

Performance evaluation of subsurface drainage system in upper Krishna command

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■ **ABSTRACT** : The study was conducted in an area of 10.65 ha at Agricultural Research Station, Malnoor under UKP command during 2014. The drain discharge was observed with an weighted average discharge of mains was 0.50 mm d⁻¹ and 0.44 mm d⁻¹ in the laterals this magnitude could be categorized as low drain discharge and attributed to lower rate of hydraulic conductivity (0.067 m d⁻¹) and sodic nature of the soil. The ionic composition of leachate was dominated by sodium, while the anionic concentration of leachate was dominated by chlorides and bicarbonates. The pH ranged from 7.10 to 9.10 in the outlets and 6.20 to 8.50 in the laterals and salinity of leachate with mean EC of 9.68 dS m⁻¹ in collector mains and 9.44 dS m⁻¹ in laterals implied that it was 9 to 14 times higher than the canal water (0.70 to 1.10 dS m⁻¹) and not good for irrigation. Groundwater reaction was neutral with a mean pH of 7.64, while the mean salinity of groundwater was very high with the EC of 9.47 dS m⁻¹ as compared to canal water. The total amount of salt removes was observed to be 3.22 and 5.20 t during the study period, This outgoing salt load over a period of time depending of cropping and irrigation practices would help in reducing the soil salinity and thereby facilitate restoration of soil production capabilities.

■ **KEY WORDS** : Drain discharge, EC, pH, Carbonate, Bicarbonates

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