



RESEARCH PAPER

Evaluation of rice genotypes under levels of phosphorus application on major and secondary soil available nutrients in phosphorus stress soil ecosystem

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Abstract : Rice (*Oryza sativa* L.) is one of the most important cereal crops of the world. Judicious and proper use of fertilizer can markedly increase the yield and improve the quality of rice. Low availability of soil P is a major constraint for crop production in many agricultural systems. But the main problem concerning phosphorus (P) fertilizers is its fixation with soil complex with a very short period of application rendering more than two-third unavailable. Focusing on this, a field experiment was conducted in Paddy Breeding Station, Tamil Nadu Agricultural University (TNAU), Coimbatore to evaluate the rice genotypes for with two levels of phosphorus application on soil major and secondary nutrients. The study conducted with 22 rice genotypes at 0 and 50 kg P₂O₅ ha⁻¹ in P deficient soil of Noyyal series. Application of 50kg P₂O₅ ha⁻¹ increased the plant height and also progressive increase in panicle initiation, flowering and harvest stage. The results revealed that the soil fertility status major nutrients viz., soil available nitrogen, soil available phosphorus, soil available potassium and soil organic carbon exhibited higher in rice genotypes viz., TM07333 (251.4 kg/ha), TNRH-180 (7.55 kg/ha), ADT-43 (584.3 kg/ha) and AS06034 (0.64%). In regard to secondary nutrients viz., soil available calcium (5.22%) and soil available magnesium (1.30%) responded higher in ACM07001 rice genotypes.

Key Words : Rice crop, Phosphorus, Noyyal soil series, Major, Secondary nutrients, Stress

View Point Article : Sanjivkumar, V., Manikandan, M. and Saliha, B. Bhakiyathu (2025). Evaluation of rice genotypes under levels of phosphorus application on major and secondary soil available nutrients in phosphorus stress soil ecosystem. *Internat. J. agric. Sci.*, **21** (2) : 236-242, DOI:10.15740/HAS/IJAS/21.2/236-242. Copyright@2025: Hind Agri-Horticultural Society.

Article History : Received : 02.03.2025; Revised : 03.04.2025; Accepted : 05.05.2025