Effects of Inorganic Phosphorus Fractions under Different Tillage Practices on Wheat *(Triticum Aestivum)* In an Acid Soil of West Bengal (India)

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Abstract

Phosphorus (P) is an essential element for plant growth and is usually applied to soil as inorganic P fertilizer. An experiment was conducted to study the effects of inorganic phosphorus fractions and tillage operations (conventional and zero tillage) on the yield of wheat. The field experiment was laid out in a randomized block design with nine treatments replicated three times. Recommended fertilizer dose (kg/ha) of N:P:K @100:60:40 (RD) was modified in different treatments as ; T_1 (untreated control), T_2 (NP as RD), T_3(K+P as RD), T_4(NK as RD +P as 25% of RD)], T_5[NK as RD and P as 50% of RD], T_6[NK as RD and P as 75% of RD, T_7[NKP as RD], T_8[NK as RD and P as125% of RD], T_9[NK as RD and P as 150% of RD]. Surface soils were collected (0-20 cm. depth) from each plot and important soil properties were studied. The soil was acidic in reaction having pH- 5.6 and EC of 0.06 dSm^{-1}. The available N-P-K levels were in soil 126.34 kg/ha, 20.13kg/ha and 133.28 kg/ha, respectively. The inorganic forms of phosphorus (Ca-P, Al-P, Fe-P, Re-P) in soils during the experimental period showed higher fractions in the conventional tillage than the zero tillage operation. The Al-P fraction of soil had significant ($p<0.05$) effects on the yield of wheat compared to other P-fractions.

Key words: Acid soil, Phosphorus fractions, Tillage, Wheat

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