

## MICRONUTRIENT STATUS OF SOILS IN ORGANIC FARMING SYSTEMS

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Farming without the use of synthetic chemicals, commonly referred to as organic farming, becoming increasingly popular all over the world. Even in Sri Lanka, this method of farming seems to be gaining popularity. A series of experiments were conducted commencing from Maha 1999/2000, on Reddish Brown Latosolic soils at Gannoruwa, Peradeniya in the Mid country, Wet zone. Cattle manure, poultry manure and compost were used as only sources of nutrients provided to the crops and soil. For comparison, a chemical fertilizer treatment using recommended quantities of NPK was also included in all the experiments conducted. There were four treatments in an experiment. Soil samples of initial (1999/2000) and final seasons (2006/2007) of these long term experimental plots were subjected to micronutrient analyses. DTPA extractable Manganese (Mn), Copper (Cu), Zinc (Zn) and Iron (Fe) were analyzed by using Atomic Absorption Spectrophotometer (AAS).

Within the twelve seasons of cattle manure treated plots, Zn content has increased significantly by 08 ppm. Cu and Mn contents have not increased significantly.

In poultry manure experiment (30t/ha), any significant difference in Fe content was not observed, though. Other elements showed a minor increase in the soils. Concentration of the Mn was raised by 0.85ppm. Cu and Zn contents increased by 0.16 ppm. In the compost observation plots (40t/ha), Cu, Mn, Zn, and Fe increased by 0.54, 0.4, 0.76 and 0.2ppm respectively. In the compost+NPK observation plots, Cu and Mn levels in soil

increased by 0.16 and 0.4ppm respectively, while, Zn increased by 1ppm and Fe by 0.8ppm.

However, micronutrient levels have not increased to toxic levels even after the 14<sup>th</sup> seasons of continuous additions. It was much below than the toxic level. Therefore, it is evident that continuous application of these organic manures does not result in appreciable micronutrient accumulation in soils.

*Key words:* Organic farming, Cattle manure, Poultry manure, Compost, Micronutrients