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Constraints confronted by the cotton growers of Saurashtra region in adoption of drip irrigation system (DIS)

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Abstract

The present investigation was undertaken in Saurashtra region. Out of these, four districts have been selected for this study, and of each of district, one taluka was selected purposively. These talukas having higher number of farmers of drip irrigation system adopted in cotton crop. Among these four selected talukas, three villages from each of selected taluka were selected randomly. From each selected village, fifteen farmers who are having drip irrigation system in cotton crop were selected. Thus, total 180 cotton growers have been selected to know the constrains of cotton growers in adoption of drip irrigation system, and were interviewed with a structural pre-tested interview schedule. Major personal constraints faced by cotton growers were frequently blockage of dripper in case of salty and hard water, so it requires constant monitoring (mean 2.67) while, main administrative constraint was improper service provided by DIS suppliers (mean 2.48) and getting subsidy from GGRC and timely installation of DIS from suppliers is very tedious process (mean 2.64). The major economic and technical constraints were; GGRC did not help for obtaining credit from any financial organization (mean 2.27) and Improper demonstration on field, irregular guidance and supervision (mean 2.19).

Keywords: Drip irrigation system, cotton growers, constraints

Introduction

Gujarat has a limited source of irrigation facilities. The main objective of the Drip Irrigation System is to benefit the farmers by increasing agricultural production through the adoption of scientific water management techniques, and thereby to enter in the Second Green Revolution in Gujarat. Drip-irrigation is introduced primarily to save water and increase the water use efficiency in agriculture. However, it also delivers many other economic and social benefits to the society. The constrains encountered by the cotton growers in adoption of drip irrigation system are considered in present study.

Objective

To know the constraints perceived by the cotton growers of Saurashtra region in adoption of drip irrigation system.

Methodology

The present study was carried out on a random sample of total 180 cotton growers having drip irrigation system at least last five years from 12 villages. Three villages from each of taluka i.e. Dhoraji from Rajkot, Junagadh from Junagadh, Amreli from Amreli and Bhavnagar taluka of Bhavnagar districts of Saurashtra region. Fifteen cotton growers with drip irrigation system were selected randomly from each village. Thus, total 180 cotton growers with drip irrigation system were selected. The pretesting of interview schedule was conducted. The data were collected with help of well structured, pre-tested schedule through personal contact and data were compile, tabulated and analyzed to draw valid conclusions. A simple ranking technique was applied to measure the problems faced by cotton growers with DIS. The statistical tools used were percentage, mean score, rank and standard deviation.

Results and Discussion

All the possible constraints being faced by the cotton growers were presented as under.

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Personal constraints

Table 1: Personal constraints faced by the cotton growers of Saurashtra region in adoption of drip irrigation system (DIS)

Sr. No.	Problems	Mean score	Rank
1.	Frequently blockage of dripper in case of salty and hard water, so it requires constant monitoring.	2.67	I
2.	Farmers are not familiar of drip irrigation system repairing, maintenance or even simple scheduling.	2.45	II
3.	It is very difficult and time consuming process to spread DIS according to cropping pattern.	1.87	III
4.	Non availability of skilled labours for installation of DIS.	1.66	IV

Table 1 showed that the highest rank received by frequently blockage of dripper in case of salty and hard water, so it requires constant monitoring (rank 1). Whereas, farmers are not familiar of drip irrigation system repairing, maintenance or even simple scheduling (rank 2), It is very difficult and time consuming process to spread DIS according to cropping

pattern (rank 3) and non-availability of skilled labours for installation of DIS (rank 4). These all constraints are related to personal problems of cotton growers in adoption of DIS.

