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# Irrigating with Salty Water Causes Salinity in the Soil

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## Introduction

By adding salts to irrigation water, humans can increase the salinity of soils. By providing appropriate drainage water to remove extra salts from the soil, proper irrigation management helps avoid salt accumulation. Salt accumulations can be caused by disrupting drainage systems that facilitate leaching. The rise in saline groundwater and the accumulation of salt in irrigation water is known as irrigation salinity. Large amounts of irrigation water are used, which raises groundwater levels and mobilises salt locally. When the water utilised to irrigate comes from saline sources, the salinity of the irrigation is exacerbated.

Excess leakage is a primary cause of salt and waterlogging in irrigation areas, and inefficient irrigation and drainage systems is a key culprit. Irrigating with salty water adds salt to the soil, requiring more irrigation water to leach salts past the root zone. Because salts become more concentrated in the remaining soil water as water is taken up by plants through transpiration or lost to the atmosphere through evaporation, soil salinity rises. As a result, between irrigation perimeters, Evapo Transpiration (ET) occurs. It is possible to reverse soil salinity, although it is time-consuming and costly. Improving irrigation channel efficiency, capturing and processing salty drainage water, establishing desalting facilities, and increasing the amount of water that enters aquifers are all possible solutions.

Mulches can also be used on crops to conserve water. Desalination can be done in two methods, according to the researchers in their study. One method is to separate the clean water molecules from the salt water, as in distillation and reverse osmosis, especially for high-salt water. By interfering with nitrogen intake, lowering growth, and preventing plant reproduction, salinity has an effect on crop, pasture, and tree output. Some ions (especially chloride) are harmful to plants, and as the concentration of these ions rises, so does the risk of death. Although irrigation water is only mildly saline, it can nevertheless harm crops if it contains large quantities of certain ions. Symptoms related to high salinity are caused by high chloride or sodium ion levels (the most frequent). Calcium and magnesium may become inaccessible to the plant due to high bicarbonate levels.

To regulate and stabilise salinity, effective salinity control requires appropriate drainage. The salinity will subsequently be controlled by a net downward flux of surface applied water to achieve the necessary leaching. Salinity has an impact on practically every stage of plant development, including germination, vegetative growth, and reproductive growth. High salt levels in the soil can disrupt the plant's nutrient balance or interfere with the uptake of particular nutrients because many salts are also plant nutrients. To dissolve the salts and transport them below the root zone, you must provide enough low-salt water to the soil surface. The water must be generally salt-free (1,500-2,000 ppm total salts), especially sodium salts.

A halophyte is a salt-tolerant plant that develops in high-salinity soil or waterways, coming into touch with saline water by its roots or through salt spray, as in saline semi-deserts. The volume of water that enters (recharge) and leaves (discharge) the groundwater system must be balanced to manage salinity. Planting, regenerating, and maintaining natural vegetation and excellent ground cover in recharge, transmission, and discharge zones, where feasible, can help to lower the water table. In most salty areas, farmyard manure (FYM) is the most widely approved fertiliser for agriculture. When the cost/benefit ratio is taken into account, combining FYM and chemical fertiliser is advised. To lessen the effect of salt stress on crop growth, the timing of topdressing fertiliser is critical.