SUPPLY OF N, P, K AND Mg BY IRRIGATION WATER TO A RICE CROP IN MAHAWELI SYSTEM B

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Rice production in the Mahaweli System B is been practiced mainly under artificial irrigation. There are few reports indicating the presence of considerable amounts ofplant nutrients in irrigation water of Sri Lanka. However, information particularly pertaining to amounts of nutrients which will be supplied with irrigation water during cropping seasons are not available. Hence, this study was conducted to evaluate N,P,K and Mg gains over irrigation water to rice during Yala and Maha at Aralaganwila in the Mahaweli System B.

Six sampling sites were selected from upper and middle slopes of three different soil catenas in the area. Composite water samples were taken at each irrigation issue of a rice crop established in lysimeters over a period of 3½ months in Yala and Maha. The amount of water irrigated were also monitored for quantifications. Samples were preserved in 1% $HgCl_2$ and stored at -14°C until analyses. Samples were then analysed for NH_4^+, No_3^-, No_2^- and org. N as well as for P, K and Mg.

Concentrations of N, P, K and Mg varied between 0.4 - 1.7, 0.01 - 0.03, 1.6 - 4.3 and 5.5 to 9.1 ppm respectively. Supply of N, P, K and Mg during Maha was 4.7, 0.1, 20.5 and 49.0 Kg/ha and during Yala was 1.7, 0.4, 26.0, 68.0 Kg/ha respectively. Compared to crop removal of N, P, K and Mg 4.7, 0.01, 13.6 and 214% in Maha and 1.7, 2.1, 17.4, 303% in Yala respectively were supplied by irrigation water. Irrigation water in Yala contributed considerably higher amounts of P, K and Mg than in Maha which could be attributed to use of more irrigation water. 50-75% of the total N was supplied in the form of nitrate whereas ample amounts of ammonium-N, nitrite-N and organic N were also present.

Above data suggest that the nutrients in irrigation water have to be taken into account in recommending fertilizers.

This study was supported by ODA/DA