

CONSTRAINTS FACED BY THE FARMERS IN DRIP IRRIGATION TECHNOLOGY IN POTATO CROP OF BANASKANTHA DISTRICT

¹*PRAJAPATI, V. V., ¹TUNVAR, M. A. AND ²PATEL, B. K.

POLYTECHNIC IN AGRICULTURE
S.D.AGRICULTURAL UNIVERSITY
DEESA – 385 535, GUJARAT, INDIA

EMAIL: vp Prajapati1963@gmail.com

¹Agriculture Polytechnic, Sardarkrushinagar Dantiwada Agricultural University, Deesa

²Agriculture Polytechnic, Sardarkrushinagar Dantiwada Agricultural University, Amirgadh

ABSTRACT

The present study “Constraints faced by the farmers in drip irrigation technology In potato crop of banaskantha district” was conducted purposively in Banaskantha district because of higher area under potato and more adoption of MIS as compared to other districts of North Gujarat Agro Climatic Zone. The results revealed that majority of farmers adopted the practices viz., installation of liquid fertilizer tank for drip system (91.66%), use of filters to avoid clogging of the system (87.50 %) and cleaning of filters, nozzle etc. to remove impurities (70.66%). Among all the eleven constraints in adoption and operation of drip irrigation system, frequent clogging of drippers due to saline substance or other reasons (93.33%) was ranked first. The constraints viz., lack of technical know-how and guidance before and after adoption (79.16%), damage caused by the rats, squirrels and wild animals to the system (75%), initially requires large investment for drip irrigation (70.83%), non-availability of skilled workers for repairing DIS when required (60.00 %) and lack of after sale services by the company dealers (63.33 %) were the major constraints observed by the respondents. Training should be given on drip technology for potato crop (91.66 %), after sales services should be provided by company dealer (90.00 %), training should be given to rural youth (70.83 %). supporting price should be declared (74.16 %) and subsidy should be increased (65.00 %) were the major suggestions made by the farmers to overcome the various constraints faced by them in adoption of drip irrigation methods.

KEY WORDS: Adoption, Constraints, MIS, Potato

INTRODUCTION

Potato has emerged as fourth most important food crop in India after rice, wheat and maize. Nutritional point of view, potato is a wholesome food and deserves to be promoted as a potential high quality vegetable cum food crop in the country. In Gujarat, the potato acreage is estimated about 1.24 lakh ha, of which 52000 ha area

is in Banaskantha district. In the current year, Banaskantha had the highest acreage i.e. 78000 ha. Our recommendation says that drip irrigation is better than sprinkler irrigation. The present study was conducted purposively in Banaskantha district because of higher area under potato and more adoption of MIS as compared to other districts of North Gujarat Agro Climatic

Zone, with the objectives, 1) to study the adoption of drip irrigation technology in potato crop, 2) to know the constraints faced by the farmers in drip irrigation technology, and 3) to seek the suggestions made by farmers.

METHODOLOGY

The present study was conducted purposively in Banaskantha district because of higher area under potato and more adoption of MIS as compared to other districts of North Gujarat Agro Climatic Zone. Among, 14 talukas of Banaskantha districts, 3 talukas i.e. Deesa, Vadgam and Palanpur having higher area under potato cultivation were selected. Five villages from each selected talukas where selected randomly. From each selected village, 8 farmers were selected randomly making a sample of 120 respondents (Table 1).

The present study was confined to ex-post-facto research design. An interview schedule was developed according to the objectives of study and the data were collected by arranging personal interview with 120 respondents.

RESULTS AND DISCUSSION

Extent of adoption of management practices of drip irrigation system by the potato growers

The level of adoption of drip irrigation management practices was worked out by using the objective test developed for the purpose. practice-wise adoption of drip irrigation management system by the drip owners was also studied and the data are presented in Table 2. The data indicated that majority of the farmers adopted the practices viz., installation of liquid fertilizer tank for drip system (91.66 %), use of filters to avoid clogging of the system (87.50 %) and cleaning of filters, nozzle etc. whereas majority of them had knowledge to remove impurities (70.66 %). On the other hand, medium adoption were observed for the practices namely use of air release valve

(65.00 %), lateral spacing in the field on the basis of row to row distance of the crop (58.33 %), regular checking of main, sub mains, laterals and filters (57.50 %), drippers distance on the lateral according to the type of soil and crop water requirement (55.00 %), while low adoption were observed in appropriate discharge rate of drippers (37.50 %), use of pressure gauge to maintain the pressure in the system (36.66 %), maintain required pressure at mainline and sub mains near control valve (34.16%) and application of recommended fertilizers through ventury/fertilizer tank (30.83 %). More or less similar results were reported by Nishad and Pathak (2015), Chovatiya *et al.* (2017) and Patel *et al.* (2017) while studying the extent of adoption of management practices of drip irrigation system.

Constraints faced by the farmers in adoption of drip irrigation management practices

As far as the constraints confronting the farmers in adoption of drip irrigation system, there are certain circumstances, which restrict the adoption of improved technology. A critical look at the data presented in Table 3 brings in to focus that among all the eleven constraints in adoption and operation of drip irrigation system, frequent clogging of drippers due to saline substance or other reasons (93.33%) was ranked first. The constraints viz., lack of technical know-how and guidance before and after adoption (79.16%), damage caused by the rats, squirrels and wild animals to the system (75%) initially requires large investment for drip irrigation (70.83%), non-availability of skilled workers for repairing DIS when required (60.00 %), lack of after sale services by the company dealers (63.33 %) were the major constraints observed by the respondents. The results are in accordance with the findings of Nishad and Pathak (2015), Chovatiya *et al.* (2017) and Patel *et al.* (2017).

