Attitude of Orange Growers towards Drip Irrigation Technology

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ABSTRACT

Present study was conducted in Nagpur district. Sample of 120 orange growers was selected and interviewed personally. An exploratory research design of social research was used for the study.Data was collected know the attitude of orange growers towards drip irrigation. Attitude test developed for the study indicated that 48.33 per cent and 33.33 per cent orange growers were agree and strongly agree to the attitude statement that drip irrigation technology increases about 70 per cent extra area under irrigation, respectively. Respondents also agree and strongly agree that strongly agreed that drip irrigation maximizes utilization of available water (42.50% and 31.61%). However, majority of respondents (34.15% and 20.83%) found strongly disagree and disagree towards the statement that during wind velocity equal distribution of water is impossible. In all the majority of respondents (71.66%) had moderately favourable attitude of orange growers toward use of drip irrigation in orange crop. In the statistical analysis selected characteristics of farmers were found non-significant with their attitude towards drip irrigation.

Keywords: *Attitude, orange growers, drip irrigation*

INTRODUCTION

Orange is most common among the citrus fruit grown in India it occupied nearly 50 per cent of total citrus area under orange in India, 2313.43 ha and production 310 million tonnes. The leading producer of orange are Maharashtra, Assam, Madhya Pradesh, Punjab, Karnataka, Tamilnadu, Meghalaya, Tripura, Haryana, Rajasthan and West Bengal.

The citrus tree needs good amount of water for high production and it's affected under deficit irrigation. The total water requirement for orange crop is 1400 mm while daily water requirement was in 3.87 mm (Samudre and Sunny, 2007). One of the reason for low yield is lack of concern towards irrigation management as the tree are sensitive to the availability of soil moisture status the growth of orange tree is influenced by soil moisture, nutrient, environment condition and management practices out of this factors of irrigation is great importance in case of orange orchard. In Maharashtra 215.62 lakh ha. of the land is under different crop, only 14.52 per cent in Vidarbha out of the 59.89 lakh ha. cropped area is only 11.49 per cent under irrigation.

Drip irrigation is defined as application of small and preciously predetermined amount of water near the root zone of the plant at frequent intervals through emitting devices via a network of filtration unit through mains, sub-mains and laterals. Experiments on number of crops have shown that, in all cases, the yield under drip irrigation technology exceeded substantially. Irrigation efficiency in drip irrigation technology is adjusted to more than 90 per cent as compared to about 65 to 70 per cent in case of sprinkler and about 50 to 60 per cent in case of surface methods of irrigation. This it indicates the quantum of saving water, which is valuable under the extreme water shortage conditions with no wastage through evaporation, percolation, leaching or runoff. It also protects the plants from diseases by minimizing humidity in atmosphere. Soluble fertilizers can also be applied with irrigation water. Thus, drip irrigation has become a means of hi-tech Agriculture/ Horticulture and precision farming. Hence, the study was framed to know the attitude of orange growers towards drip irrigation.

METHODOLOGY

The present study was carried out in Nagpur district in Vidarbha region. Nagpur is popularly known as orange city due to the area and production

of Nagpur orange. Considering the area of under orange crop five tahsils namely Katol, Kalmeshwer, Narkhed, Ramtek and Savner rural were selected purposively. An exploratory research design of social research was used for the study.From each selected tahsil, 3 villages were selected purposively having more crop area under orange cultivation, in all 15 villages were selected for present study.From the selected villages, 8 farmers from each village were selected randomly who were able to express their views on drip irrigation in orange crop, which comprising total sample of 120 respondents. All the respondents were personally interviewed and data were collected regarding socioeconomic characteristics of farmers and their attitude towards drip irrigation in orange,

Teacher made test used for measurement of attitude of farmers towards drip irrigation in orange crop. The scale consists 19 statements which were administered to respondents along with a five-point continuum representing strongly agree, agree, undecided, disagree and strongly disagree with weightage of 5, 4, 3, 2 and 1, respectively to the positive statements. The scoring procedure was reverse in case of negative statements. Statements 3,5,8,11,13,15,17, and 19 were negative while remaining statements were positive.

The attitude score of respondent was calculated by adding up the score obtained by him on all items or statements. Higher score of the scale indicates that the respondent has higher level of attitude toward drip irrigation in orange crop.

