

M.Sc. Thesis

**INVESTIGATION OF ISSUES FACED BY FARMERS TOWARDS
ADOPTION OF DRIP IRRIGATION IN SOUTHERN PUNJAB**



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ABSTRACT

It is needed to use scarce water resources carefully for the development of agriculture by producing more yield with less quantity of water. High Efficiency Irrigation Systems (HEIS) are advanced methods to irrigate agricultural soil directly into the root zone in the form of drops with the help of emitter. Water can be applied efficiently to the soil by adopting these technologies. Adoption of HEIS is only possible when farmers have a sound knowledge about High Efficiency Irrigation System (HEIS) like bubbler, drip and sprinkler irrigation systems. The same technologies are being promoted by various government agencies in the Punjab but the adoption rate is very sluggish as the farmers are facing numerous technical problems. This study has been conducted to investigate the issues faced by farmers in adoption of HEIS particularly Drip Irrigation in southern Punjab. For this purpose, a survey has been done in four districts of southern Punjab (Khanewal, Multan, Muzaffargarh, D. G. Khan) to evaluate actual status, issues, and prospects of drip irrigation systems. This study is mainly based upon the opinions of the respondents including farmers who have adopted the systems and irrigation engineers working in this field to promote these systems. This study is covering the issues involved in adoption of drip irrigation system e.g. high labour requirement as compared to traditional methods, insufficient financial resources within the farmers, lack of training and awareness about the technology and backup support by the Service and Supply Companies etc. This study has also focused on the recommendations of the respondents regarding provision of backup support on time, subsidy on drip irrigation system from Government for the development of this technology, cost check and balance, provision of proper training etc. It has been estimated that about 6496 acres has been brought under drip irrigation in southern Punjab during last five years (2012

to 2016). Most of the systems were installed on orchards. Very little number of systems was found to be installed on field crops and most of them were observed as non-functional. Large numbers of systems were installed on the acres 10-15 area. After analysis of the information collected from the opinion survey, it was concluded that the major issues causing non-adoption/failure of systems are due to high investment and operational costs. To validate the outcome of the survey, a design a site was reviewed to reduce the investment and operational costs of the systems. During revision, the size (discharge capacity) of main, sub main and lateral were minimized which reduced the cost of system upto 11 percent but increased the running time to the double (from 3.45 to 7.95 hrs). It is, therefore, recommended that reducing the system discharge capacity and increasing operation time may facilitate the running of system cost effectively through connecting with the solar power. Once connected with the solar power, the adoption and operation rate of drip irrigation systems will accelerate in the southern Punjab on one end and will bring the existing non-functional sites back on operation.