SOIL SALINITY AND CROP DIVERSIFICATION IN RAJANGANAYA LEFT BANK TRACT-I AREA

R.M.V.L. Rajapakshe[1], S.M.D.L.K. Alwis[2] and M.H.J.P. Gunarathna[1]

[1]Department of Agricultural Engineering and soil Science, Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura, Sri Lanka
[2]Irrigation Department, Anuradhapura, Sri Lanka

Irrigated agriculture is widely practiced in Low Country Dry Zone of Sri Lanka under major, medium and minor irrigation systems. Soil salinity is one of the major constraints in irrigated agriculture, which affects the yield. This study aimed to evaluate the variation of major nutrients and salinity level of water and their effect on the formation of salinity in Rajanganaya left bank track-1 area. Soil samples were collected in salinity affected fields and analyzed for available phosphorus, exchangeable potassium, available nitrogen, pH and electrical conductivity. Water samples were also collected from four canals and analyzed for pH, electrical conductivity and sodium absorption ratio. Questionnaire survey was conducted to identify farmers' perception on crop diversification. Soil analysis indicated that available phosphorous, exchangeable potassium, available nitrogen, electrical conductivity and soil pH were <14.1 g P/kg, <9.4 g K/kg, <0.03 g N/kg, 5 - 12 dS/m and 8.2 – 8.5, respectively. These conditions are much suitable to cultivate field crops than paddy. Water analysis indicated that electrical conductivity, sodium absorption ratio and pH were 0.526 dS/m, 6.5 and 7.5 - 8.5 respectively. Therefore, water can be categorized as low sodium, medium salinity water for irrigation. Farmers usually cultivate paddy due to minimum efforts required, compared to other crops and water availability in tank for both seasons. Based on soil nutrients and soil salinity, it is important to cultivate salt resistant and soil rehabilitation crops. Banana, snake gourd, cucumber, sweet melon, musk melon, radish, okra and mung bean can be recommended with higher profits compared to paddy. Therefore, practicing of crop diversification in *Yala* season in saline fields is the best option to overcome constraints of limited water availability, soil infertility and poor marketing.

Keywords: Crop diversification, Field crops, Questionnaire survey, Soil salinity