CONSTRAINTS FACED BY THE BENEFICIARY FARMERS IN ADOPTION OF WATERSHED CROP PRODUCTION TECHNOLOGY

PRAJAPATI, V. V.* AND PATEL, B. K.

VANBANDHU POLYTECHNIC IN AGRICULTURE
SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY
AMIRGADH-385 130. DIST: BANASKANTHA, GUJARAT, INDIA

E.mail: vvprajapati1963@gmail.com

ABSTRACT

The study was conducted in Banaskantha District of Gujarat State in purposively randomly selected three taluka (Palanpur ,Vadgam and Danta) where National Watershed Development Project in Rainfed Areas (NWDPRA) was functioning. There were 21 villages, where the project was in operation during 9th Five Year Plan. All these villages were selected purposively to make the present study reliable. Using proportionate random sampling, 200 beneficiaries were selected. The findings revealed that majority of the beneficiaries of the project had medium level of knowledge and medium adoption of Watershed Crop Production Technology (WCPT). Majority of them adopted no cost or low cost technologies such as summer ploughing, sowing across the slope, growing short duration varieties, hand weeding and use of organic manures. It was interesting to note that very less number of beneficiaries had adopted costly/complex technology such as mulching, use of herbicide, recharging of well and terracing. Among soil and water conservation technology, the important constraints expressed by the respondents were, lack of technical guidance (84 %), the land leveling is costly (76 %), lack of finance (72.50 %) and less subsidy (61 %). Constraints related to crop production technologies concerned, it was clearly observed that low market price of agricultural products (88 %), high rate of electricity (87 %) and irregular supply of electricity (84 %), lack of technical guidance (76 %) and lack of finance to purchase inputs (75.50 %) were the major constraints expressed by respondents. More than 80 per cent of beneficiary farmers suggested that more subsidies should be granted for soil and water conservation works (82.50 %) and remunerative market prices of agricultural products should be provided to the farmers (80.50 %).

KEY WORDS: *Constraints, respondents, WCPT*

INTRODUCTION

Gujarat is predominantly the state for dryland agriculture, 77.00 per cent of its total cultivable area is under rainfed. Even, harnessing all the irrigation potential, the irrigated area would be around 45.00 per cent. Realizing the problems and potential of rainfed farming as well as to overcome arid and semi-arid situation in the state, National Watershed Development Project in Rainfed Areas (NWDPRA) was introduced in the state in 1987-88. A considerable time has been elapsed after implementation of NWDPRA in the state. Therefore, it is quite essential to know the consequent effects of this programme on adoption and techno-economic changes in beneficiary farmers of watershed area. Constraints in adoption of new technology

never end. However, they can be minimized. Constraints in this study were operationalized as the item of difficulties faced by the farmers in adoption of Watershed Crop Production Technology **(**WCPT). The respondents were requested to express the constraints faced by them in adoption of WCPT. For that, a close ended schedule was prepared in which the probable constraints, which can hinder the adoption were enlisted. Each respondent was asked to mention his constraints in adoption of WCPT. Based on the responses from the beneficiary farmers, frequency and percentage were worked out against each constraint. To ascertain the suggestions offered by the respondents to overcome their constraints in adoption of WCPT, an open ended question were asked to the respondents. Based on the responses from the beneficiary farmers, frequency and percentage were worked out against each suggestion.

METHODOLOGY

The present study was undertaken in Banaskantha district of Gujarat state. It is one of the leading districts where rainfed farming is dominative and therefore, the district was purposively selected. The district consists of twelve talukas, of which three taluka (Palanpur ,Vadgam and Danta) were purposively selected, because they are having similar agro-climatic condition, soil type and cropping pattern. There were 21 villages, where the project was in operation during 9th Five Year Plan. All these 21 villages were selected purposively to make the present study reliable and using proportionate random sampling, 200 beneficiaries were selected. Constraints in adoption of new technology never end. However, they can be minimized. Constraints in this study were operationalized, as the item of difficulties faced by the farmers in adoption of WCPT. The respondents were requested to express the constraints faced by them in adoption of WCPT. The percentage for each constraint was worked out. The data were collected with the help of structured interview schedule. The interview schedule was developed through discussion with experts, scientist and extension officers working in the district. The data were analyzed in the light of objectives for arriving at meaningful interpretation through appropriate scale and statistical procedures.

