INTEGRATED USE OF MINERAL AND ORGANIC NITROGEN ON YIELD AND NITROGEN NUTRITION OF WHEAT (TRITICUM AESTIVUM, L)

M. Idris, and Wisal Mohammad

ABSTRACT

The effect of mineral N as urea (46% N) and organic N as Sesbania aculeate, L (3% N) at 80 kg ha^{-1} alone and in various combination on the yield, yield component and N nutrition of wheat crop (cv. Fakhar-e-Sarhad) was investigated in a pot culture experiment in the presence of basal dressing of phosphorus (P_2O_5) applied at 60 kg ha^{-1} as superphosphate (18% P_2O_5) and potash (K_2O) applied at 40 kg ha^{-1} as sulphate of potash (50% K_2O). The results revealed that all doses of mineral and organic N at 80 Kg ha^{-1} alone and in combination significantly improved the plant height, number of tillers, spike/plant and yield of wheat crop. The increase in grain yield varied from 39.0 to 87.0 percent, straw yield from 21.0 to 60.0 percent, total biomass yield from 15.0 to 53.0 percent, grain N uptake by 49.0 to 103.0 percent, straw N uptake by 62.0 to 138.0 percent and biomass N uptake by 13.0 to 88.0 percent. Combination of mineral N and organic N at 70+10; 60+20; 50+30; 40+40 kg ha^{-1} being of equal and first statistical rank were giving equivalent response to 80 kg ha^{-1} of mineral N, so far as yield and N uptake by crop was concerned. Combination doses of mineral and organic N at 30+50; 20+60; 10+70 kg ha^{-1} giving statistically equal yield and N uptake response were of second statistical rank, 80 kg ha^{-1} of organic N was of third statistical rank so far as yield and N uptake response of wheat crop was concerned. In the light of the statistical analysis, it is inferred that combination doses of mineral and organic N at 40+40; 50+30; 60+20 kg ha^{-1} being of equal statistical rank can be the best doses of first, second and third preference order giving an equivalent yield response to 80 kg urea, while combination doses of 50+30; 60+20 and 70+10 kg ha^{-1} being of second statistical rank were of fourth, fifth and sixth preference order in the experiment. 80 kg ha^{-1} of N alone being of third statistical rank order was of lowest preference order.