

ADOPTION OF WATERSHED MANAGEMENT TECHNOLOGY BY FARMERS

R. C. Patel¹ A. S. Saiyad² and N. B. Chauhan³

INTRODUCTION

Gujarat is predominantly the state for dry land agriculture. Out of 96 lakh hectares of its cultivable area, about 77.00 per cent area is rainfed. The National Watershed Development Programme for Rainfed Area (NWDPA) was started by the state government in 1986-87 to enhance the production efficiency of dry land area.

Adoption of watershed management technology considered as a best mean to increase agricultural production and improve standard of living of beneficiaries in watershed area. It varies from farmer to farmer according to their knowledge and understanding. It is also influenced by socio-personal, agro-economic, psychological and communicational qualities of the farmers. The present study was undertaken to examine the pattern of adoption of watershed management technology with following specific objectives:

1. To examine the extent of adoption of watershed management technology by the beneficiaries of NWDPA.

2. To ascertain the association between selected socio-personal, agro-economic, psychological and communicational characteristics of beneficiaries and their extent of adoption of watershed management technology.

METHODOLOGY

The study was conducted in Kapadwanj and Balashinor watersheds of Kheda district of Gujarat state. All the 10 villages covered under programme were included in the study. A random sample of 217 beneficiary farmers was drawn by proportionate random sampling method. The data were collected with the help of a specially structured schedule by personal interview. To measure the level of adoption of watershed management technology, the scale developed by Sengupta (1967) was used. The association between some of the characteristics of the beneficiary farmers and extent of adoption of watershed management technology was tested by applying coefficient of correlation.

Table 1: Distribution of respondents according to extent of adoption of watershed management technologies N= 217

Sr. No.	Extent of adoption	Frequency	Per cent
1.	Low Adoption (up to 49 score)	37	17.05
2.	Medium Adoption (50 to 59 score)	145	66.82
3.	High Adoption (above 59 score)	35	16.13

¹ Assistant Professor, Department of Extension Education, BACA, GAU, Anand

² Assistant Professor, Department of Extension Education, BACA, GAU, Anand

³ Associate Professor, Department of Extension Education, BACA, GAU, Anand

Table 2: Practice wise adoption of watershed management technology by beneficiary farmers N=217

Sr. No.	Recommended technology	Frequency	Per cent	Rank
1	Contour banding	54	24.88	XIV
2	Land leveling	85	39.17	XI
3	Summer ploughing	185	85.25	VII
4	Construction of farm pond	05	2.30	XX
5	Recharging of wells	00	00	—
6	Sowing across the slope	30	13.82	XVII
7	Tillage across the slope	30	13.82	XVII
8	Use of short duration varieties	210	96.77	I
9	Timely sowing	195	89.86	V
10	Mid season correction	75	34.56	XII
11	Inter cropping	152	70.00	IX
12	Use of organic manures	200	92.17	III
13	Use of chemical fertilizers	188	86.63	VI
14	Weed management			
	(I) Hand weeding	198	91.24	IV
	(II) Use of herbicides	32	14.75	XVI
15	Inter culturing	206	94.93	II
16	Plant protection measures			
	(I) Seed treatment	40	18.43	XV
	(II) Pest control	162	74.65	VIII
	(III) Diseases control	58	26.63	XIII
17	Supplementary irrigation	87	40.00	X
18	Mulching	0	0.00	—
19	Planting of trees on farm boundary	25	11.52	XIX
20	Sprinkler or drip irrigation	0	0.00	—

RESULTS AND DISCUSSION

EXTENT OF ADOPTION

It is observed from the data presented in Table 1 that majority (66.82 percent) of the beneficiaries of NWDPR had medium level of adoption of watershed management technology followed by 17.05 percent with low and 16.13 percent with high level of adoption of watershed management technology. This finding is also in conformity with the results reported by Karkar(1998).

ADOPTION OF TECHNOLOGIES

The practices wise adoption of watershed management technology was ascertained and the data obtained have been reported in Table 2. A critical perusal of the data in the table discloses that, significant numbers of respondents had adopted watershed management technologies namely, short duration varieties of crops, inter culturing, use of organic manure and weed management through hand weeding. The findings are in conformity with the findings reported by Shah and Patel (1996)

Table 3: Association between personal traits and extent of adoption of watershed management technology N=217

Sr. No.	Characteristics	'r' value
Socio-personal characteristics		
1	X1. Age	-0.1813**
2	X2. Education	0.5111**
3	X3. Social participation	0.3646**
Agro-economic characteristics		
4	X4. Occupation	-0.2740**
5	X5. Land holding	0.4855**
6	X6. Herd size	0.3947**
7	X7. Irrigation potentiality	0.2846**
8	X8. Cropping intensity	0.3103**
9	X9. Annual income	0.4795**
Psychological characteristics		
10	X10. Economic motivation	0.3233**
11	X11. Risk preferences	0.4812**
12	X12. Scientific orientation	0.3913**
13	X13. Attitude towards NWDPR	0.4694**
14	X14. Knowledge about WMT	0.5965**
Communicational characteristics		
15	X15. Sources of information	0.5479**
16	X16. Extension participation	0.5666**

**Significant at 0.1 level of probability

and Karkar(1998). The results indicated that higher adoption was observed for simple and no cost or low cost technologies. Contrary to this, technologies like recharging of well, mulching and sprinkler or drip irrigation was not adopted by any respondent.

CORRELATION WITH PERSONAL ATTRIBUTES

It could be observed from Table 3 that, the characteristics namely education, social participation, land holding, herd size possessed, irrigation potentiality, cropping intensity, annual income, economic motivation, risk preferences, scientific orientation, attitude towards NWDPR, knowledge about watershed management

technology, sources of information and extension participation of beneficiaries of NWDPR had positive and significant association with their extent of adoption of watershed management technologies. However, age and occupation had negative association with extent of adoption of watershed management technologies.

This means that extent of adoption of watershed management technology was observed better among those farmers who are young in age and are dependent on agriculture occupation only; having higher level of education; good social participation; big size of land holding; possessed more number of animals; availability of irrigation water; higher cropping intensity; high annual income;

high level of economic motivation; risk taking capacity; scientific orientation; positive attitude towards NWDPRA; and good knowledge of watershed management technology; higher involvement with information sources and better contact with extension agencies.

CONCLUSION

It can be concluded that majority of the beneficiaries of NWDPRA had medium level of extent of adoption of watershed management technology. Majority of them had adopted simple and no cost or low cost technologies such as short duration varieties, inter culturing, hand weeding and use of organic manures. It was interesting to note that none of the beneficiaries had adopted costly and complex technology such as sprinkler/drip irrigation, recharging of well and use of herbicides.

REFERENCES

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