Plant Archives Vol. 20, Supplement 2, 2020 pp. 2361-2362 **e-ISSN:2581-6063 (online), ISSN:0972-5210**

STATUS OF TAMIL NADU GRAPE FARMERS IN ADOPTION OF DRIP IRRIGATION TECHNOLOGIES - A VIEW

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Abstract

Drip irrigation is an essential solution for the agricultural industry. Drip irrigation is a low-tech, highly efficient solution for famers. It can increase agricultural production by as much as 50 per cent using only 10 per cent of the water that farmers currently use. At the same time, drip irrigation also limits topsoil erosion, pest infestation and evaporation from the plant surface. Drip irrigation is a boon in areas where the amount of water required for irrigation is less. It is being implemented by the Government of India in collaboration with the State Governments through the PMKSY project with hundred percent subsidies. A study was conducted to find out to what extent the grape growers of Tamil Nadu are adopting the techniques of this scheme. Dindigul district of Tamil Nadu was chosen for this study with a sample size of hundred and twenty grape growers selected based on the random sampling method. During this study, it was found that most of the respondents (45.00 per cent) had medium level adoption followed by high (37.50 per cent) and low (17.50) level of adoption about the recommended drip irrigation technologies

***Keywords*:** Drip irrigation, grape growers, irrigational technologies, adoption level.

Introduction

With drip irrigation, water is conveyed under pressure through a pipe system to the fields, where it drips slowly onto the soil through emitters or drippers which are located close to the plants. Compared to other types of irrigation, only the immediate root zone of each plant is wetted. Compared with surface or sprinkler irrigation technologies, field application efficiency of drip irrigation can be high as 90 percent (Dasberg and Or, 1999). Drip technology improves the irrigation efficiency by reducing evaporation from the soil surface, reducing or eliminating runoff and deep percolation, and eliminating the need to drastically over-irrigate some parts of the field to compensate for uneven water application (Larry J Schwankal *et al*., 1999). Therefore this can be a very efficient method of irrigation.

Drip irrigation can be a very technical irrigation system for plant production fields. But compared to other technical systems it is a low-technique solution. Drip irrigation requires little water compared to other irrigation methods. The small amount of water reduces weed growth and limits the leaching of plant nutrients down in the soil. In liquid fertilizer can be applied efficiently to the plants through the drip system.

High water application efficiency and lower labour costs, minimised fertilizer/nutrient loss due to localised application, reduced leaching, ability to irrigate irregular shaped fields, leveling of the field not necessary, moisture within the root zone can be maintained at field capacity, minimised soil erosion, soil type plays less important role in frequency of irrigation, highly uniform distribution of water i.e., controlled by output of each nozzle, reducing energy costs are the main advantages of drip irrigation system.

It is important for farmers to know and adopt the technologies of such important drip irrigation system. Under the PMKSY scheme, the Horticulture Department of the Government of Tamil Nadu is setting up a drip irrigation system for farmers at 100 per cent subsidy. It also provides them with technical skills. However, farmers do not follow it properly. The more they practice technology, the more they will benefit. Therefore, it is necessary to determine the extent of adopting their technologies. This will help them to learn about it. Based on this, a study was conducted to find out the extent to which grape growers in Dindigul district of Tamil Nadu are adopting to drip irrigation technologies. The following conclusions of this study are certainly helpful for policy makers.

Materials and Methods

To know the extent to which they adopt to the technologies, In Tamil Nadu, Dindigul district, Attur block was selected for the study as it has the maximum area under grape cultivation under drip irrigation as compared to other blocks. 120 respondents were identified from selected villages using proportional random sampling method. Data were collected from respondents with the help of a well structured and pre-tested interview schedule. The statistical tools used in the study are percentage analysis and mean percentage score. A total of fifteen items of drip irrigation technology were selected for the study.

Results and discussion

Farmers can enjoy the benefits of a technology only if it is adopted. Only if various technologies are adopted in this drip irrigation scheme, farmers can enjoy its good benefits. Here, the adoption status of the respondents regarding drip irrigation technologies under PMKSY is examined and key findings are presented.