The attitude score obtained from respondents was converted into attitude index with the help of following formula.

$$\text{Attitude index} = \frac{\text{Obtained attitude score}}{\text{Obtainable attitude score}} \times 100$$

After determining the attitude index of respondents they were categorized on the basis of equal interval

RESULTS AND DISCUSSION

Attitude of orange growers

A predisposition or a tendency to respond positively or negatively towards a certain idea, object and situation. Attitude influences an individual's choice of action and responses to challenges, incentives and rewards. As this study was framed around the attitude of adoption of drip irrigation by orange growers hence, studied it as dependent variable and presented in following tables

Table 1
Distribution of the attitude of orange growers towards drip irrigation technology in orange crop

Sr.No	Statement	SA	A	UD	D	SD
1	Drip irrigation technology increase about 70% extra area under irrigation	40 (33.33)	58 (48.33)	10 (08.33)	07 (05.83)	05 (04.18)
2	Drip irrigation maximizes utilization of available water	38 (31.61)	51 (42.50)	18 (15.05)	05 (04.17)	08 (06.67)
3	It is very difficult for maintenance of drip irrigation system	12 (10.00)	24 (20.00)	39 (32.50)	20 (16.67)	25 (20.83)
4	Labor cost is required less when crop is irrigated by drip irrigation technology	28 (23.33)	41 (34.17)	29 (24.17)	13 (10.83)	09 (07.50)
5	Drip irrigation technology creates difficulty in intercultural practice	19 (15.83)	14 (11.67)	54 (45.00)	22 (18.33)	11 (09.17)
6	Uniform water distribution through drip irrigation technology	22 (18.33)	68 (56.67)	21 (17.50)	04 (03.33)	05 (04.17)
7	The drip irrigation technology is best method in water scarcity condition	39 (32.50)	28 (23.33)	18 (15.00)	23 (19.17)	12 (10.00)

8	During high wind velocity equal distribution of water is impossible	13 (10.83)	19 (15.86)	22 (18.33)	25 (20.83)	41 (34.15)
9	Drip irrigation technology reduces soil erosion	26 (21.67)	31 (25.83)	39 (32.50)	13 (10.83)	11 (09.17)
10	Water application efficiency is achieved by drip irrigation technology	41 (34.17)	29 (24.17)	18 (15.00)	23 (19.16)	09 (07.50)
11	Drip irrigation technology increases the cost of cultivation of crop	12 (10.00)	19 (15.83)	36 (30.00)	28 (23.33)	25 (20.84)
12	One can measure water easily by drip system than other method	34 (28.33)	41 (34.17)	24 (20.00)	09 (07.50)	12 (10.00)
13	Very high initial cost isrequired for installation drip irrigation	24 (20.00)	17 (14.17)	32 (26.67)	28 (23.33)	19 (15.83)
14	Cropping intensity can be increased through drip irrigation technology	30 (25.00)	39 (32.50)	28 (23.33)	10 (08.33)	13 (10.84)
15	Credit and subsidy facilities are not adequate for drip irrigation technology	12 (10.00)	34 (28.33)	54 (45.00)	17 (14.17)	03 (02.50)
16	Drip irrigation technology beneficial for water saving	47 (39.17)	39 (32.50)	13 (10.83)	07 (05.83)	14 (11.67)
17	Water application rate is high through drip irrigation technology.	21 (17.50)	29 (24.17)	41 (34.17)	13 (10.83)	16 (13.33)
18	Surface runoff of irrigation water can be eliminated by drip system of irrigation	37 (30.83)	48 (40.00)	14 (11.67)	12 (10.00)	09 (07.50)
19	Drip irrigation technology decreases the fertilizer use efficiency	14 (11.67)	29 (24.17)	10 (08.82)	23 (19.17)	44 (36.67)

