

Research Note

Impact of Drip Irrigation on the Income of Tomato Growers in Chhindwara (MP)

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ABSTRACT

Irrigation water is a limiting factor in selection of crops being cultivated. Traditional irrigation methods have low water use efficiency which allow a lot of water wastage as run off or seepage loss. A single irrigation in an acre of land costs about Rs. 1500/-. Therefore, it is important to know whether improved irrigation methods had any impact on income of vegetable growers. The comparative study attempts to explore difference in income of farmers who were using drip system of irrigation with those who were not using the same. Total 80 respondents were selected for study in which 40 tomato growers were drip users and 40 as non-drip users. Findings revealed that using drip irrigation system enhanced production as well as income of the tomato growers significantly in comparison to those who were not using drip irrigation system.

Keywords: Drip irrigation, Impact, Income, Production, Vegetable growers

INTRODUCTION

Optimization and conservation of resource are considered to be prime thrust in present agricultural scenario. In line with these objectives many technologies are being adopted by the farmers. The drip system is one of the comparatively new devices for the judicious use of water especially in fruit and vegetable crops. It saves 30-70 per cent water than other methods and has water use efficiency (WUE) of about 90-95 per cent (Narayanmoorthy, 2010). Vegetable crops require frequent irrigation. Drip irrigation method supply water directly to the root zone therefore crop is escaped from the incidence of weeds and diseases, resulting increase in yield. This method is also useful for the area where the vegetables are grown on hilly/sloppy places. Drip irrigation results in a very high water application efficiency of about 90-95 per cent (Ghosh, 2009). Studies show that drip irrigation reduces water use by 30-70 per cent and

increases yields by over 50 per cent. At present, 75 per cent subsidy is given to marginal and small farmers and 50 per cent subsidy is given to medium and large farmers. Vegetable growers are using drip as well as non-drip irrigation technology according to their resourcefulness. Total drip irrigated area is less than one percent of the total irrigated area in India. In Madhya Pradesh vegetable production is mostly an affair of small and marginal farmers in comparison to bigger peasants. An initial investment on drip irrigation system leads to cost saving and resource conservation. Under subsurface drip irrigation (SDI) system, tomato was the most popular followed by lettuce, peas, sweet corn, melons, potato, cabbage, beans, squash, carrot, onion, broccoli, and asparagus (Singh *et al.*, 2010). In Chhindwara district tomato occupies maximum area under drip irrigation system. Therefore, a comparative analysis of both the groups of farmers was planned with the objective to study

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the impact of drip irrigation technology on production and income of tomato growers.

METHODOLOGY

Out of 11 blocks of Chhindwara District, Chhindwara block was selected purposively because the block had sufficient number of vegetable growers who were using both drip and non-drip irrigation technology. Chhindwara block comprises of 132 villages, out of which 40 villages have both drip and non-drip irrigation system. Out of these 40 villages, 5 villages namely Chandan gaon, Puama, Rohana kala, Chargaon bhat and Dhamaniya were selected on the basis of crop grown by the selected respondents. Two types of farmers were selected in equal number from the each selected village who were using drip and other methods of irrigation except drip. The size of sample was 80 i.e. 40 tomato growers using drip system and 40 non-drip tomato growers. The primary data were collected with the help of pre-tested interview schedule. The secondary data were obtained from the research journals, thesis, agriculture magazines, reports of state agriculture department, department of statistics and other related departments. The collected data were analyzed through the suitable statistical methods like frequency and percentage.

RESULTS AND DISCUSSION

Table 1 shows that, in case of drip users, 20 per cent respondents had low income, while 52.50 (majority) per cent respondents had medium income and 27.50 per cent of the respondents had high income. Similarly, in case of

Table 1: Distribution of respondents according to income (Per hectare)

Categories	Drip users	Non-drip users
Low (up to 0.60 lac)	8 (20.00)	19 (47.50)
Medium (0.61 to 0.95 lac)	21 (52.50)	16 (40.00)
High (0.96 to 1.30 lac)	11 (27.50)	5 (12.50)
Total	40	40

Table 2: The impact of drip irrigation technology on production of tomato growers

Attributes	Drip users	Non-drip users	difference	% difference
Production (qtls/ha)	486	302	184	60.92
Income (Rs./ha)	85,000	59,000	26,000	44.06

non-drip users, 47.50 per cent respondents had low, while 40.00 per cent respondents had medium and only 12.50 per cent respondents had received high income. Similar results were found by Narayanmoorthi (2010) and Ghosh *et al.* (2013).

The data of the Table 2 indicate the difference in the production (qtls/ha) of tomato who used drip method and who used non-drip method for the irrigation of tomato crop. The production of tomato of drip users was more than the production of non-drip users and had difference of 184 qtls/ha and had per cent difference of 60.92 per cent. Zhai *et al.*, 2010 also reported that the cultivation of tomato under drip irrigation has significant impact on crop yield in comparison to non-drip irrigation method. Regarding income, there had also the difference in the income (Rs./ha) received from tomato crop of both drip and non-drip users. The drip users received more income than non- drip users and had difference of Rs. 26,000 rupees per hectare and per cent difference was found to 44.06 per cent. These findings support the work of Narayanamoorthi (2010) and Balasubramanian (2012). The results of economic impact indicated that there was a considerable benefit to farmers who adopted drip irrigation system and managed their crops effectively in comparison to non-drip irrigation in tomato. Reduction in cost and improved yield enhanced income of the tomato growers that shows the technical and economic feasibility of drip irrigation system (Narayanamoorthi *et al.*, 2018).

CONCLUSION

It can be concluded that adoption of drip irrigation technology is a beneficial method which allows efficient water use with a significant increase in income and production of vegetable growers especially in tomato crop. Therefore, there had a positive impact of drip irrigation technology on production and income of tomato growers. Government provide heavy subsidy on this proven technology. Tomato growers should be motivated to adopt this technology in benefit of farmers as well as

environment. Apart from providing subsidy awareness should be created by means of trainings, demonstrations and social platforms. Diverse extension strategies should be used for popularization and maintenance of drip irrigation method in order to reduce cost of cultivation and labour involved in production.

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