Adoption of Watershed Technologies by the Farmers in Morena District of Madhya Pradesh

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ABSTRACT

Extent of adoption of various watershed technologies by the farmers was studied in purposively selected Kheri Nala watershed area situated in Pahargarh block of Morena district of Madhya Pradesh during 2005-06. There was a considerable variation in the extent of adoption of various watershed practices and extent of adoption of vegetative practices was low as compared to the rest of the selected practices. Extent of adoption of watershed technologies was associated with variables like education, size of family, size of land holding, annual income, occupation, attitude towards watershed programme, irrigation and credit facilities, agricultural innovations and communication sources. Illiteracy, lack of capital, complexity of loan procedures, high cost of fertilizers and seeds, lack of training, lack of transport and irrigation facilities were perceived as major constraints in adoption of watershed technologies.

Key words: *Watershed technologies; Agricultural innovations; Communication sources;*

Out of 142 million ha of cultivated land in India, 105 million ha is under rainfed agriculture, which contributes 44% of total food basket and supporting 40% of the production. Madhya Pradesh (MP) being the largest state as well as with maximum rainfed / dry land area of the country, Govt. of M.P has given high priority for the development of dry land agriculture on watershed basis where soil and moisture conservation efforts are being carried out for improving the productivity and stabilizing the agriculture production of the state. Success of any rural development programme depends on degree of involvement of the people in the programme and at what extent the people adopted it. Keeping in view a study on watershed programme with regards to adoption of technologies by the farmers in Pahargarh block of Morena district was under taken to find out the extent of adoption of various watershed technologies by the farmers and the variables influencing the adoption.

METHODOLOGY

The present study was conducted in Kheri nala watershed situated in Pahargarh block of district Morena. The watershed covere 8 villages out of which, Mara and Sendari villages were selected randomly and 80 farmers were included randomly for the study as respondents in proportion of farmers participated in the watershed activities (45 out of 205 farmers of Mara village and 35 out of 145 farmers of Sendari village.) The data was collected with the help of pre tested schedule through direct interview. The statistical methods used for analysis of data were percentage distribution, mean, standard deviation and correlation analysis.

RESULTS AND DISCUSSION

Majority of the respondents were illiterate belonged to middle age group and ST caste category, had small family size (up to 5 members), medium size of land holding (1 to 2 hectares), low annual income (up to Rs. 10000), two to three subsidiary occupation along with farming, less possession of agricultural assets, favorable attitude towards watershed programme, availed irrigation and credit facilities, less to average innovative in nature and utilized medium to low communication sources.

Extent of adoption of various watershed technologies: The distribution of the respondents according to their extent of adoption of selected watershed development technologies is shown in Table 1. It was observed that 51.25%, 35% and 13.75% of

the respondents had medium, high and 5% low extent of adoption of cultural practices for water and soil conservation, respectively. As regard to mechanical practices, majority (46.25%) of the respondents had medium, 36.25% and 17.50% had low and high extent of adoption of mechanical practices for water and soil conservation. In case of horticultural practices, 38.75% respondents showed high level of adoption, while 36.25 and 25% respondents had medium and low level of adoption of horticultural practices. In case of vegetative practices, majority of the respondents i.e. 48.75% had medium extent of adoption of vegetative practices for water and soil conservation. Thus, there was a considerable variation in the extent of adoption of various watershed development practices. The extent of adoption of vegetative practices by the respondents was low followed by mechanical practices as compared to rest of the selected practices.

