

**IMPACT OF NATURAL FARMING SYSTEM,
CHEMICAL FARMING SYSTEM AND CHEMICAL
PADDY CULTIVATION ON PHYSICAL, CHEMICAL
AND BIOLOGICAL PROPERTIES OF SOIL, VAHARAI,
BATTICALOA**



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ABSTRACT

Soil physical, chemical and biological properties were compared among natural, chemical paddy and chemical farm in Vaharai, Divisional Secretariat of the Batticaloa district. Composite soil samples taken from those farming systems were processed, labelled and stored room temperature for physical, chemical and biological properties analysis. All the experimental data were analyzed statistically with Duncan Multiple Range Test (DMRT) at 5% significant level by using SAS application statistical package. Analyzed soil physical, chemical and biological properties were compared among those three farming systems. Natural farming had improved the physical, chemical and biological properties compared to other two farming systems. The result indicated that the average mean values of lower soil bulk density (1.21 g/cm^3) and higher value for water holding capacity, phosphorus and potassium as (123.33%, $6.2 \times 10^{-3} \%$ and 0.005% respectively) in natural farming. Also porosity, organic matter, microbial activity and microbial count were significantly higher as (47.61 %), (2.56 %), (88.44 mg CO_2 / 10g Soil), (2.37×10^5 CFU/1g soil) and particle density was significantly lower as (2.31 g/cm^3) in natural farming and this study chemical farm had improved soil reaction (pH) and electrical conductivity (EC). It was found that the natural farming favored physical, chemical and biological properties of soil.

Abbreviation: Bulk Density (BD), Particle Density (PD), Water Holding Capacity (WHC), Electrical Conductivity (EC), Soil Organic Matter (SOM)

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