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THE EFFECT OF BLENDED AND ALTERNATE USE OF CANAL AND SALINE TUBEWELL WATER ON WHEAT CROP

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ABSTRACT

Laboratory and field experiments were conducted during Rabi 1991 and 1992, respectively to compare the effect of different quality waters on the growth/yield and tissue ion contents of wheat, and soil salinity/sodicity. The wheat yield obtained with different quality waters were in the order canal > alternate > blend > tubewell, however, the soil salinity/sodicity build up was in the reverse order. Different quality waters also affected the wheat tissue ion content. Saline water increased sodium and chloride in the shoot but decreased the potassium content. The calcium and magnesium content in the shoot either remained unchanged or decreased/increased slightly.

INTRODUCTION

To overcome the shortage of irrigation water in the country, surface supplies are supplemented with groundwater, the quality of which is quite variable in the Indus Basin (Younus, 1977). The electrical conductivity of the groundwater may vary from < 1 to more than 4 dSm^{-1}. However, the conjunctive use of surface and groundwater supplies is very essential to stretch the total water supplies. Saline waters are either blended with fresh water (canal/low salinity) when both sources are timely

Laboratory and field experiments were carried at the Centre of Excellence in Water Resources Engineering (CEWRE), University of Engineering and Technology, Lahore and at Shahkot Scheme of SCARP-I respectively during Rabi 1991 and 1992 to study the effect of blended and alternate use of fresh and saline tubewell water on the growth and tissue ion content of wheat.

MATERIALS AND METHODS

a) Laboratory Experiment

A laboratory pot experiment was set up at CEWRE in December 10, 1991. The soil was collected from the vicinity of the selected tubewell No.130 Shahkot Scheme of SCARP-I. It was air dried, crushed and passed through 2mm sieve. The soil was analysed for physical and chemical characteristics (Table 1).

The experiment was conducted in glazed pots having diameter and height of 25 and 30 cms, respectively. Twelve kilogram of air dry soil was added to each pot and was packed uniformly. The following treatments were tested on wheat crop (CV.