

COMPARISON OF UNIFORM AND VARIABLE RATES OF GYPSUM FOR RECLAMATION OF SALT AFFECTED SOILS

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ABSTRACT

Variable rates of gypsum were compared with a single uniform rate for the reclamation of salt affected soil in a farm showing spatial patterns in gypsum requirement at Shahdau Village in Dera Ismail Khan district. Soil pH of the field ranged from 7.4 to 9.0, EC from 0.35 to 4.90 dSm⁻¹, and GR from 1.70 to 17.84 t ha⁻¹. This field was divided into three different management zones with six transacts. One strip in each transect received a uniform rate of 4.25 t ha⁻¹ while the other strip in each transect was treated with varying rates of gypsum i.e. low (3.198 t ha⁻¹), medium (6.77 t ha⁻¹) and high (12.802 t ha⁻¹). After treatment with gypsum, wheat crop was planted in the whole field. At harvest wheat yield was measured at 14 m interval on each strip and gypsum requirement was also determined at these locations. The data collected on the gypsum requirement at harvest showed that variable rates of gypsum were more effective in reclaiming the soil than a single uniform rate. Gypsum requirement was significantly lower in the variable management strategy (1.93 t ha⁻¹) than the uniform rate (3.099 t ha⁻¹) ($t = -5.2403$, $P = 0.0000$). Wheat yields were not affected significantly by the two management strategies ($t = 0.28$, $P = 0.7767$). However, the zone with high GR produced significantly lower yield under both the management strategies. Division of the field into three different management units based on the GR of soil was effective in reclaiming the soil and it increased the efficiency of gypsum application.