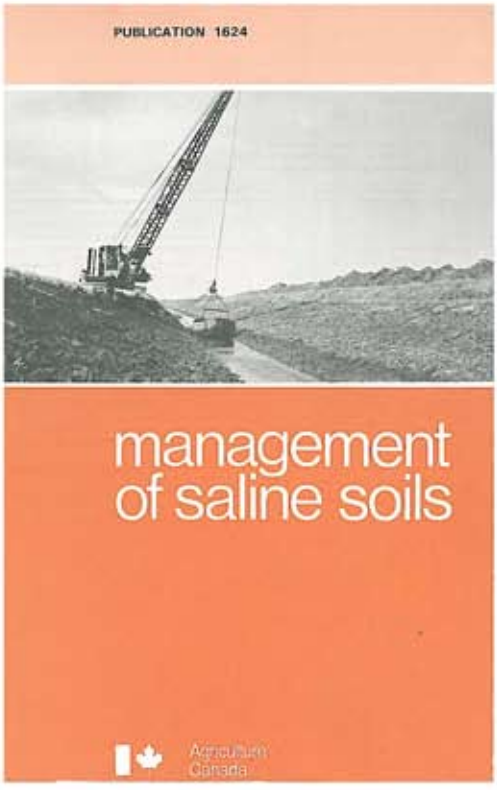

management of saline soils

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DESCRIPTION OF SALT-AFFECTED SOILS

The main salts in Western Canadian soils are calcium sulfate (gypsum), magnesium sulfate (Epsom salts), sodium sulfate (Glauber's salts), and potassium sulfate. Small amounts of bicarbonetes and chlorides are usually combined with these salts, which may be present in varying amounts.

EFFECTS OF EXCESS SALTS AND WATER ON PLANTS

The more salts there are in the soil water, the harder it is for the plants to take up water. Also, very high salt levels are toxic to plants. Salts in the soil also remove water from the plant roots by osmosis and cause their cells to collapse (plasmolysis). The presence of some salts reduces the availability of certain plant nutrients. Salts have also been shown to reduce the activity of soil microorganisms; this in turn affects the availability of nutrients to plants and alters other factors, such as soil structure.

Plants may grow well in moderately saline soil that is high in moisture, because the soil solution is then diluted. When the soil moisture decreases, however, plants may be injured because the salt concentration has increased.