GAU Res. J. 1999. 24 (2) : 52-57

Constraints Faced by Mango Growers in Adoption of Drip Irrigation System

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ABSTRACT

The present study was conducted in six talukas of Junagadh district to analyse the constraints faced by mango orchard growers in adoption of drip irrigation system. The data collected from the same respondents by arranging personal interview with randomly selected 175 mango orchard growers of the twenty four selected villages with the help of interview schedule. The results of the research revealed that the most important economic constraints faced by mango orchard growers in adoption of drip irrigation sets were ; high cost of spare parts, heavy initial expenses for installation of drip irrigation system and lack of capital for covering entire area under drip irrigation system. It is also reflected that the major technological constraints faced by the users of drip sets were : frequent clogging of drippers and microtubes, requires time to time attention for minor repairs, damage caused to the system by rodents and jackals, lack of technical know-how, lack of awareness among the farmers, regarding benefits of drip irrigation system and difficult to keep proper water pressure.

(Received on 30th July, 1999)

INTRODUCTION

Saurashtra region is considered as a dry farming area, where the availability of water for irrigation in wells is extremely source and irregular. Hence, it is necessary to economize the use of water for agriculture to bring more area under irrigation. Therefore, the farmers of this region have been attracted towards the modern method of irrigation and they have introduced drip irrigation system with the hope of making the judicious and scientific use of irrigation water and thereby overcoming the various problems of labour, money and water management. But it is well known fact that if there is introduction of any technology, more or less problems will be there considering this it is high time to analyse the constraints faced by mango orchard growers in adoption of drip irrigation systems and seek suggestions to overcome them when a few years have already been passed in introduction at drip system.

MATERIALS AND METHODS

The present study was conducted in six talukas of Junagadh district namely Talala, Malia, Una, Medarada, Vanthli and Visavadar. These talukas were the first six talukas in the

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district which were having maximum number of orchards. From each of the selected talukas, four villages having maximum numbers of drip sets installed in mango orchards were selected. The mango orchard growers, those who had installed and used drip irrigation sysytem in their mango orchards for successively more than three years, were chosen at random from each identified village in such a manner that there would be proportional to total size of mango orchard growers in respective village fell under each of the six talukas. Thus, the sample consisted of 175 respondents for the study which constituted 24 per cent of the total size of drip sets under mango orchards in the district. The data were collected by arranging personal intervirew with 175 mango orchard in the district. The data were collected by arranging personal interview with 175 mango orchard growers of the twenty four selected villages with the help of interview schedule.

Constraints in adoption of drip irrigation system

It was operationalised as the items of difficulties faced by the mango orchard growers in adoption of drip irrigation system. With a view to identify the inhibitors of drip irrigation system use, a list of 45 specific constraint item was prepared initially based on literature available, discussions with the scientists and field extension fuctionaries and informal interview with a group of about 50 Ms adopter farmers other than the respondents of the study. These constraints were grouped into four categories viz., economic, technological, administrative and personal and socio-pychological constraints. Thereafter, the constraints were got rated by the respondents on a four-point continuum by asking them to indicate the extent to which each constraint was perceived as hindering the adoption of DIS.

The four response categories provided against each constraint were `very much', `much', `not so much', and `not at all' with scores of 3, 2, 1 and 0 respectively. The total weighted score for each constraint was computed by summing the frequencies of respondents in different response categories. The mean weighted score was calculated by dividing the total weighted score with the number of respondents. The constraints were ranked on the basis of mean weighted scores.

Succestions for promoting the use of drip Irrigation system

An attempt was also made to know the suggestions of the mango orchard growers to overcome the constraints and thereby promoting the use of DIS. The respondents' suggestions were elicited through a simple open-ended question. They were asked to suggest possible solution(s) in form of their suggestions to overcome the constraints associated with adoption of DIS and thereby promoting the use of drip irrigation system. Number of respondents making the same suggestion(s) were counted in frequency and then percentage of the respondents making the same suggestion(s) was calculated.

RESULTS AND DISCUSSION

The most important economic constraints faced by the mango orchard growers in adoption of drip irrigation system were : high cost of spare parts, heavy initial expenses for installation of drip irrigation system and lack of capital for covering entire area under drip irrigation system (Table 1).

