

CONSTRAINTS FACED BY THE FARMERS IN ADOPTION OF SPRINKLER IRRIGATION SYSTEM

Akshaya Ghintala¹, G. J. Patel² and Vishnu Kumar³

1 Teaching Associate, KVK, Nohar, Hanumangarh-II (Rajasthan State) -383255

2 Major Advisor & PC, KVK, SDAU, Khedbrahma-383255

3 Ex. PG Student, Dept. of Ext. Edu., CPCA, SDAU, SK. Nagar - 385506

E-mail: agriakshay@gmail.com

ABSTRACT

The study revealed that majority constraints faced by the farmers in the adoption of sprinkler irrigation system were heavy initial investment for the installation of sprinkler irrigation system, difficulties in getting loans, rate of interest in loans is high, inadequate credit facilities for the farmers and unavailability of technical guidance in time etc. Analyse the water before installing the sprinkler irrigation system, knowledge about acid treatment should be provided, company should make high quality sprinkler material, training should provided to farmers on how to use sprinkler irrigation system and step should be taken by government to visit company dealers forcefully were important suggestions to overcome/minimize the constraints in adoption Sprinkler Irrigation System by the farmers.

Keywords : constraints; suggestions & 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 adoption of sprinkler irrigation system in North Gujarat especially in Banaskantha district where problems of scarcity as well as abundance of water were there. Therefore, the present study was planned with the following specific objectives.

OBJECTIVES

(1) To identify the constraints faced by the farmers in the adoption of sprinkler irrigation system

(2) To seek suggestions to overcome the constraints faced by the farmers in the adoption of sprinkler irrigation system

METHODOLOGY

The present study was purposively undertaken in the two talukas viz., 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.

The present study was confined to ex-post-facto research design. 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 measured by developed structured schedule on the basis of the adoption quotient developed by Sengupta (1967).

An interview schedule was developed according to objectives of study and the data were collected by arranging personal interview with 120 respondents. The collected data were classified, tabulated and analysed in order to make the findings meaningful. A simple ranking technique applied to measure the problems and suggestions to overcome problems of adoption of sprinkler irrigation system. The statistical

tools used to analyse the data were percentage, mean score and standard deviation.

RESULTS AND DISCUSSION

Constraints faced by the farmers in the adoption of sprinkler irrigation system

As far as the problems confronting the farmers in

adoption of sprinkler irrigation system are concerned, there are certain circumstances, which restrict in adoption of improved technology. It is well known fact that the problems in adoption of improved technology can never be removed, but they may be minimized. The farmers were asked to express their problems in adoption and during operation of sprinkler irrigation system. Frequencies and percentage were computed and ranked were given to the collected information.

Table 1: Distribution of respondents according to constraints faced by them in adoption of sprinkler irrigation system n = 120

Sr. No.	Constraints	Frequency	Per cent	Rank
1	Unavailability of technical guidance in time	73	60.84	V
2	Difficulties in getting loans	89	74.17	II
3	Unavailability of spare parts in the local market	51	42.50	VIII
4	Non-availability of spare parts at proper time in the village market	11	09.16	XV
5	Heavy initial investment for the installation of sprinkler irrigation system	99	82.50	I
6	Less efficiency of the sprinkler due to high wind velocity	68	56.67	VI
7	High maintenance cost of this system	57	47.50	VII
8	Rate of interest in loans is high	81	67.50	III
9	Presence of highly acidic or salty water	43	35.84	IX
10	Less subsidy as compared to investment	25	20.83	XIII
11	High technical competence is required for operation of sprinkler irrigation system	30	25.00	XI
12	Due to high temperature more water loss in sprinkler irrigation system	27	22.50	XII
13	Irregular supply of electricity in the area	36	30.00	X
14	Uneven distribution of water in tall growing crops	16	13.33	XIV
15	Inadequate credit facilities for the farmers	75	62.50	IV

A critical look into the data in Table 1 brings in to focus that among the all fifteen problems in adoption and operation of sprinkler irrigation system, “heavy initial investment for the installation of sprinkler irrigation system” (82.50 per cent) was ranked first. Also, “difficulties in getting loans” (74.17 per cent), “rate of interest in loans is high” (67.50 per cent), “inadequate credit facilities for the farmers” (62.50 per cent) and “unavailability of technical guidance in time” (60.84 per cent) were ranked second, third, fourth and fifth, respectively.

The rank of sixth to twelve in deciding order were observed by, “less efficiency of the sprinkler due to high wind velocity” (56.67 per cent), “high maintenance cost of this system” (47.50 per cent), “unavailability of spare parts in the local market” (42.50 per cent), “presence of highly acidic or

salty water” (35.84 per cent), “irregular supply of electricity in the area” (30.00 per cent), “high technical competence is required for operation of sprinkler irrigation system” (25.00 per cent), “due to high temperature more water loss in sprinkler irrigation system” (22.50 per cent), respectively.

Whereas, the problems like, “less subsidy as compared to investment” (20.83 per cent), “uneven distribution of water in tall growing crops” (16.33 per cent) and “non-availability of spare parts at proper time in the village market” (9.16 per cent) were ranked thirteen, fourteen and fifteen, respectively. These findings are in line with the findings of Patel (1996), Desai (1997), Kalasariya *et al.* (2003), Vinaya *et al.* (2016) and Patel *et al.* (2017a,b&c).