Table 1. Extent of adoption regarding various watershed technologies

Practices	N	%age
Extent of adoption Cultural practices		
Low	11	13.75
Medium	41	51.25
High	28	35
Total	80	100
Mechanical practices		
Low	29	36.25
Medium	37	46.25
High	14	17.5
Total	80	100
Horticulture practices		
Low	20	25.00
Medium	29	36.25
High	31	38.75
Total	80	100
Vegetative practices		
Low	31	38.75
Medium	39	48.75
High	10	12.5
Total	80	100

The correlation coefficients of thirteen antecedent variables related to socio-economic, psychological and communicational attributes of respondents with their extent of adoption of watershed technologies (consequent variable) were computed and presented in Table 2. Correlation studies revealed that extent of adoption showed positive correlation with education, size of family, size of land holding, annual income, occupation, attitude towards watershed programme, irrigation facilities, credit facilities, agricultural innovations and communicational sources at 1% level of significance, while its association with age was found negative and highly significant. Caste and possession of agricultural assets did not show significant relationship with overall adoption of watershed technologies. It indicated that respondent's education, size of family, land holding size, annual income, occupation, attitude, irrigation and credit facilities, agricultural innovations and communication sources did positively affected the respondent's adoption of watershed technologies while the remaining variables did not effect.

The results are in agreement with the results of *Dube and Swarnakar (1988), Saxena et al. (1990), Supe et al. (1990), Siddharamiah (1991), Tailor et al. (1998)* and *Rajput and Saxena (2002)* for education. *Swarnakar and Agrawal (1999)* also reported positive and significant correlation of education, land holding, availability of irrigation, annual income with adoption of new farm technology. The results pertaining to age are in contrast to the findings of *Bevalatti and Sundaraswamy (1990), Supe et al. (1990) and Swarnkar and Agrawal (1999),* who reported non-significant or significant positive association of age with adoption of watershed technologies.

Table 2. Zero order correlation of antecedent variables of the respondents with their extent of adoption of watershed technologies

S. No.	Name of variable	Correlation coefficient
1	Age	-0.3667**
2	Caste	0.135
3	Education	0.6755**
4	Size of family	0.2513**
5	Size of land holding	0.5624**
6	Annual income	0.2961**
7	Occupation	0.3367**
8	Agricultural assets	-0.0987
9	Attitude towards watershed programme	0.6333**
10	Irrigation facilities	0.4617**
11	Credit facilities	0.3056**
12	Agricultural innovations	0.3985**
13	Communication sources	0.4824**

** Significant at 1% level

Constraints in adoption of watershed technologies: Opinions of beneficiaries on constraints in adoption of watershed technologies have been obtained and there rank order is presented here**.**

Table 3. Constraints faced by respondents in adoption of watershed technologies.

S. No.	Constraints	Respondents		Rank
		N	%age	
1	Illiteracy	57	71.26	I
2	Lack of training	46	57.50	V
3	High cost of fertilizer and seeds	49	61.25	IV
4	Lack of capital	52	65.00	II
5	Uncertainty of forthcoming funds	24	30.00	IX
6	Distant training centre	19	23.75	XI
7	Complexity of loan procedures	50	62.50	III
8	Unavailability of fertilizer at proper time	22	27.50	X
9	Lack of transport facilities	37	46.25	VI
10	Lack of active workers	27	33.75	VIII
11	Lack of irrigation facilities	34	42.50	VII

It is evident from the data that the illiteracy (71.25%), lack of capital (65.00%), complexity of loan procedures (62.50)%, high cost of fertilizer and seed (61.25%), lack of training (57.50%), lack of transport facilities (46.25%) and lack of irrigation facilities (42.50%) were perceived as major constraints in adoption of watershed technologies. However, lack of active workers (33.75%), uncertainty of forthcoming fund (30.00%), unavailability of fertilizer at proper time (27.50%) and distant training centre (23.75%) were also important constraints in the adoption of watershed technologies as perceived by respondents.

Illiteracy, lack of capital, complexity of loan procedures, high cost of fertilizers and seeds, lack of training, lack of transport and irrigation facilities were perceived as major constraints in adoption of watershed technologies.

CONCLUSION

Majority of the respondents had medium to high level of adoption of watershed technologies. The variable attitude of respondents towards watershed programme, education and size of land holding had strong positive correlation and high magnitude of direct effect on extent of adoption. Therefore, these were identified as dominant variables through which the level of adoption of watershed technologies can be estimated.

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