The major technological constraints faced by the adopters in drip irrigation were : frequent clogging of drippers and microtubes, requires time to time attention for minor repairs, damage caused to the system by rodents and jackals, lack of technical know-how, lack of awareness among the farmers regarding benefits of drip irrigation system and difficult to keep proper water pressure (Table 1).

TABLE 1

Constraints faced by the mango orchard growers in adoption of drip irrigation system.

Sr. No.	Constraints	Mean weighted score	Rank order
I.	**Economic Constraints**		
1.	High cost of spare parts used in DIS	2.714	I
2.	Heavy initial expenses for installation of DIS	2.697	II
3.	Lack of capital for covering entire area under DIS	1.571	III
4.	Lack of credit facilities to farmers	0.394	IV
5.	Additional tank required to get proper pressure	0.080	V
II.	**Technological Constraints**		
1.	Frequent clogging of drippers and microtubes	2.491	I
2.	Requires time to time attention for minor repairs	2.023	II
3.	Damage caused to the system by rodents and jackals	2.006	III
4.	Lack of technical know-how	1.246	IV
5.	Lack of awareness among the farmers regarding benefits of DIS	1.040	V
6.	Difficult to keep proper water pressure	0.949	VI
7.	Improper pressure hinders discharge rate	0.949	VII
8.	Difficulty in weeding within the rows	0.914	VIII
9.	Problems of water leakages	0.886	IX
10.	Difficulty in interculturing	0.817	X
11.	Lack of recommendation of the system in major fruit crops	0.787	XI
12.	Faulty installation	0.446	XII
13.	Uprooting of plants due to shallow rooting	0.486	XIII
14.	Technologically complicated	0.246	XIV
III.	**Administrative Constraints**		
1.	Inadequancy and uncertainty in power supply	2.623	I
2.	Lack of after sale services from the company dealers	2.366	II
3.	Non-availability of spare parts at proper time with reasonable rates	2.349	III
4.	Lack of proper training	2.223	IV
5.	Non-availability of repairing facilities in the village	2.069	V
6.	Non-availability of quality material of DIS	1.897	VI
7.	Non-availability of technical guidance in time	1.549	VII
8.	lack of advice and guidance from extension workers	1.337	VIII

1.	2.	3.	4.
	9. Lack of supervision by the block officials	1.154	IX
	10. Low frequency of visits of extension workers	1.137	X
	11. Clumsy procedure for getting loan/subsidy	0.400	XI
	12. Delay in sanction of loan/subsidy	0.297	XII
	13. Lack of credibility of extension workers	0.263	XIII
IV.	**Personal and socio-psychological constraints**		
	1. Lack of spirit among the farmers regarding DIS	1.960	I
	2. Frustration due to failure of DIS in work	0.851	II
	3. Resistance from family members	0.229	III
	4. Lack of motivation	0.086	IV

The important administrative constraints being faced by the respondents were : inadequacy and uncertainty in power supply, lack of after sale services from the company dealers, non-availability of spare parts at proper time with reasonable rates, lack of proper training, non-availability of repairing facilities in the village, non-availability of quality material of drip irrigation system and non-availability of techncal guidance in time. (Table 1).

The major personal and socio-psychological costraints experienced by the drip irrigation system adopter farmers were : lack of spirit among the farmers regarding drip irrigation system, frustration due to failure of drip irrigation system in work, resistance from family members and lack of motivation (Table 1).

These findings go to colaborate the observations of Rodge *et al.* (1988), Ingle (1989), Tilekar (1989), Ingle and Sagane (1992). Phadtare *et al.* (1992), Puranik (1992), Kalasariya *et al.* (1993), Chaudhari (1995) and Shiyani and Kuchhadiya (1997).