Suggestions to overcome the constraints faced by the farmers in the adoption of sprinkler irrigation system

Suggestions were collected from the farmers to overcome their problems and difficulties for better management of sprinkler irrigation system. The responses

were converted in frequency, percentage and on the basis of percentage the rank assigned to each suggestion and same is presented in Table-2. The farmers were asked to suggest possible solution to overcome the problems associated with sprinkler irrigation system.

Table 2: Distribution of respondents according to seek suggestions giving by them overcoming the constraints faced in adoption of sprinkler irrigation system n = 120

Sr. No.	Suggestions	Frequency	Per cent	Rank
1	For equal water distribution design should be made according to crop requirement	16	16.00	IX
2	Company should make high quality sprinkler material	64	64.00	III
3	Co-operative bank should grant the entire amount as loan for sprinkler irrigation system	19	19.00	VIII
4	Training should be provided to farmers on how to use sprinkler irrigation system	53	53.00	IV
5	Availability of spare parts in local market with reasonable rate	11	11.00	X
6	Knowledge about acid treatment should be provided	70	70.00	II
7	Demonstration should be arranged on the farmers field	28	28.00	VII
8	Procedure for getting loan should be make easy	37	37.00	VI
9	Analyse the water before installing the sprinkler irrigation system	82	82.00	I
10	Step should be taken by the Government to visit company dealers forcefully	40	40.00	V

As seen from the Table 2 that important suggestions endorsed by the farmers were, “analyse the water before installing the sprinkler irrigation system” (82.00 per cent), “knowledge about acid treatment should be provided” (70.00 per cent), “company should make high quality sprinkler material” (64.00 per cent), “training should provided to farmers on how to use sprinkler irrigation system” (53.00 per cent) and step should be taken by government to visit company dealers forcefully” (40.00 per cent) assigned ranked as first, second, third, fourth and fifth, respectively.

CONCLUSION

The study revealed that majority constraints faced by the farmers in the adoption of sprinkler irrigation system were heavy initial investment for the installation of sprinkler irrigation system, difficulties in getting loans, rate of interest in loans is high, inadequate credit facilities for the farmers and unavailability of technical guidance in time etc. Analyse the water before installing the sprinkler irrigation system, knowledge about acid treatment should be provided, company

should make high quality sprinkler material, training should provided to farmers on how to use sprinkler irrigation system and step should be taken by government to visit company dealers forcefully were important suggestions to overcome/minimize the constraints in adoption Sprinkler Irrigation System by the farmers.

REFERENCES

- Akshaya Ghintala (2011). “Knowledge and adoption of sprinkler irrigation system by the farmers of Banaskantha district of North Gujarat”. Unpublished M.Sc. (Agri.) thesis, S.D.A.U., Gujarat.
- Desai, C.P. (1997). A study on techno-economic consequences in adoption of drip irrigation system by mango orchard growers of Junagadh District in Gujarat State. Ph.D. Thesis (Unpublished), GAU- Anand.
- Kalsariya, B.N.; Popat, M.N.; Bharad N.B. and Verma R.D. (2003). “Study on constraints in utilization of Drip

- Irrigation System". *Raj. J. Ext. Edu.*, 11: 16-19.
- Patel, Bhavik, Patel, M. R. and Patel, Arun (2017a) Development of scale to measure the knowledge about drip irrigation system of drip irrigated banana growers. *Guj. J. Ext. Edu.* 28(1):1-7.
- Patel, Bhavik, Patel, M.R. and Patel, Arun (2017b) Scientific orientation and its relationship with level of knowledge about drip irrigation system of drip irrigated banana growers. *Guj. J. Ext. Edu.* 28(1):71-73.
- Patel, Bhavik, Patel, M.R. and Patel, Arun (2017c) Economic motivation and its relationship with level of knowledge about drip irrigation system of drip irrigated banana growers. *Guj. J. Ext. Edu.* 28(2):285-287.
- Patel, C.L. (1996). "Soil research in Gujarat State." A Compendium.: 115-122.
- Patel, J.K., Prajapati, R.R. and Patel, V.T. (2017) Constraints perceived by the farmers of Mahesana district in adoption of micro irrigation system. *Guj. J. Ext. Edu.* 28(2):349-353.
- Patel, M.M.; Chaterjee, A. and Sharma, H.O. (1994). "Knowledge and adoption level of sugarcane growers". *Maha. J. Ext. Edu.*, Vol. XIII,; 131-134.
- Sengupta, T. (1967). "A simple adoption scale for selection of farmers for High Yielding Varieties Programme on adoption of rice". *Indian J. Ext. Edu.*, 6: 67-73.
- Singh, A.K.; Srinivas, A. and Natraju, M.S. (1998). "Constraints faced by the farmer in adoption of Watershed management technology in Sriram Sagar Project Command Area". *Maha. J. Ext. Edu.* 17 (72), 349-351.
- Suthar K.D. (2010). "Socio-economic impact of drip irrigation system among the farmers of Sabarkantha district of Gujarat state". Unpublished M.Sc. (Agri.) thesis, S.D.A.U., Gujarat.
- Vinaya Kumar, H. M., Shivamurthy, M., Biradar, G. S. and Govinda Gowda, V. (2016). Fishery Based Farmers' Perception of Climate Change in Coastal Karnataka (India). *International Journal of Agriculture Sciences*, 8 (53): 2646-2650.
- Yadav, S.M. (1993). "Factors affecting adoption of sprinkler system of irrigation by the farmers of panchayat samiti Jamwa-Ramgarh, district Jaipur (Raj.)". Unpublished M.Sc. (Agri.) thesis, R.A.U., Rajasthan.

Received : June 2018 : Accepted : September 2018

