



Association of Knowledge Level of the Farmers about Sprinkler System of Irrigation with Independent Variables in the Jhunjhunu District of Rajasthan

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ABSTRACT

Water being a precious natural resource should be used economically in daily use as well as in irrigating the crops. Over irrigation and under-irrigation both may result in decreasing the yield of crop. Tremendously Proper and economical use of water would be advantageous to the farmers as well as it will help in bringing more land under cultivation. In order to use such a precious natural resource economically, sprinkler irrigation system was evolved about 55 years back. Rajasthan is such a state where water is a limiting resource, rains are uneven, drought is a recurring factor, and topography is undulating. Recently the sprinkler irrigation system is getting momentum in the state. But still the farmers are changed to age old pattern of irrigation which causes huge loss of water. The knowledge and attitude play an important role in adoption of improved practices. Keeping in mind the importance of knowledge and attitude, factors associated with attitude and constraints in its adoption, the present study entitled "A study on knowledge and adoption of sprinkler system of irrigation by the farmers in the Jhunjhunu district of Rajasthan" is undertaken with the following specific objectives "To measure the knowledge level of the farmers about sprinkler system of irrigation".

1. Introduction

In this century, as we engage in perhaps one of the greatest challenge of our times to meet the imperative of increasing agricultural production in a sustainable way, we are more actually aware than ever before that all of us are members of the vast common wealth of nature and as we continue our search for paths to human progress that meet the needs and aspirations of the present generation without compromising the ability of future generations to meet their needs wise stewardship of our natural resources normal land, water and biodiversity becomes are of our foremost objective because agriculture is the back bone of Indian economy and largely dependents upon natural resources like soil water and vegetation. Agricultural productivity depends on how efficiently these resources are conserved and managed.

Conservation of soil and water has great importance in Indian economy. In our country, out of 328 million hectares of total geographical area, 142 million hectares are need the country has crossed 200 million in 1998- 99 and reached to 212 million tonnes. It is estimated that 37 per cent of the cultivated area which is irrigated *i.e.* 53 million hectares contributes 55 per cent of total food grain production, whereas 63 per cent of rain fed area *i.e.* 89 million hectares accounts for only 45 per cent of the output joining by past bends the average spread of irrigation is around four million hectares every five year. This will still leave 69 million hectares, nearly half the cultivated area under rain fed conditions (WARASA guidelines for NWDPR-2000). In India it was proposed to reach a production target of 225 million tonnes of food grains, 968 million tonnes of fodder and 225 million cubic centimetre of fuel wood from the existing lands to meet the requirement

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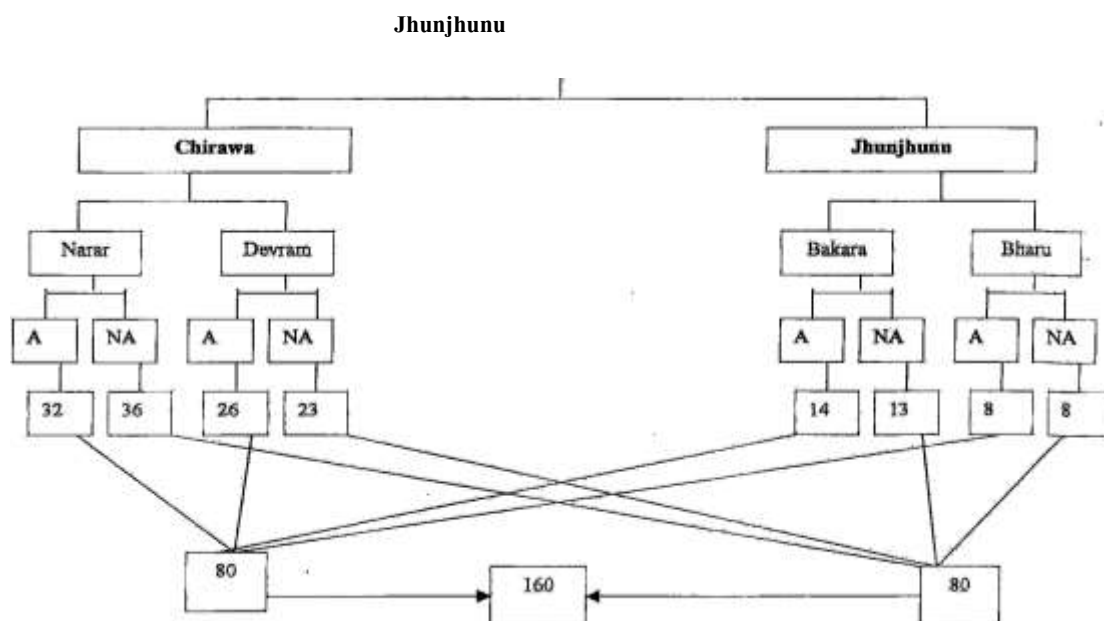
of about one billion population in 2000 A.D. (Malavia *et al.*, 1992). This implies that if food production is to be increased sufficiently, enough crop production in rain fed areas will have to be increased. Two possible alternatives exist to increase the crop production, one is that the rain fed areas have to be brought under irrigation which could not be crossed the 50 per cent of the cultivated areas. Second is improving crop production in rain fed area by promoting the adoption of watershed technology. Therefore, improved crop utilization of available rainwater, dryland crop yield per unit area. India's huge agricultural potential is embodied in its abundant and diverse natural resources. Wide spread availability of arable land and a largely non-hostile and conducive climate has provided India with a natural advantage in agriculture unlike most parts of the world, which has to battle a cold and hostile winter on a relatively small proportion of arable land, India is blessed with bounteous nature. This vast potential, of course, is still largely untapped.

