found to be 2.710 for non-adopters of soil conservation programme. In both the cases Chi-square values were not significant, indicating no association between the variables.

The value of Chi-square was found to be 3.679 in the case of farmers who have adopted the soil conservation programme, while Chi-square value was 4.919 in the case of farmers who have not-adopted the soil conservation programme with education. In both the cases the X^2 values were not significant at 0.05 level of probability.

In case of income, the X^2 value 6.254 for the adopters and 6.148 for non-adopters of soil conservation programmes lead to conclude that there is association between income of the farmers who have adopted or not-adopted the soil conservation programme with the use of phosphatic fertilizer.

Association between personal attributes of farmers and adoption of potashic fertilizer

The Table 4 reveals the association between the personal attributes of farmers who have adopted the soil conservation programme and those who have not adopted the soil conservation programme with adoption of potashic fertilizer. It is observed from the contingency table that personal attributes of the adopters of soil conservation programme as well as the non-adopters of the programme were not associated with the adoption of potashic fertilizer. Thus it can be concluded that there is no association between age, education, size of land holdings and income of the farmers who have adopted or not-adopted the soil conservation programme with the adoption of potashic fertilizer.

Table 3 : Association between adoption of phosphatic fertilizer and socio-economic variables

Independent Variables	Soil conservation programme adopted farmers			X^2 value "C"	Soil conservation programme Non-adopted farmers			X^2 value "C"
	Low	High	Total	Value	Low	High	Total	value
(A) Age								
1. Young age	11	15	26	0.935 NS	19	10	29	2.605 NS
2. Old age	7	17	24	(0.1352)	9	12	21	(0.2224)
(B) Education								
1. Illiterate	10	14	24	0.6432 NS	18	9	27	2.710 NS
2. Literate	8	18	26	(0.1126)	10	13	23	(0.2267)
(C) Size of land								
1. Small land holding	10	9	19	3.679 NS	19	8	27	4.919 NS
2. Big land holding	8	23	31	(0.2617)	9	14	23	(0.2991)
(D) Income								
1. Low income	11	9	20	6.254*	20	8	28	6.148*
2. High income	7	23	30	(0.3333)	8	14	22	(0.3303)
TOTAL	18	32	50		28	22	50	

NS = Non-significant; * Significant at 0.05 per cent level

Table 4 : Association between selected characteristics of farmers with adoption of potashic fertilizers.

Independent Variables	Soil conservation programme adopted farmers			X^2 value "C"	Soil conservation programme Non-adopted farmers			X^2 value "C"
	Low	High	Total	Value	Low	High	Total	value
(A) Age								
1. Young age	14	13	27	1.468 NS	18	9	27	0.550 NS
2. Old age	8	15	23	(0.1688)	13	10	23	(0.1039)
(B) Education								
1. Illiterate	12	10	22	1.773 NS	20	9	29	1.421 NS
2. Literate	10	18	28	(0.1849)	11	10	21	(0.1660)
(C) Size of land								
1. Small land holding	12	11	23	1.154 NS	18	8	26	1.202 NS
2. Big land holding	10	17	27	(0.1500)	13	11	24	(0.1529)
(D) Income								
1. Low income	13	12	25	1.289 NS	20	8	28	2.052 NS
2. High income	9	16	25	(0.1584)	11	11	22	(0.1984)
TOTAL	22	28	50		31	19	50	

NS = Non-significant; * Significant at 0.05 per cent level

CONCLUSION

From the above findings it could be concluded that

1. High yielding varieties of wheat were adopted by the farmers irrespective of adopters or non-adopters of soil conservation programme.
2. The high yielding varieties of wheat, use of nitrogenous fertilizer depended mainly on size of land holding and income, age and education had no association with the adopters and non-adopters of soil conservation programme.
3. The independent variable, income showed singificant association with both adopters and non-adopters of soil conservation programme for the use phosphatic fertilizers, while age and education showed no relationship.
4. The independent variables as age, education, size of land holding and income have no association with the use of potashic fertilizer, irrespective of the participants or non-participants of the soil conservation programme.

IMPLICATION

The results of research indicate that both categories of farmers adopted high yielding varieties hence the efforts should be made to make aware the farmers regarding its yielding potentiality and the importance of soil conservation programme through various extension methods, the income had significant association for adoption of soil conservation programme, hence extension agency should implement employment generating programme at village level. The demonstration should be conducted at farmers' field regarding the use of high yielding varieties alongwith chemical fertilizers (Nitrogen, phosphorus and potashic). The field visit of farmers on Research Station should be conducted, so they can see and be convinced with new technology.

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