



Effect of nitrogen on wheat genotypes in Jharkhand

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Abstract : A field experiment was conducted at Birsa Agricultural University Farm, Ranchi during *Rabi* season on sandy loam soil (silt 20% and clay 19.6%), acidic in reaction (pH 6.6), low in available nitrogen (182 kg N/ha), medium in phosphorus (24 kg P₂O₅/ha) and potassium (198 K₂O kg/ha), to study the effect of different levels of nitrogen on growth, development, yield, nitrogen utilization and profitability of wheat genotypes. The experiment was laid out in Split Plot Design consisted of 3 nitrogen levels *viz.*, 120, 150 and 180 kg/ha in main plot and 6 genotypes (NW 2026, WH 736, HD 2790, HUW 468, PBW 343 and HD 2733) in sub plots and replicated thrice. The results revealed that crop with 150 kg N/ha produced higher grain yield (49.37 q/ha), grain production rate (138.93 kg/ha/day), physical productivity (40.76 kg/ha/day), straw yield (77.12 q/ha) and biomass production rate (104.54 kg/ha/day), productive tillers (387.06/m²), spike length (8.96 cm), fertile spikelet (17.79), grains/spike (48.01), net return (Rs. 26,918/ha), benefit cost ratio (2.25) and monetary productivity (222 Rs./ha/day) than the crop with 120 kg N/ha. Crop with 150 N/ha also absorbed more nitrogen (104.23 kg/ha) than the crop with 120 kg N/ha (85.12 kg/ha). Further increase in nitrogen beyond 150 kg N/ha was not at all beneficial. Wheat genotype NW 2026 produced maximum grain yield (51.43 q/ha), grain production rate (141.84 kg/ha/day), physical productivity (42.50 kg grain/ha/day) nitrogen utilization efficiency (34.28 kg grain/kg N applied) and biomass production rate (100.31 kg/ha/day) because of higher productive tillers (424.47/m²) than the remaining genotypes tested. 'NW 2026' wheat also had maximum net return (27,293 Rs./ha) benefit cost ratio (Rs. 2.28 per rupee investment) and monetary productivity (226 Rs./ha/day) compared to rest of genotypes tested. Further PBW 343 was the second best genotype having grain yield of 48.97 q/ha, net return of 25,645 Rs./ha and benefit cost ratio of Rs. 2.14.

Key Words : Genotypes, Nitrogen, Wheat, Yield

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