

WHEAT YIELD AND P FERTILIZER EFFICIENCY AS INFLUENCED BY RATE AND INTEGRATED USE OF CHEMICAL AND ORGANIC FERTILIZERS

S. M. Alam, S. Azam Shah*, S. Ali and M. Mohsin Iqbal

ABSTRACT

The pot study was conducted to test the integrated use of chemical fertilizers and industrial wastes for reducing the input of chemical P fertilizer and enhancing crop production at a lower cost. Organic wastes from sugar mills i.e. filter cake (FC) and poultry industries i.e. poultry waste (PW) were integrated with chemical fertilizer i.e. single super phosphate (SSP) in 2:1 P ratio and evaluated against SSP after applying at the rate of 0,25,50,100, and 150 mg P kg⁻¹ soil and growing wheat as test crop. The data showed that increase in rate of P application significantly increased the plant height, number of tillers per plant, straw and grain yield as well as P-uptake in grain over control. However, increasing rate of P application over 25 mg P kg⁻¹ decreased the P fertilizer efficiency. Optimum P rate ranged from 50 to 100 mg kg⁻¹ soil for getting the maximum yield and better effect on yield contributing factors, studied. Integrated use of PW+SSP or FC+PW+SSP produced grain yield equivalent to SSP alone while FC+SSP combination resulted in significantly reduced yield, P uptake and P fertilizer efficiency. The study revealed that integrated use of PW and SSP in 2:1 P ratio could prove more economical substitute for the expensive chemical fertilizer of P.

Key Words: Integrated use, Organic fertilizer, Phosphorus efficiency, Wheat.