

EFFECT OF SALINE IRRIGATION WATERS ON THE GROWTH CHARACTERISTICS AND YIELD OF WHEAT

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ABSTRACT

Effect of six synthetic irrigation waters having two levels of total dissolved salts (TDS), 10 and 20 me/l, and three levels of residual sodium carbonate (RSC), 0.0, 2.5 and 5.0 me/l, on wheat CV. Punjab-81 was studied in a pot experiment using several amendments such as gypsum, sulfur, farm yard manure (FYM), and pressmud. Increasing levels of TDS and RSC significantly suppressed plant height, tillering capacity, 100-grain weight, and straw and grain yields. Suppression was more due to Na^+ and HCO_3^- than Ca^{2+} , Mg^{2+} , Cl^- and SO_4^{2-} . Among amendments best results were achieved by 20 tons/ha FYM followed by 100% water applied gypsum and 100% sulfur. Pressmud was unable to improve the yield.

INTRODUCTION

Due to increasing cropping intensity day by day, canal water is becoming insufficient to meet the plant water requirements particularly in saline areas where extra water supply is necessary to keep a desirable water potential. To overcome the shortage of canal water, the ground water is being supplemented. All of this ground water is not suitable for irrigation and mostly these waters are high in TDS, SAR, and RSC (Agricultural Chemist, 1974). Soluble salts from applied water and fertilizer, as well as, indigenous soil salts, exert physical and chemical effects on the soil matrix that result in alteration of the ability of a soil to con-