The major suggestions offered by the mango orchard growers to overcome the constraints associated with adoption of drip irrigation system and thereby promoting the use of drip irrigation system in sequential order were : provisions should be made to purchase drip irrigation sets directly from open market, training should be imparted along with drip irrigation sets for betterment of knowledge and skills, at least five years guarantee be provided by company agents for drip irrigation system, drip sets be supervised by company agents regularly, subsidy be paid directly to the farmers, regular guidance and free services be sought from company agents, quality material be provided for drip sets and wide publicity of drip irrigation system be made through mass media approaches. In addition to this, the respondents also felt that the amount of subsidy on drip irrigation system be increased, propaganda about drip irrigation system be made through shibirs and film shows and multipurpose sub-means should be designed so as to use in different crops (Table 2).

TABLE 2

Suggestions expressed by the mango orchard growers for promoting the use of drip irrigation system.

Sr. No.	*Suggestions*	*Frequency*	*Per cent*
1.	Provisions should be made to purchase DIS sets directly from open market	173	98.86
2.	Training should be organised along with DIS sets for betterment of knowledge and skills	167	95.43
3.	At least five years guarantee against DIS sets should be provided by company agents	163	93.14
4.	Provisions of regular supervision by company agents	160	91.43
5.	Subsidy be paid directly to the farmers	156	89.14
6.	Provisions of regular guidance on maintenance and free services from company agents.	140	80.00
7.	Quality material be provided for drip sets.	137	78.29
8.	Wide publicity of DIS through mass media approaches.	115	65.71
9.	Amount of subsidy should be increased and loan be provided for remaining cost.	100	57.14
10.	Propaganda about drip irrigation should be made through shibirs and film shows	53	30.29
11.	Multipurpose sub-mains should be designed so as to use in different cross	43	24.57

The findings are similar to the views expressed by Madalia (1990), Ingle and Sagane (1992), Phadtare *et al.* (1992), Puranik *et al.* (1992), Kalasaria *et al.* (1993), Chaudhari (1995) and Shiyani and Kuchhadiya (1997).

REFERENCES

Chaudhari, T. N. (1995). Irrigation management for efficient crop production, 'Kishan Goshthi : Agri. Expo-1995' A publication of Division of Agril. Extension, ICAR, New Delhi, P. 8.

Chaudhari, V. M. (1995a). Knowledge and adoption of drip irrigation system by the farmers of North Gujarat, M.Sc. (Agri.) thesis (Unpub.), GAU, Sardar Krushinagar.

Ingle, P. O. (1989). Study of reactions and utility - Drip irrigation system under farmers' situation : Case studies, research review sub-committee report (Unpub.) PKV, Akola, pp. 39-48.

Ingle, P. O. and Sagane, N. A. (1992). Constraints in the use of drip irrigation system : A case study. *J. Maha. Agric. Uni.*, 17 (2) : 294-297.

Kalasariya, B. N., Popat, M. N., Munshi, M. A. and Savaliya, V. J. (1993a). Constraints in adoption of drip irrigation system and suggestions to overcome them. Paper presented in the Symposium on Drip Irrigation System : A New Approach for Saurashtra-Kutchh Area organized by the CAAS at GAU, Junagadh in June, 1993, pp. 119-123.

Madalia, V. K. (1990). Popularizing drip irrigation method. Paper presented in the Seminar on Drip Irrigation System organized by the CAAS at GAU, Anand in Sept., 1990, p. 47.

Phadtare, V. R., Chiprikar, B. P. and Patia R. Y. (1992). The socio-economic constraints in use of drip irrigation, *Maha. J. Extn. Edn.*, **11** : 344-347.

Puranik, R. P., Khonde, S. R. and Ganorkar, P. L. (1992). Constraints in adoption of drip irrigation system, *Ind. J. Extn. Edn.*, **28** (1 & 2) : 86-88.

Rodge, R. P., Adkine, B. D., Ambegaonkar, P. R. and Potekar, J. M. (1988). Drip irrigation : Present status and future prospects. Paper presented in the Symposium on Drip Irrigation organized at PKV, Akola.

Shiyani, R. L. and Kuchhadiya, D. B. (1997). Impact of drip irrigation system on cotton growers of Saurashtra region, Dept. of Agril. Economics, GAU, Junagadh.

Tilekar, S. N. (1989). Ecomonic aspects of drip irrigation, in 'Design, Operation and Main tenance of Drip Irrigation System', Magar, S. S. (Ed.), MPAU Pub. No. 55, Rahuri (M.S.), pp. 65-67.