

IMPACT OF LONG TERM FYM APPLICATION ON MICRONUTRIENT STATUS OF SOIL AFTER 52 YEARS OF EXPERIMENTATION

Sukirtee¹, Manoj Kumar Sharma², Devraj¹, Kautilya Chaudhary* and K.K. Bhardwaj²

¹Department of Soil Science, CCS Haryana Agricultural University, Hisar, 125004

²Department of Agronomy, CCS Haryana Agricultural University, Hisar, 125004

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Abstract: Soil organic carbon plays an important role in improving physical, chemical and biological properties of soil. With the application of organic material reduction of free micronutrient cation concentration in soil solution occurs due to formation of organometallic complexes which enhance phyto-availability, and control mobility of micronutrients in the soil profile. This study was conducted with the objective to see the effect of long term application of farm yard manure (FYM) on DTPA extractable micronutrients in soil having varying levels of organic carbon content. A long term experiment was initiated in 1967 at the experimental farm of Department of Soil Science, CCS Haryana Agricultural University, Hisar India, consisting of 3 levels of FYM (15, 30 and 45 Mg ha⁻¹ till 2007-08) and 5, 10 and 15 Mg ha⁻¹ from 2008-09 onwards. A control without FYM was maintained. The treatments which show wide difference in organic carbon content after 52 years were selected T1 (FYM₀ t + N₀ kg/ha), T2 (FYM₅ t + N₀ kg/ha), T3 (FYM₅ t + N₁₂₀ kg/ha), T4 (FYM₁₅ t + N₀ kg/ha), T5 (FYM₁₀ t + N₁₂₀ kg/ha) and T6 (FYM₁₅ t + N₁₂₀ kg/ha). Organic carbon content of selected treatments were 0.49, 0.95, 1.40, 1.62, 1.78 and 1.96%. From the study it was observed that DTPA extractable Zn, Fe and Cu increased significantly with increasing content of organic carbon in all the soils and their concentration in soil varied from 0.96 to 1.14, 0.84 to 2.51, 4.04 to 6.4 and 0.96 to 1.26 mg kg⁻¹ respectively. DTPA extractable Mn also increased numerically in all soil but the effect on DTPA extractable Mn was not found significant.

Keywords: Micronutrients, Organic carbon, Long term FYM, DTPA extractable micronutrients

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*Corresponding Author

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