2. Materials and Methods

The present study was conducted in the Jhunjhunu district of Rajasthan. Jhunjhunu is situated in the 23°8'N latitude northern part of Rajasthan this district is divided into six tehsils constituting eight panchayat samities, 288 gram panchayats and 865 villages the total geographical area of the district is 591681 hectares, out of which about 436901 hectares is cultivated.

The net irrigated area is around 155476 hectare. The land is mainly plain was purposely for the study because of the of the following reasons: (i) This district has highest irrigated area under sprinkler irrigation system *i.e.* 82 per cent of its net irrigated area. (ii) Jhunjhunu district is ranked third in Rajasthan as per the total number of sprinkler sets available in the state (iii) The investigator belongs to district Jhunjhunu of Rajasthan and is well acquainted with the area, people and their dialect, which will facilitate him in report development with the farmers resulting in making the study more credible and trust worthy. (ii) Selection of panchayat samiti Jhunjhunu district consists of eight panchayat samities, out of these in Chirawa (15200 sets) and Jhunjhunu (9300 sets) panchayat samities the maximum number of sprinkler sets were installed in last four years (1995—1999). Taking into account this statistics. Above two panchayat samities were purposely selected for present investigation. (iii) Selection of gram panchayats: Selection of gram panchayats a comprehensive list of all those gram panchayats having sprinkler sets under. Chirawa and Jhunjhunu panchayat samities were prepared with the help of information sources. Out of this prepared list two gram panchayat Narar (405) and Devram (317) of Chirawa panchayat samiti and two gram panchayats Bakara (185) and Bharu (105) of Jhunjhunu panchayat samiti having maximum sprinkler sets were retained for preset study. For the purpose of selection of respondents, a list of farmers (adopters and non-adopters of sprinkler system) was prepared with the help of village patwari, local leaders and agriculture supervisor of respective villages for selecting the respondents.

Figure 1. Flow chart showing the selection of respondents.



Measurement of knowledge

Measurement of the respondents about sprinkler irrigation technology. The modified scale developed by Sharma, 2002 was used.

3. Results and Discussions

Knowledge as a body of understood information possessed by individual is one of important components of adoption behavior. About sprinkler irrigation information. It is considered as a pre-requisite for adoption by many authors and scientists. On this ground it is imperative to examine the extent of knowledge of the respondents sprinkler irrigation system. The present investigation was therefore, sprinkler system of irrigation". it measure the knowledge level of the farmers To get an overview of the knowledge level of respondents were grouped into (i) low (ii) medium and (iii) high knowledge levels on the basis of calculated mean and standard deviation of respondents of the obtained schedule.

