

**THE COMPARISON BETWEEN OIL PALM PRODUCTIVITY IN FLAT,  
UNDULATING AND HILLY AREA IN HARANKY ESTATE IN LAHAD  
DATU-CASE STUDY**

**NURUL IZFAHANIE BINTI SULTAN**

**DEGREE OF BACHELOR OF SCIENCE (HONS.) PLANTATION  
TECHNOLOGY AND MANAGEMENT  
IN THE FACULTY OF PLANTATION AND AGROTECHNOLOGY  
UNIVERSITI TEKNOLOGI MARA**


**JULY 2016**

## DECLARATION

This Final Year Project is a partial fulfilment 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 Teknologi 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: 21/07/2016 .....

Name: NURUL IZZAHANIE BINTI SULTAN .....

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 Bachelor of Science (Hons.) Plantation Technology and Management, Faculty of Plantation and Agrotechnology, Universiti Teknologi MARA.

Signature:  .....

Name of Supervisor: **WAN NATASYA WAN AHMED** .....

Position: **PENSYARAH** .....

Fakulti Perladangan dan Agroteknologi  
Universiti Teknologi MARA (Melaka)  
Kampus Jasin, 77300 Merlimau  
Melaka

Date: .....

## **ACKNOWLEDGEMENTS**

In the name of Allah S.W.T., the Almighty, the Most Gracious and Most Merciful.

Praise to Almighty Allah S.W.T. for the most gracefulness and mercifulness, utmost grateful is upon Allah S.W.T. for the willingness to give me strength to successfully complete this case study.

I would like to record deepest appreciation and gratitude to my supervisor, Madam Wan Natasya Wan Ahmed, for her guidance, support, encouragement, and criticism in order to complete this case study. Not forgettable, my co-supervisor Mister Syahrizan Syahlan for his valuable advices and knowledge in order to help me in this case study. A lot of thanks to both of them for being very patient and supportive of always willing to sacrifice their time and energy that I will always remember.

Next, I would like to express my gratitude to Kwantas Plantation Berhad that willing to give permission and accept me to do my case study at their Estate. I am also would like to express deepest of love and gratitude to my beloved parents, all of my family members for their continuous support and encouragement so that this case study have been successfully completed. Last but not least, special appreciation to all my supportive and helpful friends for their kindness, encouragement and contribution in giving ideas and supports at most of the time. After all, most grateful Allah for putting me with people as mentioned above.

**NURUL IZFAHANIE BINTI SULTAN**

## TABLE OF CONTENTS

		<u>Page</u>
<b>ACKNOWLEDGEMENTS</b>		iii
<b>TABLE OF CONTENTS</b>		iv
<b>LIST OF FIGURES</b>		vi
<b>LIST OF TABLES</b>		vii
<b>LIST OF ABBREVIATIONS</b>		viii
<b>ABSTRACT</b>		ix
<b>ABSTRAK</b>		x
<b><u>CHAPTER</u></b>		
<b>1</b>	<b>INTRODUCTION</b>	
	1.1 Background	1
	1.2 Problem statement	2
	1.3 Significance of study	2
	1.4 Scope of study	3
	1.5 Objective of study	3
<b>2</b>	<b>LITERATURE REVIEW</b>	
	2.1 Oil palm	4
	2.2 Road and drain constrain	5
	2.2.1 Terracing	8
	2.3 Manuring	9
	2.3.1 Fertilizer recommendation	10
	2.3.2 Handling and storage of fertilizer	10
	2.3.3 Health and safety	11
	2.4 Harvesting	12
	2.4.1 Pre- harvesting operation	12
	2.4.2 Harvesting standard	13
	2.4.3 Control of harvesting	14
	2.4.4 Classification of bunch	15
<b>3</b>	<b>MATERIALS AND METHODS / RESEARCH METHODOLOGY</b>	
	3.1 Location	18
	3.2 Scope and limitation	18
	3.3 Collection of data	18
	3.3.1 Types of data	18
	3.3.2 Parameter of the case study	19
	3.3.3 Variable in the case study	19
	3.3.4 Duration of time	19
	3.4 Statistical analysis	19
<b>4</b>	<b>RESULTS AND DISCUSSION</b>	
	4.1 Haranky 1 Estate	21
	4.1.1 Yield of productivity in Haranky 1 Estate	22
	4.2 Haranky 2 Estate	26
	4.2.1 Yield of productivity in Haranky 2 Estate	27

## ABSTRACT

### **THE COMPARISON BETWEEN OIL PALM PRODUCTIVITY IN FLAT, UNDULATING AND HILLY AREA IN HARANKY ESTATE IN LAHAD DATU-CASE STUDY**

This case study investigated the achievable yield and revenue of oil palm yield for three types of topography that are flat, undulating and hilly area. This study also included rainfall rate and the monthly palm oil price in Haranky 1 Estate and Haranky 2 Estate. The objective of this case study is aimed to evaluate the difference in yield in the three types of topography, to determine the difference in yield between two estates in different topography and to determine the difference in revenue between the two estates. There is a significant difference of the yield per hectare in the three types of topography. In Haranky 1 Estate show that yield from July 2012 to June 2015 have different productivity. Both estates have the highest mean productivity of yield at undulating area followed by hilly area and flats area for Haranky1 Estate. For Haranky 2 Estate, second place is flat area and followed by hilly area. This is because the management practices between two estates is different. Besides, there are significant difference between the yield of production and types of topography in undulating and hilly area where the P -Value is less than 0.05 ( $p < 0.05$ ). Unfortunately, there is no significant difference in flat area because the P-Value is 0.638 ( $p > 0.05$ ). This may happened because of the management practices that applied in flat area is different from undulating and hilly area. The plantation operation runs smoothly in the flat area because of the state of the topography makes all the operation run systematically. In terms of revenue, there are significant differences between the yield and the revenue. This is because of the repeated changing market price of oil palm. The market price keeps changing on each month for this 36 months. In the other hand, the production yield also influenced the difference of revenue between the two estates. It is hoped that this yield level will be sustained over a long period of time. The need for increased investment in oil palm research and the improvement of oil palm management practices is emphasized.