

**A CASE STUDY ON THE PERFORMANCE COMPARISON
BETWEEN MECHANICAL GRABBER LOADER
AND SEMI-MECHANISED TRACTOR
FOR IN FIELD FRESH FRUIT BUNCH COLLECTION**

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ABSTRACT

A CASE STUDY ON THE PERFORMANCE COMPARISON BETWEEN MECHANICAL GRABBER LOADER AND SEMI-MECHANISED TRACTOR FOR IN-FIELD FRESH FRUIT BUNCH COLLECTION

Malaysia is the second largest palm oil producer in the world. Despite oil palm industry is the fourth largest contributor to the national economy, this industry has been suffering from shortage of labour. Increasing land usage for the oil palm industry raises number of worker demand and increase the production cost. Thus, farm mechanization such as tractor mounted mechanical grabber loader with trailer is introduced for in-field collection and evacuation of FFB to reduce manpower dependency as well lowering the production cost. The data is measured and collected directly at the Johawaki Plantation estate in Lekir, Perak with the cooperation of the managing staff. This study compares the material capacity, effective field capacity and production cost between mechanical grabber loader and semi-mechanised tractor loader for in field FFB collection operation. Result indicates that material capacity, tonne per hour increased by 1.4 times with mechanical grabber loader compared to semi-mechanised tractor loader. Furthermore, the effective capacity of mechanical grabber is 2.56 hectare/hour which is higher compared to semi-mechanised tractor loader, 2 hectare/hour. Besides, the production cost, cost per tonne for mechanical loader system obtained is 2.5 fold lower than semi-mechanised tractor loader at the study site.

Keywords: mechanical grabber, production cost, cost analysis, farm mechanization, in-field collection, material capacity, field capacity

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF STUDY

Malaysia's palm oil industry is the fourth largest contributor to the national economy and listed as one of the 12 National Key Economic Areas (NKEA). This oil palm industry is an export oriented industry contributing 8% of the gross for the national income per capita as reported in Economic Transformation Programme (ETP) report in 2009. Most of the palm oil production in Malaysia is exported to meet the global demand, which is only 10% of the production consumed by locals.

The demand for palm oil by the global market is growing rapidly due to the high versatility of usage compared to other vegetable oils. The initiative programmes and high level of investment is taken for this industry by the government to maintain the domination for the global market and competitiveness. Therefore, oil palm plantation sector is one of most profitable agriculture sector among all the other of agriculture sectors in Malaysia.

Malaysia started to plant oil palm around 1960 and the area planted increase rapidly every year. Oil palm production for oil has the most efficiency compared to other vegetable oils with average 4 to 5 tonne oil per hectare.