Suggestion made by the farmers in adoption of drip irrigation management practices

An attempt has been made to know the suggestions of the respondent to overcome the various constraints faced by them in adoption of drip irrigation methods. The respondent was requested to often them valuable suggestions for solving the constraints faced by them in adoption of drip irrigation methods. The data presented in Table 4 indicated that majority of the farmers suggested that, training should be given on drip technology for potato crop (91.66 %), after sales services should be provided by company dealer (90.00 %), training should be given to rural youth (70.83 %). supporting price should be declared (74.16 %) and subsidy should be increased (65.00 %).

CONCLUSIONS

1. Majority of farmers adopted the practices viz., installation of liquid fertilizer tank for drip system (91.66%), use of filters to avoid clogging of the system (87.50 %) and cleaning of filters, nozzle etc. to remove impurities (70.66%).
2. Among all the eleven constraints in adoption and operation of drip irrigation system, frequent clogging of drippers due to saline substance or other reasons (93.33%) was ranked first. The constraints viz., lack of technical know-how and guidance before and after adoption (79.16%), damage caused by the rats, squirrels and wild animals to the system (75%), initially requires large investment

for drip irrigation (70.83%), non-availability of skilled workers for repairing DIS when required (60.00 %) and lack of after sale services by the company dealers (63.33 %) were the major constraints observed by the respondents.

3. Training should be given on drip technology for potato crop (91.66 %), after sales services should be provided by company dealer (90.00 %), training should be given to rural youth (70.83 %). supporting price should be declared (74.16 %) and subsidy should be increased (65.00 %) were the major suggestions made by the farmers to overcome the various constraints faced by them in adoption of drip irrigation methods.

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Table 1: Name of selected villages

Name of Selected District	Name of Selected Taluka	Name of Selected Villages	Number of Villages
Banaskantha	Deesa	Vadlifarm,Thervada, Bayvada,Vithodar, Talepur	05
	Palanpur	Aligadh, Vasda, Malan, Mervada, Ratanpur	05
	Vadgam	Ghodiya, Varnavada, Memdpur,Rampura (Dhota), Pepal	05
Total			15

Table 2: Practice wise adoption of drip irrigation system by drip owners on potato crops

(n = 120)

Sr. No.	Drip Irrigation System	Number	Per cent
1.	Installation of liquid fertilizer tank for the drip irrigation system	110	91.66
2.	Use of filters to avoid clogging of the system	105	87.50
3.	Clean filter, nozzle, filters <i>etc.</i> to remove impurities	86	70.66
4.	Use of air release valve	78	65.00
5.	Lateral spacing in the field on the basis of row to row distance of the crop	70	58.33
6.	Regular checking of main, sub mains, laterals and filters	69	57.50
7.	Dripper distance on the lateral according to the type of soil and water requirements	66	55.00
8.	Application of plant protection chemicals (For soil borne pest/disease)	62	51.66
9.	Installation of sub mains and laterals by considering slope of the field	60	50.00
10.	Application of chemical fertilizer (Soluble)	52	43.33
11.	Repair of MIS system	47	39.16
12.	Application of acid treatment and chlorination under drip irrigation system	49	40.83
13.	Appropriate discharge rate of drippers	45	37.50
14.	Use of pressure gauge to maintain the pressure in the system	44	36.66
15.	Maintain required pressure at mainline and sub mains near control valve	41	34.16
16.	Application of recommended fertilizers through ventury/fertilizer tank	37	30.83

Table 3: Distribution of drip owners according to their constraints experienced in adoption and operation of drip irrigation system

(n = 120)

Sr. No.	Constraints	Number	Per cent	Rank
1.	Frequent clogging of drippers due to saline substances or other reasons	112	93.33	I
2.	Damage caused by the rats, squirrels and wild animals to the system	90	75.00	III
3.	Lack of technical know-how and guidance before and after adoption	95	79.16	II
4.	Lack of after sale service by the company dealers	76	63.33	V
5.	Non-availability of spare parts when required	45	37.50	VIII
6.	Non-availability of skilled workers for repairing DIS when required	72	60.00	VI
7.	Clumsy procedure for getting loan/subsidy	39	32.50	X
8.	Maintenance cost is very high	44	36.66	IX
9.	Initially requires large investment for drip installation	85	70.83	IV
10.	Difficult to make equal distribution of water	29	24.16	XI
11.	Laborious work then sprinkler system	58	48.33	VII

Table 4: Distribution of respondents according to suggestions made by farmers

(n=120)

Sr. No.	Suggestions	Number	Per cent	Rank
1.	Training should be given on drip technology for potato crop	110	91.66	I
2.	Importance to rural youth in training should be given	85	70.83	IV
3.	Timely provision of after sales service by company dealer	108	90.00	II
4.	Simple procedure to give subsidy	69	57.50	VII
5.	Subsidy should be increased	78	65.00	V
6.	Support price should be increase as per cost of cultivation	89	74.16	III
7.	Timely supply of electricity	52	43.43	VIII
8.	Cold storage rate should be reasonable	68	56.66	VI

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