



**INFLUENCE OF FFB GRADE IN TH EFFICIENCY OF
PALM OIL MILL PROCESSING PLANT STUDY ON
OER FOR LOOSE FRUIT**

**Aimi Bt Samsudin
(2007290944)**

A thesis submitted in partial fulfillment of the requirements for the award for
Bachelor Engineering (Hons) (Mechanical)

**Faculty of Mechanical Engineering
University Technology Mara (UiTM)**

APRIL 2010

ACKNOWLEDGEMENT

First of all, we would like to take these opportunities to say my greatest appreciation to ALLAH SWT because of with blesses we have complete my final project and also my report of the project. This final project was equipped to accomplish the obligation to achieve the Bachelor Degree (Hons) of Mechanical Engineering

Secondly, we would like to state our gratitude to my supervisor, En Tajuddin B Md Jahi for his teaching and guidance all the way through the process of realization on this final project. I also would like to thanks Assistant Manager of Triang Oil Mill for give me a lot of knowledge and guidance to us during the duration of completing and trials of this final project. Without their helps, I might not complete my final project.

Also thanks to my family, who give us support during the process of completing this final project. All of your supports are really important for me. Without your support, this project might not be complete. But not forgotten my beloved friends and classmate. All of your ideas I accept with all my pleasure. Hope all of you will give more support to me.

Before I finish, for all those undetermined, I wish to address all of you thank you very much for your support. And I really hope that my work of genius would be so priceless to those who desirable to use it. Thank you.

ABSTRACT

This project will indicate the influences of FFB grade in the efficiency of Palm Oil Mill processing plant. The purposes of this project are to investigate the ripeness of the fruit whether it will affect the processing of producing the CPO by any circumstances and also analyze the CPO contains in ripe and unripe bunches. Grading of FFB will be monitor to separate ripe and unripe bunches as a preparations for the process. Separation process of ripeness category will be carried out. This project is focusing at threshing, digestion and pressing station. For analysis, the sample will be taken for. This sample will show the quality of oil produce form the process whether the oil meet the specification or otherwise from the observation, the quality of unripe bunches is lower quality compared to the ripe bunches. Such as FFA analysis DOBI analysis shows that unripe bunches have lower FFA and lower DOBI. Separations of processing give different quality parameters. Through the unripe processes, some interruption been detected. This interruption cause higher losses within the processing. As the results, unripe bunches give some losses to the processing of FFB and produce lower amount of oil. In term of quality, lower FFA been produce but DOBI value is lower than the parameter of standard quality give the quality of oil is lower from the standard quality. In conclusion, this project is a successful project and the objective are been achieved.

TABLE OF CONTENT

CONTENTS	PAGE
PAGE TITLE	v
ACKNOWLEDGEMENT	vi
ABSTRACT	vii
TABLE OF CONTENT	viii – xi
LIST OF TABLES	xii
LIST OF FIGURES	xiii - xv
LIST OF ABBREVIATIONS	xvi - xvii
CHAPTER I INTRODUCTION	
1.1 Introduction	1
1.2 Objective	4
1.3 Significant of project	5
1.4 Scope of project	5
1.5 Research Methodology	6
1.6 Schedule of project	8
1.6.1 Step 1: Proposal / Selection of FYP Title / Project Supervisor	9
1.6.2 Step 2: Literature review related to the project	9
1.6.3 Step 3: Submission of proposal and	9

	presentation of FYP I	
	1.6.4 Step4: Conducting Trial of Project	9
	1.6.5 Step 5: Analysis the results	10
	1.6.6 Step 6: Report writing and Presentation FYP II	10
CHAPTER II	LITERATURE REVIEW	
	2.1 Palm Oil Mill Processing Plant	11
	2.1.1 Reception Station	13
	2.1.2 Fruit Handling / Grading Station	14
	2.1.3 Sterilization Station	14
	2.1.4 Threshing station	16
	2.1.5 Pressing station	18
	2.1.6 Kernel Station	22
	2.1.7 Clarification station	.24
	2.1.8 Product Storage and Dispatch Station	28
	2.1.9 Effluent Treatment Plant	28
	2.1.10 Water Plant	30
	2.1.11 Boiler Station	30
	2.1.12 Power Station	31
	2.2 Efficiency	32
	2.3 Throughput	33
	2.4 Fatty Acid Composition	33
	2.5 Bunch Analysis	34
	2.6 Oil Determination	38
CHAPTER III	METHODOLOGY	
	3.1 Grading System	41
	3.2 Threshing Station	43
	3.3 Digester Station	44
	3.4 Press Station	45