After perusal of Table 1 it was revealed that majority of respondents were strongly agreed and agreed with statements attitude of orange growers towards drip irrigation technology, those statement were drip irrigation technology beneficial for water saving (39.17%,32.50%), water application efficiency is achieved by drip irrigation technology (34.17%, 24.17%), the drip irrigation technology is best method in water scarcity condition (32.50%, 23.33%), drip irrigation maximizes utilization of available water. (31.66%, 42.50%), drip irrigation technology increase about 70% extra area under irrigation (33.33%, 48.33%), surface runoff of irrigation water can be eliminated by drip system of irrigation (30.83%, 40.00%), one can measure water easily by drip system than other method (28.33%, 34.17%), cropping intensity can be increased through drip irrigation technology (25.00%, 32.50%), labour cost is required less when crop is irrigated by drip irrigation technology (23.33%, 34.17%), drip irrigation technology reduce soil erosion (21.61%, 25.83%), drip irrigation technology creates difficulty in intercultural practice (15.83%, 18.34) and very high initial cost isrequired for installation drip irrigation (20.00%, 14.17%), respectively.

it was also observed that majority of respondents were agreed followed by strongly agreed with statement that uniform water distribution through drip irrigation technology (56.97%, 18.33%), respectively.

It was revealed that majority of the respondents were strongly disagreed followed by disagreed with the statements that, drip irrigation technology decreases the fertilizer use efficiency (36.67%, 19.17%), during high wind velocity equal distribution of water is impossible (34.17%, 20.83%), drip irrigation technology increases the cost of cultivation of crop (20.83%, 23.33%) and cropping intensity can be increased through drip irrigation technology (10.83%, 08.33%), respectively.

Most of the respondents were disagreed followed by strongly disagreed with statements that, very high initial cost isrequired for installation drip irrigation (23.33%, 15.83%), water application efficiency is achieved by drip irrigation technology (19.17%, 07.50%) drip irrigation technology creates

difficulty in intercultural practice (18.33%, 09.17%) and credit and subsidy facilities are not adequate for drip irrigation technology (14.17%, 02.50%) respectively.

From the Table 1 observed that the respondents were undecided with statements that, drip irrigation technology creates difficulty in intercultural practice (45.00%), credit and subsidy facilities are not adequate for drip irrigation technology (45.00%), water application rate is high through drip irrigation technology (34.17%), drip irrigation technology reduce soil erosion people (32.50%), it is very difficult for maintenance of drip irrigation system (32.50%) and very high initial cost isrequired for installation drip irrigation (26.67%), respectively.

The respondents are distributed according to their level of attitude and presented in Table 2.

Table 2

Distribution of the respondents according to their level of attitude towards drip irrigation technology in orange crop

Sr. No	Attitude index	Respondents (n=120)	
		Frequency	Percentage
1	Unfavourable	00	00.00
2	Less favourable	03	02.50
3	Moderately Favourable	86	71.66
4	Highly favourable	31	25.84
	Total	**120**	**100.00**

The above Table 2 shows that majority of respondents (71.66%) has moderately favourable attitude towards drip irrigation technology in orange crops, followed by 25.84 per cent respondents had highly favourable attitude towards drip irrigation technology in orange crops and only 02.50 per cent had less favourable attitude towards drip irrigation technology in orange crop.

From the above observations it may be concluded that orange growers were moderate to highly favourable attitude towards use of drip irrigation technology which may also improve to overcome the queries of farmers in maintenance and its optimum use. The similar findings found by Kausidikar *et al*. (2002),Sharnagat (2008) and Rathod *et al*. (2017).

Table. 3

Correlation coefficients of selected characteristics of the respondents with their dependent variable

Sr. No.	Independent Variables	Attitude
1	Age	-0.0272
2	Education	-0.0474
3	Land holding	0.1451
4	Area under orange crop	0.0930
5	Annual income	0.0489
6	Experience of orange cultivation	-0.0417
7	Irrigation source	-0.0493
8	Potential of irrigation source	0.1082
9	Training received	0.0609
10	Cosmopolitness	0.0380
11	Information sources	0.1207
12	Scientific orientation	0.0443
13	Risk preference	-0.0823

It is observed from Table 3 that relationship attitude of orange growers towards drip irrigation technologyand their age, education, land holding, annual income, experience of orange cultivation, area under orange crop, irrigation source, potential of irrigation source , source of information, training received, cosmopolitness, scientific orientation and risk preference were found non-significant with attitude of orange growers towards drip irrigation It clearly indicates that set of selected independent variables has no relationship with attitude of orange growers towards drip irrigation.

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