A LINEAR PROGRAMMING MODEL FOR DESIGNING OPTIMAL CROPPING PATTERN WITH CONJUNCTIVE USE OF SURFACE AND GROUND WATER

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ABSTRACT

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During recent years Linear Programming is considred as a standered tool that has saved many thousands or millions of dollars for companies or business of moderate size in the world and its use in the other sectors of economy is spreading very rapidly. For developing cropping pattern and water releases optimization techniques can also be used. The present study deals with the application of linear programming for obtaining higher returns from the cultivated area of central Rechna Doab lying under the auspices of SCARP-1. Both surface and ground water are available in this area for meeting irrigation requirements and through their conjunctive application, optimal cropping pattern has been determined and optimal water release policy from canals, public and private tubewells has been proposed for a period of twelve months. Sensitivity analysis were conducted by changing the value of different parameters like capacity of system , operational cost of water from different sources, land area available for cultivation and amount of water available from aquifer. The analysis has been carried out while keeping the rainfall of the area as constant and varying the price of agricultural commodities. Some additional complex parametric changes were made and their results are also reported in this study.