GROWTH PERFORMANCE OF *Mucuna bracteata* BY SEED AND STEM CUTTING PROPAGATION

MUHAMAD AIZAD BIN KASMIN

Final Year Project Report Submitted in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science (Hons.) Plantation Management and Technology in the Faculty of Plantation and Agrotechnology Universiti Teknologi MARA

JULY 2015
DECLARATION

This Final Year Project is a partial fulfillment of the requirements for a degree of Bachelor of Science (Hons.) Plantation Technology and Management, Faculty of Plantation and Agrotechnology, Universiti Teknologi MARA.

It is entirely my own work and has not been submitted to any other University or higher education institution, or for any other academic award in this University. Where use has been made of the work of other people it has been fully acknowledged and fully referenced.

I hereby assign all and every rights in the copyright to this work to the Universiti Teknology MARA (“UiTM”), which henceforth shall be the owner of copyright in this work and that, any reproduction or use in any form or by any means whatsoever is prohibited without a written consent of UiTM.

Candidate’s signature: ........................................ Date: 31/7/2015

Name: Muhamad Aizad Bin Kasmin

I hereby declare that I have checked this project and in my opinion, this project is adequate in terms of scope and quality for the award of the degree of a Bachelor of Science (Hons.) Plantation Technology and Management, Faculty of Plantation and Agrotechnology, Universiti Teknologi MARA.

Signature: ........................................

Name of Supervisor: Wan Natasya Binti Wan Ahmed

Position: Project coordinator

Date: 16/6/15
# TABLE OF CONTENT

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>iii</td>
</tr>
<tr>
<td>TABLE OF CONTENT</td>
<td>iv</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>vi</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>vii</td>
</tr>
<tr>
<td>LIST OF ABBREVIATIONS</td>
<td>viii</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>ix</td>
</tr>
<tr>
<td>ABSTRAK</td>
<td>x</td>
</tr>
</tbody>
</table>

## CHAPTER

### 1 INTRODUCTION

1.1 Leguminous cover crop (LCC)
1.2 Effect of leguminous cover crop (LCC)
1.3 Problem statement
1.4 Research questions
1.5 Objectives of study
1.6 Significance of study
1.7 Scope of study
1.8 Limitation

### 2 LITERATURE REVIEW

2.1 *Mucuna bracteata* characteristics
2.2 *Mucuna bracteata* propagation
   2.2.1 Seed propagation
   2.2.2 Stem cutting propagation
2.3 Peatmoss

### 3 MATERIALS AND METHODS / RESEARCH METHODOLOGY

3.1 Experimental site
3.2 Materials
   3.2.1 Planting material
   3.2.2 Peatmoss
3.3 Equipment
   3.3.1 Plastic box
   3.3.2 Secateurs
   3.3.3 Ruler
   3.3.4 Stationeries
   3.3.5 Shade netting
   3.3.6 Watering cane
3.4 Experimental procedure
  3.4.1 Seed propagation
  3.4.2 Stem cutting propagation
3.5 Treatment and experimental design
3.6 Collection of experiment data / parameter
  3.6.1 Survivability scoring
  3.6.2 Number of leaves
  3.6.3 Leaves Area Index (LAI)
  3.6.4 Length of the longest root
  3.6.5 Number of shoot
3.7 Statistical analysis

4 RESULT AND DISCUSSION
  4.1 Survivability scoring
  4.2 Length of root
  4.3 Number of leaves
  4.4 Number of shoot
  4.5 Leaves Area Index (LAI)

5 CONCLUSION AND RECOMMENDATION

CITED REFERENCE

APPENDICES

CURRICULUM VITAE
ABSTRACT

Cover crop is important for the plantation industry in Malaysia especially for oil palm and rubber plantation due to its high drought tolerance, efficient control against weed, high biomass production and tolerant to pest and diseases. At present, plantation industry had faced problem because the seed of Mucuna bracteata as a cover crop is becoming more expensive, that is about RM280/kg. This is because the seed of *M. bracteata* need to be imported from other countries like India and need to apply permit from the Department of Agriculture (Quarantine Department), Malaysia. In order to solve this problem, the study about *M. bracteata* propagation by seed and stem cutting has been carried out to determine the growth performance of propagation of *M. bracteata* in a peatmoss medium. According to the result obtained, all the crop that propagate through the seed, semi-hardwood and hardwood cutting are growing successfully and the crop prior to planting into the fields. From the results obtained, it showed there is no significant different in term of number of leaves and the number of shoots between the treatments. It means that, the objective of this experiment that was to measure the viability and growth performance of *M. bracteata* through stems cutting and seed propagation were achieved. While, in term of length of root and leaf area index (LAI), the result had showed there was significant different between the treatment. The seed propagation as a treatment one has the higher average of the length of roots and leaf area index (LAI) compared to the semi-hardwood and hardwood propagation. This study will help the oil palm and rubber industry to maximize their profit by reducing the cost to buy seeds of *M. bracteata*. Besides that, the documentation of this research can provide information to farmers about the suitable technique and methods regarding the propagation of *M. bracteata* either by seed or stem cutting.