

DIFFERENTIAL RESPONSE OF WHEAT CULTIVARS TO PHOSPHORUS APPLICATION

S.M.Alam, S.A.Shah* and Sikandar Ali

ABSTRACT

In a greenhouse pot experiment, eight wheat cultivars were evaluated for growth and phosphorus utilization efficiency (PUtE) at low ($\text{NaHCO}_3\text{-P}$, 6.5 mg kg^{-1}) and adequate (75 mg kg^{-1} applied) P levels. The plant growth at vegetative stage and PUtE among cultivars was not found to be significantly different at low soil P level. At adequate P level, however, cultivars showed significant differences in dry matter production (1.68 g to 2.83 g per pot in Pasban-90 and Bakhtawar-92, respectively) and in PUtE that ranged from 0.45 (Pasban-90) to 0.88 (Sarsabz). At maturity, applied P increased grain and straw yields of all cultivars over the low P rate; MH-97 showed maximum increase (173%) while Pasban-90 produced minimum increase (98%) in grain yield. The cultivars exhibited substantial and significant differences in phosphorus physiological efficiency index (PPEI) at both P levels. The magnitude of difference among cultivars was greater (0.33 to 0.45) at low as compared to adequate P (0.24 to 0.29). Variability among cultivars for PPEI at both P levels indicated differential efficiency of these cultivars to utilize absorbed P.

Key Words: Phosphorus fertilizer, phosphorus utilization efficiency, wheat cultivars