

APPLICATION OF VERMIWASH ON GROWTH AND YIELD

PERFORMANCES OF GREEN GRAM (*Vigna radiata*)

IN SANDY REGOSOL



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2019

ABSTRACT

Foliar fertilization is one of the important methods to apply nutrients to crops. It has been used as a mean of supplying supplemental doses of minor and major nutrients, plant hormones, stimulants, and other beneficial substances. A field experiment was conducted at the crop farm, Eastern University, Sri Lanka to study the effect of vermiwash application on growth and yield of green gram (*Vigna radiata*), variety MI 5 in Sandy Regosol. The experiment was laid out in a Randomized Complete Block Design (RCBD) with five treatments and four replicates. The treatments were recommended inorganic fertilizer application (T1), ½ doses of recommended basal and top dressing with 25% vermiwash (T2), 50% vermiwash (T3), 75% vermiwash (T4) and 100% vermiwash (T5). Vermiwash was applied at once in two weeks and the performance was recorded at 2nd, 4th, 6th, 8th weeks after planting (WAP).

The results revealed that number of branches and leaves per plant, total number of nodules and effective nodules, number of flowers, days for 50% and 100% flowering, number of pods per plant and number of seeds per pod were significantly ($P < 0.05$) varied at 8th week after planting and it was high in T4. Minimum duration of 30 days and 35 days were taken by T4 for 50 % and 100 % flowering respectively. Foliar application of vermiwash increased the root length and fresh and dry weights of root were high in T5 followed by T4 at 2nd, 4th, 6th and 8th WAP. However, there was no significant ($P > 0.05$) variation between T5 and T4 in dry weight of shoots. Further, application of vermiwash significantly influenced ($P < 0.01$) plant height, fresh weight of plant, shoots and roots, dry weight of roots, chlorophyll content, leaf area, leaf area index, TSS, yield and yield components. Yield of 7.25 tons/ha was achieved in T4 and it was 2.5 times greater compared to control. The minimum TSS observed in T4 (4.3 Brix) can be recommend for diabetic patients.

This study suggests that application of $\frac{1}{2}$ doses of recommended basal and top dressing with 75% vermiwash (T4) would be more suitable for cultivation of green gram in sandy regosol.

LIST OF CONTENTS

ABSTRACT.....	I
ACKNOWLEDGEMENT.....	III
LIST OF CONTENTS.....	IV
LIST OF TABLES.....	X
LIST OF FIGURES.....	XII
LIST OF ABBREVIATIONS.....	XIII
CHAPTER 01.....	1
1.0 INTRODUCTION.....	1
1.1 Background of the study.....	1
1.2 Objectives of this study.....	4
CHAPTER 02.....	5
2.0 REVIEW OF LITERATURE.....	5
2.1 Green gram (<i>Vigna radiata</i>).....	5
2.1.1 Origin.....	5
2.1.2 Scientific classification.....	5
2.1.3 Morphological description.....	6
2.1.4 Importance of green gram.....	6
2.1.5 Nutritional value of green gram seeds (100g).....	7
2.1.5.1 Mature, raw seeds.....	7
2.1.5.2 Mature, sprouted, raw seeds.....	9

2.1.5.3 Boiled mung beans	10
2.1.6 Medicinal value of green gram	11
2.1.7 Ecological requirements of green gram	11
2.1.8 Area of cultivation in Sri Lanka.....	12
2.1.9 Recommended varieties, production and duration.....	12
2.1.10 Production of green gram.....	13
2.1.10.1 The extent and production of green gram from 2007 to 2017 in Sri Lanka.....	13
2.1.10.2 Top exporting countries of green gram from 2012-2013 to 2016-2017.....	14
2.1.10.3 Top importing countries of green gram from 2012-2013 to 2016-2017.....	15
2.1.11 Factors affecting green gram production	15
2.1.12 Nitrogen fixation.....	16
2.1.13 Nodulation.....	17
2.2 Organic manure	18
2.2.1 Advantages of organic manure	18
2.2.2 Vermi technology.....	18
2.2.3 Earth worms in the soil	18
2.2.3.1 Important role of earthworms.....	19
2.2.3.2 Earthworm as bioreactor	19
2.2.3.3 Earthworm as plant growth enhancers	19

2.2.4 Setting up of vermiwash unit	20
2.2.4.1 Method 1	20
2.2.4.2 Method 2	21
2.2.4.3 Method 3 - Earthworm paste	21
2.2.5 Vermicomposting	21
2.2.5.1 Benefits of vermicompost	21
2.2.5.2 Effects of vermicompost on growth and yield of different crops....	22
2.3 Foliar application	27
2.3.1 Vermiwash	27
2.3.2 Application of vermiwash.....	28
2.3.3 Benefits of vermiwash	28
2.3.4 Physio chemical properties of vermiwash	29
2.3.4.1 Physical characteristics of vermiwash.....	29
2.3.4.2 Chemical constituency	29
2.3.4.3 Effect of vermicompost and vermiwash on physio chemical properties of soil	30
2.3.5 Effect of vermiwash on growth, development and yield of different crops	31
CHAPTER 03	38
3.0 MATERIALS AND METHODOLOGY	38
3.1 Location	38
3.2 Soil.....	38

3.3 Variety used.....	38
3.4 Seed germination	38
3.5 Experimental Design	39
3.5.1 Plot size.....	39
3.5.2 Treatments used in this experiment	40
3.5.3 Preparation of foliar application	41
3.5.3.1 Collection of materials	41
3.5.3.2 Preparation of vermiwash.....	41
3.5.4 Chemical analysis of vermiwash.....	42
3.6 Agronomic practices.....	43
3.6.1 Land preparation	43
3.6.2 Planting of green gram seeds	43
3.6.3 Thinning out.....	43
3.6.4 Irrigation	43
3.6.5 Weeding	43
3.6.6 Fertilizer application	43
3.6.7 Foliar application of vermiwash	44
3.6.8 Pest and disease control	44
3.7 Growth assessment	44
3.7.1 Growth parameters.....	45
3.7.2 Yield parameters	45
3.8 Statistical analysis.....	45

CHAPTER 04	46
4.0 RESULTS AND DISCUSSION.....	46
4.1 Growth parameters.....	46
4.1.1 Plant height	46
4.1.2 Number of branches per plant.....	47
4.1.3 Canopy width.....	48
4.1.4 Number of leaves per plant.....	49
4.1.5 Leaf area.....	50
4.1.6 Leaf area index.....	51
4.1.7 Chlorophyll content	53
4.1.8 Root length.....	54
4.1.9 Number of total nodules.....	55
4.1.10 Number of effective nodules.....	56
4.1.11 Days for 50% and 100% flowering.....	57
4.1.12 Number of flowers per plant.....	58
4.1.13 Fresh weight of the plant.....	59
4.1.14 Fresh weight of the root	60
4.1.15 Fresh weight of the shoots	61
4.1.16 Dry weight of the roots	62
4.1.17 Dry weight of the shoots.....	63
4.2 Yield parameters.....	65
4.2.1 Pod length and girth.....	65

4.2.2. Fresh weight of pods.....	66
4.2.3 Number of pods per plant.....	67
4.2.4 Number of seeds per pod	68
4.2.5 100 Seed weight (g)	69
4.2.6 Total yield per plant (g)	70
4.2.7 Total green gram yield per hectare (tons/ha)	71
4.2.8 Total soluble solids (TSS) of green gram seeds.....	72
CHAPTER 05	74
5.0 CONCLUSIONS.....	74
REFERENCES.....	76