RESULT AND DISCUSSION

Knowledge level of beneficiary farmers

The result of the study reported in Table 1 showed that 77 per cent of the respondents had medium level of knowledge about watershed crop production technology, while 12.50 per cent and 10.50 per cent of the respondents had low and high level of knowledge about watershed crop production technology, respectively. The probable reasons may be due to fact that most of the respondents of these three taluka were educated up to middle and high school level, which might have prompted these respondents to acquire more knowledge and their varying degree of exposure to different mass media and interaction with extension personnel might have helped the respondents to acquire more knowledge about watershed practices. Hence, majority of the respondents were found to have medium knowledge level. This finding is in conformity with the findings of the studies conducted by Meti and Hanchinal (1995), Singh *et al.* (1995) and Chandra (2005).

Extent of adoption by the beneficiary farmers

It was observed from the data presented in Table 2 that 63.50 per cent of the respondents had medium level of extent of adoption followed by 20 per cent with high level and 16.50 per cent with low level of adoption of Watershed Crop Production Technology. 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 practice, majority of the respondents never contacted extension personnel. The findings are in conformity with the results of Sundarambal (1994), Khade *et al.* (1998), Jandhale *et al*. (2000) and Chandra (2005).

Constraints faced by the beneficiary farmers in adoption of watershed crop production technology

The constraints of two fold *viz.*, related to soil and water conservation technology and related to crop production technology were presented in Table 3. Among soil and water conservation technology, the constraints *viz.*, lack of technical guidance (84 %) was the main constraint expressed by the respondents. Costly land leveling (76 %), lack of finance (72.50 %) and less subsidy (61 %) were also the important constraints expressed by the respondents. Other important constraints expressed by the respondents were lack of knowledge about soil and water conservation technology (56 %), lack of timely and appropriate extension services (55 %), stone are not locally available for gully plugging (50.50 %) and lack of cooperation of neighbours (45 %). The least important constraints as mentioned by beneficiary farmers were construction of field bund is costly (37.50 %), construction of farm pond is costly (32.50 %), land wasted in bunds and channels (31 %) and lack of coordination between field stuff and farmers (22 %).

So far as the constraints related to crop production technologies concerned, it was clearly observed that low market price of agricultural products (88 %), high rate of electricity (87 %) and irregular supply of electricity (84 %) were the major constraints expressed by respondents. The lack of technical guidance (76 %) and lack of finance to purchase inputs (75.50 %) were also important constraints reported by beneficiary farmers. The next important constraints were high cost of farm inputs (65.50 %), high rate of labour (60.50 %), lack of knowledge about recommended crop production technology (57 %), lack of timely and appropriate extension services (56 %) and unavailability of sufficient labour in time (55 %). The least important constraints faced by the respondents were lack of communication facilities (26 %), risk in adoption of new technology (21 %) and lack of transport facility (14%), respectively.

Thus, it can be concluded that the major soil and water conservation technology related constraints were lack of technical guidance, land leveling is costly and lack of finance, while in case of crop production technology, the important constraints were low market price of agricultural product, high rate of electricity and irregular supply of electricity. Shivaprasad (1990) also reported that lack of required finances and lack of technical guidance from extension officers were the major constraints as perceived by the farmers of Andhra Pradesh in adoption of recommended watershed practices.

Suggestions made by the beneficiary farmers to overcome the constraints in adoption of watershed crop production technology

An attempt was made to know the suggestions of the beneficiary farmers to overcome the various problems faced by them in adoption of watershed crop production technology**.** The responses of farmers in this regard were presented in Table 4. The results revealed that more than 80 per cent of beneficiary farmers suggested that more subsidies should be granted for soil and water conservation works (82.50 %) and remunerative market prices of agricultural products should be provided to the farmers (80.50 %). Nearly three-fourths of the beneficiary farmers stated that proper technical guidance should be given to the farmers as and when they needed (76 %) and farm inputs should be subsidized (74 %). The suggestion, farmers should be protected by crop insurance in case of failure of season was offered by 66 per cent and more training should be imparted to the farmers was offered as important suggestion by 62.50 per cent beneficiaries.

