

**Marketable fruit yield of okra (*Abelmoschus esculentus* L.)
as influenced by dried albizia leaf mould and banana peel
with reduced level of NP chemical fertilizers**



Project Report
Library - EUSL

U.H.N.Gayathri

Faculty of Agriculture

Eastern University

Sri Lanka

2018

PROCESSED
Main Library, EUSL

ABSTRACT

The experiment was conducted at the Agronomy farm of Eastern University, Sri Lanka to determine the marketable fruit yield of okra (*Abelmoschus esculentus* L.) as influenced by dried *Albizia* leaf mould (10 t/ha) and banana peel (0.1-0.5 t/ha) with reduced level of NP chemical fertilizers. The experiments were laid in a Randomized Complete Block Design (RCBD) with seven treatments.

The result revealed that the combination of leaf mould (10 t/ha) and 0.1 t/ha banana peel with 50% NP basal chemical fertilizer (T6) exhibited higher yield than chemical fertilizer alone (T2). Plant growth parameters (leaf area, leaf length, fresh weight and dry weight of leaves) had significant differences ($P < 0.05$) among treatments. And also there was no any significant differences ($P > 0.05$) in fruit number among treatments. Fruit length was high in sole organic treatment, T4 (leaf mould 10 t/ha with banana peel 0.1 t/ha). Fruit diameter, fresh weight and dry weight of fruit had the significant differences ($P < 0.05$) among treatments. Fruit diameter, fresh weight and dry weight of fruit per plant increased by 5.62%, 8.47%, 3.12% in selected treatment (T6) respectively when compared to the control (T2).

The marketable fruit yield per m^2 was 654.71g in selected treatment (T6) and 603.61g in the control treatment (T2). The mean okra yield and yield components increased in leaf mould and banana peel optimal level (0.1 t/ha) combined with inorganic fertilizers. The combined use of inorganic fertilizer and leaf mould with banana peel increased yield compared to the application of organic alone (T3 and T4) and therefore recommended for increase marketable fruit yield of okra. From this study, it was

TABLE OF CONTENTS

Contents	Page no
ABSTRACT.....	I
ACKNOWLEDGEMENT	III
LIST OF FIGURES	IV
LIST OF TABLES.....	V
1.0 INTRODUCTION	1
2.0 LITERATURE REVIEW	7
2.1 Okra.....	7
2.1.1. Taxonomy	7
2.1.2. The structure of okra.....	7
2.1.3. Distribution and origin.....	9
2.1.4. The importance of okra.....	10
2.1.5. Area of cultivation	12
2.1.6. Environmental factors.....	13
2.1.6.1 Climate.....	13
2.1.6.2 Soil.....	14
2.2 Fertilizers	15
2.2.1 Inorganic (N, P and K) fertilizers.....	15
2.2.2 organic fertilizers	17
2.2.2.1 Leaf mould	20
2.2.2.2 Banana peel fertilizer	20
2.3 Important aspects of Leaf mould	21
2.4 Important aspects of banana peels fertilizer.....	22
2.5. Okra response to fertilizer.....	24
2.5.1. Okra response to inorganic fertilizers	24
2.5.2. Okra response to organic fertilizer	25
2.5.3 Okra response to combination of inorganic fertilizer with organic fertilizer...	26
3.0 MATERIALS AND METHODS.....	27
3.1 Location	27
3.2 Climate of study area	27
3.3 Experiment.....	27
3.3.1 Experiment design.....	27
3.4 Agronomic practices	28

3.4.1 Preparation of Polybags	28
3.4.2 Collection of organic manures	29
3.4.3 Processing of banana peels	29
3.4.4 Application of organic manure.....	30
3.4.5 Basal fertilizer application	30
3.4.6 Planting	31
3.4.7 Irrigation	32
3.4.8 Weeding	32
3.4.9 Top dressing application	32
3.4.10 Pest and disease control	33
3.5 Agronomic parameters.....	33
3.5.1 Plant height	33
3.5.2 Number of leaves	33
3.5.3 Leaf length	33
3.5.4 Chlorophyll content of the leaves	33
3.5.5 Leaf Area	34
3.5.7 Length of the fruit	34
3.5.8 Diameter of the fruit.....	34
3.5.9 Number of the fruits.....	34
3.5.10 Fruit weight per plant.....	35
3.5.11 Marketable fruit yield.....	35
3.6 Statistical analysis of data	35
4.0 RESULTS AND DISCUSSION	36
4.1. Growth parameters.....	36
4.1.1 Plant height	36
4.1.2 Number of leaves	38
4.1.3 Leaf length	40
4.1.4 Chlorophyll content.....	42
4.1.5 Leaf Area	44
4.1.6 Leaf weight per plant	45
4.2 Yield parameters	46
4.2.1 Fruit length.....	46
4.2.2 Fruit diameter.....	47
4.2.3 Fruit number per plant.....	48
4.2.4 Fresh weight of fruits per plant.....	50
4.2.5 Dry weight of fruits per plant.....	52