

MAPPING OF SOIL FERTILITY PARAMETERS IN PADDY LANDS AT WATTAPPOLA IN KANDY

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Rice is the staple food of Sri Lanka and soil fertility is an important parameter to enhance production of this crop in the country. A study was carried out to identify soil fertility and its spatial variability in the mid country wet zone of Sri Lanka. As a part of this study, a soil survey was conducted in March 2012, in a representative paddy land of 2.6 ha in Wattapola village in Kandy District. Low Humic Gley soils predominate in the land. Fifty two samples were collected from surface (0-20 cm) soil with 50 m grid interval and the samples were analyzed for pH, electrical conductivity, organic matter, sulfate-S, exchangeable fractions of K, Mg and Ca, available fractions of P, Zn, Cu, and Fe at the laboratory of Department of Soil and Water Resources Management, Faculty of Agriculture, Rajarata University of Sri Lanka, Anuradhapura. Results showed that pH ranged from 5.0 to 6.6 showing acidic nature of soil. Electrical conductivity was very low (0.01 to 0.12 dS m⁻¹). But Fe content was very high showing toxic situations. Majority of the land had optimum levels of P (81%), sufficient levels of Mg (69%) and high levels of Cu (85%) and sulfate-S (80%). Entire area had inadequate levels of available Zn and available Ca was inadequate in 65% of area, but optimum levels of organic matter and high contents of K. This study revealed a significant spatial variability of soil fertility in the study area, with respect to limitations of Zn and Ca and iron toxicity. Adoption of suitable measures to correct above limitations will ensure enhanced rice production.

Key words: Rice, Soil fertility, Spatial variability