

**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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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/cm³), (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.

TABLE OF CONTENTS

	Page No
ABSTRACT	i
ACKNOWLEDGEMENT	iii
TABLE OF CONTENTS	v
LIST OF TABLES	vii
LIST OF FIGURES	viii
CHAPTER ONE	1
1.0 INTRODUCTION	1
1.1 Objective of this study	5
CHAPTER TWO	6
2.0 LITERATURE REVIEW	6
2.1 Conventional farming system in Sri Lanka	6
2.2 Organic farming system in Sri Lanka	7
2.3 Natural farming system in Sri Lanka	9
2.4 Soil fertility	11
2.5 Soil fertility management	13
2.5.1 Managing crop residues	14
2.5.2 Supply of organic material	14
2.6 Effect of different farming systems on physical properties of soil	15
2.6.1 Bulk density	17
2.6.2 Particle density	18
2.6.3 Porosity	18
2.6.4 Soil colour	19
2.6.5 Soil moisture content	21
2.7 Effect of different farming systems on chemical properties of soil	23
2.7.1 Soil Reaction (pH)	24
2.7.2 Electrical conductivity	25

2.7.3 Organic matter content	26
2.7.4 Available nitrogen content	30
CHAPTER THREE	34
3.0 MATERIALS AND METHODS	34
3.1 Description of the study area	34
3.2 Field sampling	35
3.3 Laboratory analysis	36
3.3.1 Preparation of soil samples for the analysis	36
3.3.2 Analysis of soil physical and chemical properties	36
3.4 Statistical analysis	37
CHAPTER FOUR	38
4.0 RESULTS AND DISCUSSION	38
4.1. Physical properties of soil	38
4.1.1. Bulk density (g/cm^3)	38
4.1.2. Particle density (g/cm^3)	41
4.1.3. Porosity (%)	43
4.1.4. Soil colour	46
4.1.5. Soil moisture content (%)	48
4.2. Chemical properties of soil	51
4.2.1. Soil reaction (pH)	51
4.2.2. Electrical conductivity (EC) (dS/m)	54
4.2.3. Organic matter content (%)	57
4.2.4. Available nitrogen content (kg/ha)	60
CHAPTER FIVE	63
CONCLUSION	63
RECOMMENDATIONS	64
REFERENCES	66
PLATES	90