Other suggestions offered by less than half of the farmers were field demonstrations should be organized (46 %), loan and subsidy should be easily available (34 %), timely supply of quality farm inputs be managed (16 %) and follow up of watershed activities by field staff (11.50 %) should be done.

These suggestions are also in agreement with the findings those of Karkar (1998) and Patel (2000).

CONCLUSION

From the discussion, it can be seen that constraints in adoption of new technology never end. However, they can be minimized. major soil and water conservation technology related constraints were lack of technical guidance, land leveling is costly and lack of finance, while in case of crop production technology, the important constraints were low market price of agricultural product, high rate of electricity and irregular supply of electricity. More than 80 per cent of beneficiary farmers suggested that more subsidies should be granted for soil and water conservation works and remunerative market prices of agricultural products should be provided to the farmers.

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Table 1: Distribution of the respondents according to their knowledge level about watershed crop production technology

Sr. No.	Level of Knowledge	Frequency	Per Cent
1.	Low (up to 17 score)	25	12.50
2.	Medium (18 to 28 score)	154	77.00
3.	High (above 28 score)	21	10.50
	Total	**200**	**100.00**

Mean (X) = 22.700; S. D. = 5.3959.

Table 2: Distribution of the respondents according to their extent of adoption of WCPT

Sr. No.	Extent of Adoption	Frequency	Per Cent
1.	Low (Up to 43 score)	33	16.50
2.	Medium (44 to 67 score)	127	63.50
3.	High (Above 67 score)	40	20.00
	Total	**200**	**100.00**

Mean (X) = 55.0300; S. D. = 11.7798

Table 3: Constraints faced by the beneficiary farmers in adoption of watershed crop production technology (N = 200)

Sr No	Constraints	Frequency	Per Cent
[I]	**Soil and water conservation technology**		
1.	Lack of knowledge about soil and water conservation technology	112	56.00
2.	Lack of technical guidance	168	84.00
3.	Construction of field bund is costly	75	37.50
4.	Land wasted in bunds and channels	62	31.00
5.	Construction of farm pond is costly	65	32.50
6.	Land leveling is costly	152	76.00
7.	Less subsidy	122	61.00
8.	Lack of coordination between field staff and farmers	44	22.00
9.	Stone are not locally available for gully plugging	101	50.50
10.	Lack of finance	155	72.50
11.	Lack of cooperation of neighbours	90	45.00
12.	Lack of timely and appropriate extension services	110	55.00
[II]	**Crop production technology**		
1.	Lack of knowledge about recommended crop production technology	114	57.00
2.	Lack of technical guidance	152	76.00
3.	High cost of farm inputs	131	65.50
4.	Low market price of agricultural products	176	88.00
5.	Risk in adoption of new technology	42	21.00
6.	Lack of transport facility	28	14.00
7.	Irregular supply of electricity	168	84.00
8.	High rate of electricity	174	87.00
9.	Lack of finance to purchase inputs	151	75.50
10.	Unavailability of sufficient labour in time	110	55.00
11.	High rate of labour	121	60.50
12.	Lack of communication facilities	52	26.00
13.	Lack of timely and appropriate extension services	112	56.00

Table 4: Suggestions made by the beneficiary farmers to overcome the constraints in adoption of watershed crop production technology (N = 200)

Sr. No.	Suggestions	Frequency	Per Cent
1.	Farmers should be protected by crop insurance in case of failure of season	132	66.00
2.	Field demonstrations should be organized	92	46.00
3.	More training should be imparted to the farmers	125	62.50
4.	Proper technical guidance should be given to the farmers as and when they need	152	76.00
5.	Loan and subsidy should be easily available	68	34.00
6.	Farm inputs should be subsidized	148	74.00
7.	More subsidy should be granted for soil and water conservation works	165	82.50
8.	Timely supply of quality farm inputs be managed	32	16.00
9.	Remunerative market prices of agricultural products should be provided to the farmers	161	80.50
10.	Follow up of watershed activities by field staff be done	23	11.50

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