

**DIFFERENTIAL RESPONSE OF WHEAT CULTIVARS TO PHOSPHORUS APPLICATION**

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**ABSTRACT**

*In a greenhouse pot experiment, eight wheat cultivars were evaluated for growth and phosphorus utilization efficiency (PUtE) at low ( $\text{NaHCO}_3\text{-P}$ ,  $6.5 \text{ mg kg}^{-1}$ ) and adequate ( $75 \text{ mg kg}^{-1}$  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 ( $1.68 \text{ g}$  to  $2.83 \text{ g}$  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