Constraints and Suggestion of Potato Growers Regarding Sprinkler Irrigation System

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ABSTRACT

The purpose of this study was to find out the constraints and to determine the suggestion for solving the problem faced by the potato growers regarding sprinkler irrigation system in the villages of Dantiwada and Deesa talukas located in middle part of Banaskantha district. The major constraints with regard to 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, unavailability of technical guidance in time respectively. The *important suggestions endorsed by the farmers were, 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, respectively.*

Keywords: *Constaints, suggestins, 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 also facing 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 infant stage 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 is to get a clear-cut picture of the present situation of the adoption of sprinkler irrigation system in north Gujarat especially in Banaskantha district.

Potato (*Solanum tuberosum* L.), is one of the major vegetables crop of the world. In India, potato is one of the most important and vegetables, available through the year in all parts of India because it can be stored for a long time. This is also an important vegetable crop of Gujarat state. Potato production in India during 2010-11 was 42339000 Metric Tones from 1863000 hectares with an average yield of 22.7 mt/ha (Indian Horticulture Database 2011). Uttar Pradesh, west Bengal, bihar, assam, Punjab, Gujarat and himachal Pradesh are the major potato growing states in the country.

Potato crop has got immense potentiality for the cultivation in Gujarat. The crop is mainly grown in rabi season both under field and riverbed area. The state is very famous for its unique and model cultivation of potato under riverbed condition. In Gujarat, potato will be grown in 528 hectares with production of 11473 metric tons with average yield of 7076 kg/ha (Gujarat State Wide Area Network-2010-11).

North Gujarat particularly Banaskantha district is having good soil as well as climatic condition for potato cultivation, Deesa is the main market for potato produce. The main research station of potato under S.D. Agriculture University is also located at Deesa.

OBJECTIVES

1 To analyze the constraints faced by the farmer in management of sprinkler irrigation system for potato

crop.

2 To seek the suggestions made by the potato growers to overcome the constraints in management of sprinkler irrigation system for potato crop.

METHODOLOGY

The Banaskantha districts of the Gujarat state was selected for the study due to having a having remarkable areas under sprinkler irrigation system in potato crop. Among Banaskantha district, Dantiwada and Deesa and from each talukas, six villages were purposively selected. After selecting villages a list of farmers, who had adopters of sprinkler system, was obtained from concerned GSFC/ Banks/Irrigation Department of District and Talukas. Form each selected village, 10 farmers were selected randomly making a sample of 120 respondents. An interview schedule was prepared in vernacular language and data were collected by personal interviews.

For measuring constraints the farmers were provided with the list of some problems and their agreement and disagreement with the problems was asked. The intensity of problems was computed in percentage according to the frequencies of the potato growers against each of problems. They were ranked on the basis of percentage of each problem.

RESULTS AND DISCUSSION

The constraints were operationally defined as the difficulties experienced by the farmers in management of sprinkler irrigation system.

Table 1: Distribution of respondents according to constrains faced by them in management of sprinkler irrigation system

n = 120

Sr. No.	Constraints	Frequency	Per cent	Rank
1	Heavy initial investment for the installation of sprinkler irrigation system	99	82.50	I
2	Difficulties in getting loans	89	74.17	II
3	Rate of interest in loans is high	81	67.50	III
4	Inadequate credit facilities for the farmers	75	62.50	IV
5	Unavailability of technical guidance in time	73	60.84	V
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	Unavailability of spare parts in the local market	51	42.50	VIII
9	Presence of highly acidic or salty water	43	35.84	IX
10	Irregular supply of electricity in the area	36	30.00	X
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	Less subsidy as compared to investment	25	20.83	XIII
14	Uneven distribution of water in tall growing crops	16	13.33	XIV
15	Non-availability of spare parts at proper time in the village market	11	09.16	XV

A critical look into the data in table 1 brings in to focus that among the all fifteen problems in management 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" (13.33 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.

In general, the discussion leads to conclude that most important problems of sprinkler irrigation system faced by the farmers in management and operation 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 and unavailability of technical guidance in time. Whereas, the minimum problems faced by the farmers were, less subsidy as compared to investment, uneven distribution of water in tall growing crops and non-availability of spare parts at proper time in the village market.

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

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

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.

From the above findings, it can be concluded that the most important suggestion given by farmers were "analyse the water before installing the sprinkler irrigation system" (82.00 per cent) and "knowledge about acid treatment should be provided" (70.00 per cent).

These findings are in line with the findings of Kalasariya *et al.* (2003) and Ghintala (2011).

CONCLUSION

Regarding problems of sprinkler irrigation system, majority of the farmers facing the problems like heavy initial investment for the installation of sprinkler irrigation system, difficulties in getting loans, rate of interest in loans is high and unavailability of technical guidance in time. These problems can be solved by certain extension strategies like organization of training programme, establishment of co-ordination and availability of day to day farm services to the door of farmers.

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