



Research Article

Evaluation of enriched farm yard manure on root parameters of rice under system of rice intensification

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Summary

A thorough knowledge of the root system of crop is a pre requisite for understanding many problems connected with the crop production. Root studies especially root volume and depth of distribution helps in understanding water use, nutrient uptake and placement of fertilizers. System of rice intensification is a new system of rice cultivation and has own methodologies viz., transplanting of young single seedlings at wider spacing in a square geometry which facilitates uniform spacing and use of mechanical weeder, permitting greater root growth, better tillering and provides other favourable conditions for better crop growth especially soil aeration. Hence, keeping all the above aspects in view, field experiments were conducted in two soil series at Agricultural College and Research Institute Farm, Madurai during 2008-2009 to bring out the effect of enriched farm yard manure on root parameters of rice crop (var. ADT 36) under system of rice intensification. The experiment included twelve treatments which were replicated thrice in Randomized Block Design. Field experiments were conducted in two soil series viz., Madukkur and Vylogam soil series having sandy clay loam and sandy loam texture, respectively. The results revealed that application of P_2O_5 @ 19 kg ha⁻¹ and $ZnSO_4$ @ 12.5 kg ha⁻¹ enriched FYM @ 750 kg ha⁻¹ along with 100 per cent recommended NK recorded the highest root length (30.08 cm and 28.04 cm in Madukkur and Vylogam series, respectively), root volume (33.05 cm³ in Madukkur and 30.49 cm³ in Vylogam soil series), root dry weight (647.22 kg ha⁻¹ at Madukkur and 615.20 kg ha⁻¹ at Vylogam soil series) and root CEC (10.92 and 10.25 cmol (p⁺) kg⁻¹ for Madukkur and Vylogam soil series, respectively) invariably at all the growth stage of rice irrespective of soil series. Root activities conspicuously increased from tillering to flowering and thereafter decreased at harvest. Among the soil series, Madukkur soil series recorded more root activities than Vylogam at all the growth stages of rice irrespective of treatments.

Key words : Root length, Volume, Dry weight, CEC, System of rice intensification

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