# IMPACT OF ORGANIC, NATURAL AND CONVENTIONAL FARMING SYSTEMS ON PHYSICAL AND CHEMICAL PROPERTIES OF SOIL, VAKARAI, BATTICALOA


**BY**

**RISMA SINNATHAMBY MARAIKKAR**



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**FACULTY OF AGRICULTURE**

**EASTERN UNIVERSITY**

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## ABSTRACT

Due to increasing rate of population the food availability is limited and farmers are adopting different farming systems to meet the demand. But sustainable and successful management of resources for agriculture to satisfy changing human needs, without degrading the environment or the natural resources is lacking. Therefore this study was conducted at Vakarai, Divisional secretariat division of Batticaloa district to study the impact of organic, natural and conventional farming systems on physical and chemical properties of soil and also to evaluate the soil fertility status of the same. Composite samples were collected randomly from each of three farms (three organic, three natural and three conventional farms) from February 2014 to April 2014. Soil augur was used to collect the samples from 0 to 15cm depth of soil. Composite soil samples were processed, labeled and stored at room temperature for physical and chemical property analysis. All the experimental data were analyzed statistically with Duncan Multiple Rang Test (DMRT) at 5% significant level by using SAS 9.1 application statistical package. Analyzed soil physical and chemical properties were compared among those three farming systems. Organic farming had improved the physical and chemical properties of soil compared to other two farming systems where the low level of bulk density and EC were found as (1.23- 1.3 g/cm$^3$), (0.026 - 0.076 dS/m) respectively, and the comparately higher level of porosity, soil moisture content, pH, organic matter content and available nitrogen content were recorded as (49.5% - 52.2%), (24.89% - 27.79%), (6.98), (2% - 2.9 %) and (>400 kg/ha) respectively from 0 to 15cm depth soil.

According to the study, comparing to conventional farming system, the organic and natural farming systems had improvements in bulk density, porosity, colour, soil moisture content, soil reaction (pH), electrical conductivity, organic matter content and available nitrogen content. Moreover, organic farming system was found to have better improvement than natural farming system. This study also showed that the organic farming system improves the soil properties with minimum negative impact on the environment.

**Key words:** Organic farming, Natural farming and conventional farming, Physical properties and Chemical properties.

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