



NITROGEN AND PHOSPHORUS CONTENT AND UPTAKE, SOIL NUTRIENT BALANCE AND SOYBEAN PRODUCTIVITY UNDER DIFFERENT LEVELS AND SOURCES OF PHOSPHORUS AND PLANT GROWTH REGULATORS IN SUB HUMID RAJASTHAN

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ABSTRACT

An experiment was conducted at Udaipur during *khari* seasons of 2009 and 2010 on soybean crop involving twenty seven treatments *i.e.* three levels (20, 30 and 40 kg P₂O₅ ha⁻¹) and three sources (Single super phosphate or SSP; phosphorus rich organic manure or PROM and di-ammonium phosphate or DAP) of phosphorus in main plots and three plant growth regulators or PGRs (water spray, benzyl adenine 50 ppm and NAA 100 ppm) in sub plots of a split plot design having three replications. Results revealed that 40 kg P₂O₅ ha⁻¹, SSP and NAA recorded significantly higher pooled grain and stover yield equivalent to 25.95 and 37.37; 25.12 and 36.23 and 24.23 and 35.73 q ha⁻¹ than their respective counterparts, respectively. The enhancements in grain and stover yields were associated with significantly higher pooled nitrogen and phosphorus uptake (kg ha⁻¹) equivalent to 243.96 and 24.79; 228.10 and 24.52 and 229.90 and 23.44 under 40 kg P₂O₅ ha⁻¹, SSP and NAA, respectively. Significantly higher pooled available soil N (298.24 kg ha⁻¹) and P₂O₅ (25.99 kg ha⁻¹) was recorded under 40 kg P₂O₅ ha⁻¹ but variations among different PGRs were indifferent. Significantly higher soil pooled soil N was recorded under PROM (294.93 kg ha⁻¹) but significantly higher pooled soil P₂O₅ was recorded under SSP (25.72 kg ha⁻¹).