Table 1 : Distribution of the respondents according to their overall adoption level about the recommended drip irrigation technologies

(n=120)

Sl. No.	Category	Number	Per cent
1.	Low	21	17.50
2.	Medium	54	45.00
3.	High	45	37.50
	Total	**120**	**100.00**

I. Over all adoption level of the respondents about the drip irrigation technologies

The results on the extent of adoption of recommended drip irrigation technologies in grape cultivation are presented in Table 1.The Table 1 Indicates that nearly half of the respondents (45.00 per cent) were found to have medium level of adoption about drip technologies followed by high (37.50 per cent) and low (17.50) level of adoption. This finding is in accordance with the findings of Govind Parihar (2017).

It may be inferred most of them had medium and high level of adoption category. This might be due to the water scarcity in the study area pushed the farmers to adopt this type of minimum water using technologies, majority of the respondents would have interest in adopting the new technologies and enough knowledge in drip irrigation technologies and also they got advices from the Officials of State Horticulture Department. This observation is in agreement with the earlier findings of Ram Sundar (2016).

II. Technology wise adoption level of the respondents about the recommended drip irrigation system

As already stated in methodology fifteen questions about technologies in drip were selected for studying the adoption level. The percentage for technology wise adoption of respondents about the drip irrigation in grape cultivation is presented in Table 2.

Table 2 : Technology wise adoption level of the respondents about the drip irrigation system

(n=120)

Sl. No.	Recommended items	Per cent
1.	Adoption of drip irrigation system	100.00
2.	Adoption of Fertigation method	43.20
3.	Recommended fertilizers for fertigation	43.20
4.	Quantity of fertilizers used for fertigation	43.20
5.	Utilizing the pressure gauge properly	66.40
6.	Cleaning of emitters with acid treatment	32.30
7.	Manual cleaning of lateral lines thrice per year	88.50
8.	Lateral line removals while ploughing	100.00
9.	Spacing for emitters	100.00
10	Maintain the all parts of the drip system properly	68.20
11.	Follow the irrigation interval properly	100.00
12.	Fix the filters based on recommendation	93.20
13.	Cleaning techniques for filters	76.30
14.	Prevention of lines from external damages	84.00
15.	Adoption of appropriate guidelines	100.00

The findings on adoption level of drip technologies about its equipments and its methods in Table 2 shows that out of fifteen techniques, the cent per cent of the respondents were found to be adopt the five process namely, 'Adoption of drip irrigation system', 'Lateral line removals while ploughing', 'Spacing for emitters', 'Follow the irrigation interval properly' and 'Adoption of appropriate guidelines'

Further it could be observed above ninety per cent of the respondents adopted 'Fix the filters based on recommendation' (93.20 per cent) and around four fifth of the respondents adopted the practices 'Manual cleaning of lateral lines thrice per year' (88.50 per cent), 'Prevention of lines from external damages' (84.00 per cent) and 'Cleaning techniques for filters' (76.30 per cent).

More than three fifth of the respondents adopted the technologies, 'Maintain the all parts of the drip system properly' (68.20 per cent) and 'Utilizing the pressure gauge properly' (66.40 per cent). This reported that the high and medium level adoption of drip irrigation technologies may due to the most of the respondents had adequate knowledge on recommended drip irrigation technologies and almost all the respondents attended at least one training programme regarding drip irrigation. The frequent contact of the Officials of State Horticulture Department with the respondents also might be the reason for the adoption level was found to be more.

Equally 43.20 percent of the respondents adopted the technologies of 'Recommended fertilizers for fertigation', 'Quantity of fertilizers used for fertigation' and 'Utilizing the pressure gauge properly'. This might be due to the respondents were not fully knowledgeable on fertigation. This finding is getting its support from Ram Sundar (2016).

Only 32.30 percent of the respondents adopted 'Cleaning of emitters with acid treatment' due to the complexity of this practice and low knowledge level.

Conclusion

According to the results of this study, in drip irrigational technologies, majority of the respondents (45.00 per cent) were found to have medium level of adoption about drip technologies followed by high (37.50 per cent) and low (17.50) level of adoption about the recommended drip irrigation technologies. The respondents were lacking in cleaning of emitters with acid treatment and various aspects of fertigation method. Majority of them had high level of adoption in, completely adopt the drip irrigation system, lateral line removal while ploughing, spacing for emitters, follow the irrigation level properly and adoption of appropriate guidelines. This might be due to the interest in adopting the new technology and the water scarcity in study area pushes the farmers to adopt the technologies to minimize their loss.

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