COMPUTATION OF IRRIGATION EFFICIENCIES FROM SOIL SALINITY DATA

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ABSTRACT

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Optimal water management usually means the careful application of water to the crops in a field to reduce overirrigation and consequently drainage losses. Frequent complains by the farming community in Pakistan is regarding the water shortage in irrigated areas. Two approaches have been used to estimate the field application efficiency: water balance and soil salinity data. Then two models were applied for the first approach and four different models for the second. The study area located in Faisalabad District, Pakistan, where the Fourth Drainage Project installed recently, suffer from two main problems, water shortage and high watertable. The efficiency obtained from the water balance approach were low compared to the efficiency from soil salinity data. The reason was attributed to less water losses encompassing in the salinity data approach which made the models yielding the maximum irrigation application efficiency. On the other hand, the salinity data approach gives an interesting fact under the terms of localized and historical application efficiency. Three different site were selected within the field, illustrated that the field's center received more irrigation depth than the corners for the years 91, 92 and 93, as indicated by the soil salinity or by the leaching fraction. The deep percolation losses exceed the leaching requirement during 1992, which made the additional application of water not necessary. One can say that the amount of water was not short during 1992 in a sense of quantity but short in sense of miss management between Rabi and Kharif in the selected area.

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