

ABSTRACT

RECLAMATION POTENTIAL OF AMENDMENTS FOR SOILS IRRIGATED WITH SALINE-SODIC DRAINAGE WATER

Integrated On-Farm Drainage Management (IFDM) is an important tool for salinity and drainage management on the Westside San Joaquin Valley of California. The saline-sodic drainage water used to irrigate salt-tolerant forages and halophytes in IFDM can cause clay dispersion and reduce infiltration and soil hydraulic conductivity. This study examined the effect of three amendments—gypsum, sulfur, and poultry manure—on pH, EC, SAR, and hydraulic conductivity in soils of three stages of the IFDM. The effect of salinity of the infiltrating water on hydraulic conductivity was also examined. A split-plot design with amendment as the main plot factor, infiltration water salinity (0.5, 6, and 12 dS/m) as subplot factor, and a replication level of 3 was used. Amendments significantly decreased soil pH and SAR in the 0-5 cm depth and increased hydraulic conductivity after three applications. Salinity of infiltrating water had no significant effect on soil hydraulic conductivity.

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