Adoption of Sprinkler Irrigation System by the Farmers in Gujarat

Akshaya Ghintala[1], G. J. Patel[2], Bansi Lal[3] and Vijay Kumar[4]

ABSTRACT

The study was conducted in Dantiwada and Deesa talukas of Banaskantha district of north Gujarat to assess the extent of adoption of sprinkler irrigation system. From each taluka six villages selected purposively and from each village 10 farmers were selected by using random sampling technique, there by constituting a total sample size of 120 respondents. Data were collected by using personal interview method. However, majority of farmers were found having medium level of adoption in sprinkler irrigation system. Education, land holding, social participation, annual income, source of information, knowledge level, economic motivation, source of irrigation, cropping pattern and cropping intensity had significantly associated with their extent of adoption of sprinkler irrigation system.

Key words: Adoption, sprinkler irrigation system

INTRODUCTION

Land and water are important natural resources which play an important role in agricultural production. However, due to the scarce conditions of water for irrigation, many parts of the land were unutilized or underutilized. This is mainly due to the fact that the rainfall is irregular and uneven in many parts of country. Gujarat is no exception under this situation, shortage of water has become one of the main problems in Gujarat agriculture. Therefore, efficient use of available water has become extremely important which can be done through sprinkler irrigation.

Sprinkler irrigation is still in its infancy in India and there is a need to make it popular among the farmers. Even though there is a phenomenal growth in the area under sprinkler irrigation, a lot of work is still to be done to explain and convince the farmers, especially those in the dry land area about the high potentialities of this new system. The main purpose of this study was to get a clear-cut picture of the present situation of the adoption of sprinkler irrigation system in north Gujarat especially in Banaskantha district with following objective: to find out the extent of adoption of the farmers about sprinkler irrigation system, and to ascertain the association between the selected characteristics of the famers and their extent of adoption of sprinkler irrigation system.

METHODOLOGY

The study was purposively undertaken in Dantiwada and Deesa talukas of Banaskantha district of Gujarat state.

Six villages were purposively selected from each taluka on the basis of higher number of farmers having sprinkler irrigation system. Thus, total twelve villages were purposively selected. From each selected village, 10 farmers were selected randomly by making a sample of 120 respondents.

Ex-post facto resend design was used for the study. The independent variables were measured by using suitable scale and procedure adopted by various researchers in past with due modification. The dependent variable taken in this study was extent of adoption of sprinkler irrigation system which was measured by developed structured schedule on the basis of the adoption quotient developed by Sengupta (1967).

RESULTS AND DISCUSSION

Extent of adoption of the farmers about sprinkler irrigation system:

Adoption is a decision to make continuous full use of an innovation, while adoption process is a mental process through which an individual passes from first hearing about an innovation to its final adoption. One of the main objectives of our agricultural policy is to increase the gross agricultural production as well as to improve the efficiency of various inputs used by the rural community. The technology being developed at the research station needs to be adopted by vast majority of the farmers so that the rate of agricultural production can be accelerated. The sprinkler irrigation systems are one of them. The important task in the development programme for

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[1.] Ex. M.Sc. (Agri.) Student, Deptt. of Ext. Edu., CPCA, SDAU, Sk. Nagar. [2.] Programme Coordinator, KVK, SDAU, Khedbrahma.

agriculture in India is to create awareness among the farmers about the improved agricultural technologies. This can be done by building up sound agricultural information and extension programmes. Here, the improved techniques/practices are sprinkler irrigation system. As discussed in the research methodology, the level of adoption of sprinkler irrigation system was worked out by using the scale developed by Sengupta (1967) with due modification. The farmers were categorized in to three groups according to their level of adoption, *viz.*, (i) low level of adoption, (ii) medium level of adoption and (iii) high level of adoption. The data in respect extent of adoption of sprinkler irrigation system are presented in Table 1.

Table 1: Distribution of the respondent according to their extent of adoption of sprinkler irrigation system
n=120

Category	Number	Per cent
Low (Up to 39 score)	18	15.00
Medium (between 40 to 58 score)	80	66.67
High (above 58 score)	22	18.33

[Mean = 48.43   SD = 8.63]

The data in Table 1 indicates that a majority (66.67%) of farmers had medium level of adoption of sprinkler irrigation system. While, 18.33 and 15.00 per cent farmers had high and low level of adoption of sprinkler irrigation system, respectively.

From the above findings, it can be concluded that vast majority (85.00 %) of the farmers had medium to high level of adoption of sprinkler irrigation system. This finding is in line with the findings of Patel (1997), Patel (2004) Athawale (2009) and Suthar (2010).

Association between the selected characteristics of the famers and their extent of adoption of sprinkler irrigation system:

Table 2: Association between the selected characteristics of the farmers and their extent of adoption of sprinkler irrigation system
n = 120

Independent variables	Correlation coefficient ('r' value)
Personal	
Age	0.08812^{NS}
Education	0.19782*
Socio-economical	
Land holding	-0.23809**
Social participation	0.18854*
Annual income	-0.19926*
Communicational	
Source of information	0.42614**
Psychological	
Knowledge level	0.27598**
Economic motivation	0.18304*
Situational	
Source of irrigation	0.18217*
Cropping pattern	-0.22961*
Cropping intensity	0.18569*

* = Significant at 0.5% level of probability.
** = Significant at 0.1% level of probability.
NS = Non Significant.

Table 2 indicated that out of eleven independent variables of the farmers seven variables viz*., education, social participation, source of information, knowledge level, economic motivation, source of irrigation and cropping intensity had positive and significant association observed with their extent of adoption of sprinkler irrigation system.

The probable reason for this result may be that the majority of respondents had more than 8th standard education, more than one membership in organization and had medium level categories in relation to source of information, knowledge level, economic motivation and cropping intensity, which might be positively affected on adoption of sprinkler irrigation system.

The variables *viz*., land holding, annual income and cropping pattern of the farmers were negatively and significantly associated with their extent of adoption of sprinkler irrigation system.

The probable reason for this result may be that those farmers having large land holding as well as better income might be not interested in sprinkler irrigation system due other income other than farming and costly sprinkler irrigation system is not feasible to the large areas.

Remaining variable *viz.,* age was found to have non-significant correlation with their extent of adoption of sprinkler irrigation system.

CONCLUSIONS

The study was conducted for adoption of sprinkler irrigation system by the farmers of Banaskantha district of North Gujarat. Majority of the farmers were found to have medium level of adoption of sprinkler irrigation system. It was found that variables *viz.,* education, social participation, source of information, knowledge level, economic motivation, source of irrigation and cropping intensity had positive and significant association observed with their extent of adoption of sprinkler irrigation system.

The variables *viz*., land holding, annual income and cropping pattern of the farmers were negatively and significantly associated with their extent of adoption of sprinkler irrigation system. Remaining variable viz*.,* age was found to have non-significant correlation with their extent of adoption of sprinkler irrigation system.

IMPLICATION

This result may be useful to the policy maker and planning personnel related to the rural and agricultural development in selection of beneficiaries for the farming of sprinkler irrigation system.

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