Administrative constraints

Table 2: Administrative constraints confronted by the cotton growers of Saurashtra region in adoption of drip irrigation system (DIS)

Sr. No.	Problems	Mean score	Rank
1.	Getting subsidy from GGRC and timely installation of DIS from suppliers is very tedious process.	2.64	I
2.	Improper service provided by DIS suppliers.	2.48	II
3.	Each caste people cannot get similar subsidy for drip irrigation sets from GGRC and other government organization.	1.82	III
4.	Irregular supply of parts for drip irrigation system by suppliers.	1.47	IV
5.	Farmers are not getting proper information of drip irrigation system from GGRC and office personals.	1.31	V
6.	Lack of co-ordination and co-operation between GGRC personnel and DIS users.	1.27	VI
7.	Complicated and lengthy procedures in getting loan.	1.19	VII
8.	Irregular electricity supply.	1.17	VIII

Major administrative constraints expressed by cotton growers were; getting subsidy from GGRC and timely installation of DIS from suppliers is very tedious process (rank 1) followed by improper service provided by DIS suppliers (rank 2), each caste people cannot get similar subsidy for drip irrigation sets from GGRC and other government organization (rank 3), irregular supply of parts for drip irrigation system by suppliers (rank 4), farmers are not getting proper information

of drip irrigation system from GGRC and office personals (rank 5), lack of co-ordination and co-operation between GGRC personnel and DIS users (rank 6), complicated and lengthy procedures in getting loan (rank 7) and Irregular electricity supply (rank 8).

Economic constraints

Table 3: Economic constraints threatened by the cotton growers of Saurashtra region in adoption of drip irrigation system (DIS)

Sr. No.	Problems	Mean score	Rank
1.	GGRC did not help for obtaining credit from any financial organization.	2.27	I
2.	High initial investment of drip system and high cost of spare parts.	1.67	II
3.	Installations of DIS/maintenance/Repairing of head units/spreading of drip pipes in field were costly.	1.42	III
4.	lack of capital to cover maximum holding under drip irrigation.	1.27	IV
5.	Restricted plant root development, high intensity of weeds and salt accumulation near plants, if water is salty.	1.26	V
6.	Rodents damage to the laterals.	1.24	VI

Table 3 shows that major economic constraints expressed by cotton growers were; GGRC did not help for obtaining credit from any financial organization (rank 1) followed by high initial investment of drip system and high cost of spare parts (rank 2), installations of DIS/maintenance/repairing of head units/spreading of drip pipes in field were costly (rank 3), lack

of capital to cover maximum holding under drip irrigation (rank 4), restricted plant root development, high intensity of weeds and salt accumulation near plants, if water is salty (rank 5) and rodents damage to the laterals (rank 6).

Technical constraints

Table 4: Technical constraints threatened by the cotton growers of Saurashtra region in adoption of drip irrigation system (DIS)

Sr. No.	Problems	Mean score	Rank
1.	Improper demonstration on field, irregular guidance and supervision.	2.19	I
2.	Literature pertaining to proper use and maintenance of drip irrigation system was not provided.	2.12	II
3.	Small tubing often becomes clogged from hard water and although new designs include filters and self-flushing emitters, they are costly.	2.11	III
4.	No follow up service by drip agency and non-availability of quality spares of system.	1.57	IV
5.	Time schedule for irrigation to cotton crop through DIS was not prepared by any scientific authorities.	1.39	V
6.	Distributor/ dealers are not having proper knowledge about scientific quantity of water to plant.	1.17	VI

Table 4 denotes that major economic constraints expressed by Improper demonstration on field, irregular guidance and supervision (rank 1) followed by literature pertaining to

proper use and maintenance of drip irrigation system was not provided (rank 2), small tubing often becomes clogged from hard water and although new designs include filters and self-

flushing emitters, they are costly (rank 3), no follow up service by drip agency and non-availability of quality spares of system (rank 4), time schedule for irrigation to cotton crop through DIS was not prepared by any scientific authorities (rank 5) and distributor/ dealers are not having proper knowledge about scientific quantity of water to plant (rank 6).

Conclusion

The study has clearly brought out that the major personal constraints perceived by cotton growers were; frequently blockage of dripper in case of salty and hard water, so it requires constant monitoring. The major administrative constraints were getting subsidy from GGRC and timely installation of DIS from suppliers is very tedious process. The economic and technical constraints were related with GGRC did not help for obtaining credit from any financial organization and improper demonstration on field, irregular guidance and supervision in order to adoption of drip irrigation system in cotton crop.

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