IRRIGATION QUALITY OF GROUND WATER IN DISTRICT CHAKWAL

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Water samples of new tubewell bores from various locations of District Chakwal, were collected for chemical analysis. The objective was to check their irrigation quality prior to their use for irrigation purpose. Salt concentration in water samples, collected from 56 locations, varied from 211 to 723 mg L^{-1}. Four water samples have TSS>800 but <2000 mg L^{-1} and only two sites have ≥ 2000 mg L^{-1}. Sodium adsorption ration (SAR) of the samples ranged from 0.07 to 4.92 whereas residual sodium carbonate (RSC) of 47 samples ranged from zero to 1.20 mmol L^{-1}. These are considered desirable characteristics for irrigation water. However, samples obtained from 9 locations have RSC > 1.25 but < 2.25 $mmol_c$ L^{-1}, while samples from 6 locations had ≥ 2.25 $mmol_c$ L^{-1}.

INTRODUCTION

Food and fibre requirements, of progressively increasing population, can be met by (a) maximizing crop yields per unit area by using adequate inputs like fertilizer, water, improved varieties and plant protection measures (b) by bringing culturable waste land under cultivation through improved technology. In order to implement the second approach a scheme has been initiated in rainfed tract of the Punjab province as a joint venture of Government of the Punjab and Agency for Barani Areas Development (ABAD). The objective is to bring more land under ideal conditions of cultivation. Under this scheme 62 turbines/ diesel tubewels were allocated to the farmers of Chakwal district during 1991-92 and 1992-93 at subsidized rates.

Quality of water is of immence importance, because poor quality of both surface and ground waters is not only a limiting factor in crop production but its constant and indiscriminate use is also a major cause of salinity/alkalinity. The extent and nature of salt accumulation and the degree of soil alkalinity depends on the quality of irrigation water. Keeping in view the severity of salinity/alkalinity problems in the country, the quality of water from a new well should be checked prior to its use for irrigation. Therefore, water samples were collected for their quality test.

MATERIALS AND METHODS

Sixty two tubewell bores in Chakwal district wer