Table-1 reveals that more than 50 per cent of the adopter respondent's fall in the medium knowledge group where as both level respondents have same percentage *i.e.* adopter respondents high and low further indicates that in total nearly 80 per cent sprinkler holders were found in the medium and high knowledge group. It means that the respondents had fairly good knowledge about sprinkler irrigation technology.

The present findings are in line with the findings of Yadav (1993) Who found 65 per cent of the respondents were in medium knowledge level about sprinkler system of irrigation.

Table 1. Distribution of adopter respondents on the basis of their Level of knowledge

S. No	Knowledge Level	Knowledge score	Number of respondents	Percentage of total
1.	Low	Below 57.43	15	18.75
2.	Medium	57.43 to 73.83	50	62.50
3.	High	Above 73.83	15	18.75

The present findings are also in agreement with findings of Vekaria and Pandey (1995) reported that nearly half of the of respondents (49 possessed medium knowledge level followed by 35.25 per cent 18.63 per cent low and high knowledge Level regarding modem technology. Sprinkler system of findings and. Table Findings irrigation. The findings who per cent) found in low knowledge in medium knowledge level about are also in agreement with the Table-5.2 depicts that more than 50 per cent non adopter respondents (58.75 %) were found in Low knowledge group 31.25per cent Medium knowledge group and 10 per cent in high. knowledge group,

Table 1. Selected villages-wise distribution of the respondents

S.No.	Name of The village	Total holders (Adopter)	Total	Selected adopter	Selected non adopter
(A)Panchayat Samiti Chirawa					
1.	Narar	45	612	32	36
2.	Devram	317	402	26	23
(B)Panchayat Samiti Jhunjhunu					
3.	Bakara	185	212	14	13
4.	Bharu	105	138	8	8
	Total	1012	1364	80	80

Figure 2. Distribution of adopter respondents on the basis of their level of knowledge.



Figure 3. Distribution of non-adopter respondents on the basis of their level of knowledge. H=High, L=Low, M=Medium,

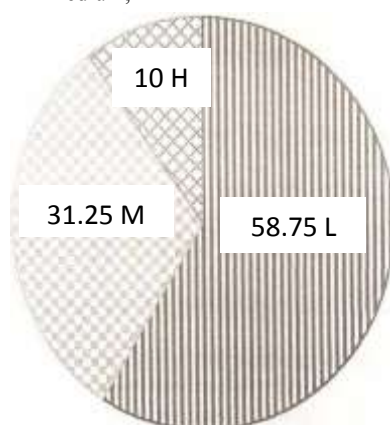


Table 2. Distribution of non-adopter respondents on the basis of their level of knowledge

S. No.	Knowledge level	Knowledge score	Number of respondents	Percentage of total
1.	Low	Below 37.12	47	58.75
2.	Medium	32.12 to 47.84	25	31.25
3.	High	Above 47.84	8	10

Comparison of the knowledge level of the adopter and non-adopter respondent's shows different pattern of expression in three groups *i.e.* as far as concerned about medium level of knowledge there is slight difference in both category of respondents where it shows great difference in low and high knowledge level group of both category. In adopter respondents about 80 per cent fell in the medium and high knowledge while in non-adopter respondents about 90 per cent expressed in low and medium knowledge groups.

Conclusion and Recommendations

It was noted that majority of adopter respondents (65 per cent) were in medium knowledge levels about sprinkler system while 58.75 per cent adopters were in low knowledge level group about sprinkler system of irrigation while in case of non-adopters it was noted that 31.25 per cent, 58.75 per cent and 10.00 per cent farmers were in medium, low and high knowledge levels, respectively.

On the basis of the results obtained from the study and observations taken during investigation, the following recommendations have been made which may be quite useful to the state agriculture department, sprinkler manufacturing agencies in making the strategy for promoting sprinkler irrigation technology in the country in general in Rajasthan particularly: Farmers of the study area appear to be enthusiastic to participate training for different aspects of sprinkler irrigation technology. Therefore, state agriculture Department in collaboration with Agricultural Universities and sprinkler manufacturing agencies should prepare chalk out the programmes farmers can sprinkler organized and area specific comprehensive educational training for the farmers, so that and skills about different aspects of irrigation technology.

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