

ASSESSMENT OF NITROGEN AVAILABILITY IN CALCAREOUS SOILS UNDER RICE BASED CROPPING SYSTEMS

M. Sharif Zia¹, M. Aslam¹, Rahnatullah¹, M. B. Khan², M.B. Batj¹ and Ashraf Ali¹

ABSTRACT

Efficiency is exceptionally low for nitrogen (N) fertilizers in flooded rice ecosystem. A greenhouse pot study was conducted to determine nitrogen availability in soils from rice based cropping systems. Various parameters of N availability used were organic matter, total N, organic N and ammonium nitrogen, which were negatively affected by soil characteristics such as soluble salts (EC), soil pH and lime content (CaCO₃) except organic matter. Nitrogen fertility status as judged by the various N availability parameters under different cropping sequences followed the order: rice-berseem > rice-wheat > rice-fallow. Dry matter yield and N uptake by rice were significantly correlated with ammoniacal-N and mineral forms of nitrogen. Total N was also significantly correlated with N uptake. This study is very useful to identify N availability parameters for fertilizer recommendations but further research is needed to evaluate these parameters under field conditions.