

ABSTRACT

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SALT AFFECTED SOILS OF JAMAICA: THEIR OCCURRENCE,  
CHARACTERISATION, CLASSIFICATION AND RECLAMATION  
POTENTIALS.

Studies were conducted on the naturally occurring salt affected soils of Jamaica (Vertisols, Entisols, Mollisols and Histosols) as well as those soils which have been salinised due to improper irrigation practices. The former category of soils were found to be predominantly characterised by saline non-sodic soil conditions with ESP seldom exceeding 15 or SAR >13. Soluble salts of their saturation extracts chiefly comprised salts of chlorides, except for the occurrences of gypsic soil horizons at some locations among the Vertisols, where  $\text{SO}_4^{--}$  was a significant soluble anion component.

In the absence of the provision for a leaching factor in the calculation of the water budget for irrigation, the development of soil salinization under permanent irrigation was found to be mainly a function of irrigation water quality and soil textural class. On the lighter textured sandy loams and clay loams, use of irrigation water in the EC range of 2.5-3.0 mmhos/cm has resulted in marginal increases in salinity levels, but on the heavier textured clays, use of such waters has resulted in saline and saline-sodic soil conditions. Increases in the levels of exchangeable Na were accompanied by notable increases in the levels of exchangeable Mg on

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the cation exchange complex and a concomitant decrease in exchangeable Ca occurred. With the exception of the Histosols, all soils were characterised by very low hydraulic conductivity values, resulting in restricted leaching.

During leaching experiments, leaching equations based on the "single reservoir with by-pass" model of the salt balance, gave fair approximations to actual time required for leaching, as well as depth of water required to percolate through the soil profile in achieving a given level of reduction in ECe values, as recorded in the field.

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