

**UNIVERSITI TEKNOLOGI MARA**

**COMBINED GRASS COLLECTOR  
AND SEMIAUTOMATIC TYING  
MACHINE FOR FODDER  
PRODUCTION OF SHEEP AND  
GOAT**

**AMIR ASYRAF BIN KAMARUZZAMAN**

Dissertation submitted in partial fulfillment  
of the requirements for the degree of  
**Diploma**  
**(Mechanical Engineering)**

**College of Engineering**

**Feb 2023**

## **ABSTRACT**

Nowadays, agriculture sector is very important in our country. Effective method will ease the process to produce a high quality and a functional product. The Combined Grass Collector and Semiautomatic Tying Machine is used to produce fodder production of sheep and goat. The objective of the project is to saving time in producing fodder production and to reducing work and energy in producing fodder production for sheep and goat. The problem that users faced is too long in producing fodder production and to many works to do in producing it. So, with this project, it will make the users produce the fodder production for sheep and goat easier than before. The expected result of this machine is to make a functional machine to users compared to old tools.

## **ACKNOWLEDGEMENT**

Firstly, I wish to thank God for giving me the opportunity to embark on my diploma and for completing this long and challenging journey successfully. My gratitude and thanks go to my supervisor, Dr. Kamariah Binti Md Isa and Ts. Dr. Abd Aziz Bin Mohd Yusof.

Finally, this dissertation is dedicated to my father and mother for the vision and determination to educate me. This piece of victory is dedicated to both of you. Alhamdulillah.

# TABLE OF CONTENTS

	<b>Page</b>
<b>CONFIRMATION BY SUPERVISOR</b>	<b>ii</b>
<b>AUTHOR'S DECLARATION</b>	<b>iii</b>
<b>ABSTRACT</b>	<b>iv</b>
<b>ACKNOWLEDGEMENT</b>	<b>v</b>
<b>TABLE OF CONTENTS</b>	<b>vi</b>
<b>LIST OF TABLES</b>	<b>viii</b>
<b>LIST OF FIGURES</b>	<b>ix</b>
<b>LIST OF ABBREVIATIONS</b>	<b>x</b>
<b>CHAPTER ONE: INTRODUCTION</b>	<b>1-2</b>
1.1 Background of Study	1
1.2 Problem Statement	1
1.3 Objectives	2
1.4 Scope of Study	2
1.5 Significance of Study	2
<b>CHAPTER TWO: LITERATURE REVIEW</b>	<b>3-7</b>
2.1 Benchmarking/Comparison with Available Products	3
2.2 Related Manufacturing Process	3-4
2.3 Sustainability/Ergonomic Related Items	4
2.4 Patent and Intellectual Properties	5-6
2.5 Summary of Literature	7
<b>CHAPTER THREE: METHODOLOGY</b>	<b>8-19</b>
3.1 Overall Process Flow	8
3.2 Detail Drawing	9-11
3.3 Engineering Calculation and Analysis	12-15
3.4 Bill of Materials	16

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of Study

Agriculture has been an integral part of the human ecosystem. However, traditional farming methods require a lot of human effort and are very time-consuming. Fodder production is one of the most labor-intensive operations in agriculture. Collecting the grass is very strenuous task. If use people use scraper, it will make them to do a lot of work and use more energy.

This low-cost combined grass collector and semiautomatic tying machine is a one-stop modern solution to enhance the conventional agriculture methods of producing fodder production for sheep and goat, as it reduces the human effort, at a very negligible price using motorized tilling mechanism. The machine helps reduce the time and cost involved in collecting grass using a smart portable design thereby increasing the productivity and efficiency in agriculture.

### 1.2 Problem Statement

Generally, most of the people that work to producing fodder have to do lot of work and use a lot of energy, that can make them tired easily went they do their work. Also, most of them use grass rake to collect the grass in the ground. Then, they need to tie the grass to make it as fodder production of sheep and goat. So, I try to design and analysis a project that can solve all the problems. In this project, the machine will be easier to use. This machine also not use any power supply and low-cost machine. The most important is the machine easy to use and can be taken anywhere.