

## **MICRONUTRIENT STATUS OF SOILS UNDER DIFFERENT CROPPING SYSTEMS IN AN UNDULATING TERRAIN OF THE DRY ZONE OF SRI LANKA**

**N.N. Nalagamage and D.M. Jinadasa**

*Department of Soil and Water Resources Management, Faculty of Agriculture,  
Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura.*

The available micronutrient status of university farm situated in an undulating terrain land form in the Low country dry zone was studied. Selected terrain was divided into four major areas based on drainage. Soil and plant samples were taken from those four areas. Soil samples collected at two depths as 0 - 15 cm and 15 - 30 cm, were analyzed for Copper (Cu), Zinc (Zn), Manganese (Mn) and Iron (Fe) as well as Organic matter and pH. Diethylene Triamine Pentaacetic Acid (DTPA) and Ethylene Diamine Tetraacetic Acid (EDTA) extraction methods were used for extracting soil samples. Plant samples collected from rice, maize, tomato, cucumber, soybean and watermelon were digested by using HNO<sub>3</sub> acid series and analyzed for micronutrients by Atomic Absorption Spectrophotometer. Results showed that soils consist of 0.81 - 1.58 ppm Cu, 0.07 - 0.89 ppm Zn, 4.23 - 7.53 ppm of Mn and 3.90 - 6.85 ppm of Fe content with marginal differences between top and sub soils. There was no sufficient Cu in lowland and upland and Zn was below the critical level. Soil Mn and Fe were exceeding the critical levels. Plant analysis showed that Cu content of rice was below the critical level while other crops have sufficient Cu. Fe and Mn content of maize were within critical range whereas Fe content of cucumber was within sufficient range. All other field crops indicated significant differences with critical ranges. Soil has 2.37 - 2.90% of Organic matter and pH was 6.9 -7.5. Correlation analysis showed that ( $p>0.05$ ) there was no significant effect with pH or organic matter on micronutrient availability.

**Key words:** Atomic Absorption Spectrophotometer, Field crops, Micronutrients, Organic matter, pH