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Constraints faced by sugarcane growers in adoption of management practices of drip irrigation system

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Abstract
The study was conducted in Osmanabad and Latur districts. Two tahsils from each distrct and five villages from each tahsil were selected purposively. Six respondents from each villages were selected, i.e. 120 respondents from 20 villages constituted the sample for the study. Ex-Post Facto research design was used for the research study. From the study it was found that major constraints faced by drip irrigation users in adoption of recommended management practices of drip irrigation were inadequate supply of electricity, damage of laterals by rat/squirrel, clogging of emitter or dripper. Economic constraints were higher initial cost, subsidies not available in proper time, higher cost of liquid fertilizers. Other major constraints were the lack of proper training and guidance.

Keywords: Constraints, adoption, management practices drip irrigation, sugarcane crop

1. Introduction
Sugarcane is a major cash crop in India has unique role in sustaining agro industrial economic growth. Sugarcane being a long duration crop produces huge amount of biomass and requires large quantity of water (1100-2200 mm) and is mostly grown as an irrigated crop using surface irrigation. The drip irrigation adoption in sugarcane increases water use efficiency (60-200%), saves water (20-60%), reduces fertilization requirement (20-33%) through fertigation, produces better quality crop and increases yield (7-25%) as compared with conventional irrigation. In addition it requires low energy, minimum maintenance and less expense on layouts etc. that is why drip irrigation system is becoming more popular because of its efficiency.

Drip irrigation is the one of the latest innovations for the judicious use of water in agriculture. Drip irrigation is an irrigation method in which application of small, precisely appropriate amount of water near to the root zone of plant at a slow rate, drop by drop through dripper.

There are problems in adoption of drip irrigation system, farmers think that it is difficult to install and its subsequent functioning drip irrigation system. That is why the farmers are reluctant to adopt the drip management practices in their fields. Hence the farmers root out the drip set within 2 to 3 years after installation in the field. The central and state government gives subsidies to seek the answer which is sufficient amount; however it is not the sole remedial measure to solve this problem. Hence, an investigation entitled constraints faced by respondents in adoption of management practices of drip irrigation system was undertaken.

2. Methodology
The study was conducted in the Osmanabad and Latur districts of Marathwada region of Maharashtra state. These districts of Marathwada region covering major area under drip irrigation in sugarcane. From Osmanabad district two talukas *viz*. Osmanabad and Kalamb and from Latur district two talukas *viz*. Nilanga and Ausa were selected. From these four talukas twenty villages were selected purposively and six respondents from each villages were selected, i.e. 120 respondents from 20 villages constituted the sample for the study. The respondents were personally interviewed with interview schedule. The data were tabulated and analyzed by using statistical tools like frequency, percentage and correlation coefficient.

3. Results and Discussion
The findings of the present study as well as relevant discussion have been presented under following heads.

3.1 Constraints faced by respondents in adoption of management practices of drip irrigation system

The various constraints faced by the sugarcane growers in adoption of drip irrigation system are given in Table 1.

3.1.1 Economic Constraints

From table 1 it was observed that 94.16 Percent respondents reported that higher initial cost of drip unit is the major economic constraint faced by them. Followed by 79.16 Percent respondents reported the constraint about unavailability of subsidies in proper time. Next to that higher cost of liquid fertilizer and higher cost of spare parts of drip unit are other constraints faced by respondents which were reported by 78.33 Percent and 75.83 Percent respectively. While 67.50 Percent and 61.66 Percent respondents reported the constraints about higher cost of HCl acid and higher cost for repairing, respectively.

Table 1: Constraints faced by the farmer in adoption of management practices of drip irrigation(N=120)

Constraints	Frequency	Percent
Economic constraints		
Higher initial cost of drip unit	109	90.83
Higher cost for repairing	74	61.66
Higher cost of spare parts of drip unit	91	75.83
Higher cost of HCl acid	81	67.50
Higher cost of liquid fertilizer	94	78.33
Subsidies not available in proper time	95	79.16
Technical constraint		
Clogging of emitter or dripper	106	88.33
Damage of laterals by rat/squirrel	107	89.16
Inadequate supply of electricity	113	94.16
Leakage of water	35	29.16
Cracking of laterals	39	32.50
Low discharge of water at the end emitter	76	63.33
Cracking of screen of screen filter	45	37.50
Low quality spare part	50	41.66
Wrong design of drip unit	40	33.33
Drip unit useful for specific crop only	88	73.33
Inter-cultivation is difficult	98	81.66
Lack of knowledge about pressure and pressure gauge	63	52.50
Other constraints		
Farmer not believes in the benefits from drip system.	27	22.50
Guidance from extension agencies or dealers at incorrect time	91	75.83
Incomplete knowledge about drip irrigation	96	80.00
Lack of technical awareness	100	83.33
Lack of proper training	92	76.66

3.1.2 Technical constraint

From the table 1 it is reported that 94.16 Percent respondents were facing the constraints of inadequate supply of electricity, followed by 89.16 Percent of the respondents reported the constraint about damage of laterals by rat/squirrel. Whereas 88.33 Percent of the respondents having the constraints about clogging of emitter or dripper and 81.66 Percent respondents reported that inter-cultivation is difficult while using the drip irrigation.

It was also found that 73.33 Percent respondents says that drip unit useful for specific crop only is also a major constraint in adoption of drip irrigation system. Low discharge of water at the end emitter is also a major constraints faced by 63.33 Percent of the respondents. Further it was also observed that 52.50 Percent of the respondents faced the constraint of lack of knowledge about pressure and pressure gauge in drip irrigation system and Only 41.66 Percent of the respondents had reported about the constraints related to low quality spare part.

3.3.3 Other Constraints

The other major constraints faced by drip users were lack of technical awareness (83.33%), incomplete knowledge about drip irrigation (80.00%), lack of proper training (76.66%), lack of guidance from extension agencies or dealer at incorrect time (75.83%) and 22.50 Percent farmer not believes in the benefits from drip system.

Similar results were reported by Sonwalkar (2002), Bannapure (2007) [3], Bahire (2011) [1], Barse *et al.* (2010) [2] and Meti (2012) [4].

4. Conclusions

It is concluded from the above research findings that, while studying constraints in adoption of management practices of drip irrigation system for sugarcane, it was observed that major constraints faced by drip users were inadequate supply of electricity, damage of laterals by rat/squirrel, higher initial cost of investment, lack of proper training and clogging of emitters.

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