



Nutrients Status and Establishment of Sufficiency Ranges for Different Nutrients of Rice Grown in Saline Soil through Diagnosis and Recommendation of the Integrated System

*¹Abd El-RheemKh. M., Shaymaa I. Shedeed² and Sahar M. Zaghloul²

¹Soils and Water Use Dept., ²PlantNutrition Dept., National Research Centre, Dokki, Giza, Egypt

Abstract : Under saline condition there are still no studies on the use of Diagnosis and Recommendation of the Integrated System(DRIS) for nutritional diagnosis of the rice plants. DRIS norms for rice were developed during summer season of 2014 in SahlEl-Hosseinieh, El-Sharkia governorate, Egypt. Those soils characterized by high salinity, and decrease in the amount of crop output as a result of this high salinity. To carry out this research, sixty samples of leaf were analyzed for N, P, K, Fe, Zn and Mn contents and respective yields were recorded of rice fields from Sahl El-Hosseinieh, El-Sharkia governorate. The data were divided into high- yielding (≥ 3.6 ton ha⁻¹) and low- yielding (<3.6 ton ha⁻¹) sub-population and the norms were computed using standard DRIS method. The forms of expression for different nutrients and their norms were selected, based on the highest variance ratio between low and high yielding population. DRIS norms for N, K and Fe with high S^2_l/S^2_h ratio and low coefficient of variation (CV) found in this paper probably can provide more security to evaluate the N, K and Fe status of rice in order to get high value of the rice yield under saline soil condition. The DRIS derived sufficient ranges for N, P and K from nutrient survey of rice crop were 2.9 to 3.23, 0.175 to 0.503 and 1.776 to 1.988 %, respectively. The sufficient ranges for Fe, Zn and Mn were 149.1 to 162.3, 44.36 to 60.52 and 65.40 to 90.22 ppm, respectively. As well as the sufficiency ranges of nutrients derived DRIS method of saline soil were 66.07 – 73.92, 7.149 – 7.437, 226.8 – 244.3, 13.40 – 13.66, 0.443 – 0.579 and 8.233 – 8.383 ppm of N, P, K, Fe, Zn and Mn, respectively.

Key words : DRIS norms, Rice, Yield, Nutrients content. Sufficiency ranges.

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