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SAWIT ROLLER PICKER

FINALIZED PROTOTYPE

Side view



Rear view



Top view



Front view



INTRODUCTION

Palm oil production is vital for the economy of Malaysia, which is the world's second-largest producer of the commodity after Indonesia. The profit of palm oil fruit is very large which is Malaysia's oil palm export on January till December 2014 recorded around 875,213 tonnes (MPOC Annual Report 2014). During harvesting process, every bunch of oil palm always caused at least 5% of oil palm fruits fall separated on the land. This is a big loss if the loose fruits not collected, because the loose fruits have high oil contain. Historically, loose fruit was not given much attention and deemed insignificant compared to the Fresh Fruit Brunch (FFB) which is larger in size. Hence, the collection of loose fruit was never taken seriously. Loose fruits contain 40% of oil (Kushairi and Shuib, 2017). Poor collection of loose fruit due to the tedious work is therefore often the underlying cause of a low oil extraction rate among oil plantation in South East Asia (Mohd Ramdhan and Abd Rahim, 2014). Loose fruits are currently collected by way of raking or picked by hand. These techniques are not only labour-intensive and time-consuming but also tedious and laborious (Deraman, Shuib and Jafer, 2009).

COMMERCIALIZATION POTENTIAL

This "Sawit Roller Picker" is used to collect loose fruits. The results from the fabricated prototype showed that the loose fruits were **easily collected** with **less human energy** and **less time consumed**, compared to the other machines, such as the *Pongkes*. From the observation carried out, this prototype has successfully collected loose fruits from the ground **without any injuries**, less use of human energy, with lesser time taken.

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OBJECTIVES

- 1 To develop a prototype to collect loose palm fruits;
- 2 To reduce the time that is needed to collect loose palm fruits;
- 3 To test the performance of the fruit picker in term of the capacity and minimal number of caught loose fruits at one time.

METHODOLOGY

The basic steps for loose fruit roller picker are as follows:

A. Push the roller picker in the flat surface. Make sure don't push too rough.



B. The loose fruit will enter in the roller slowly.



C. The loose fruit will move to the basket that has been prepared with the help of a belting chain.

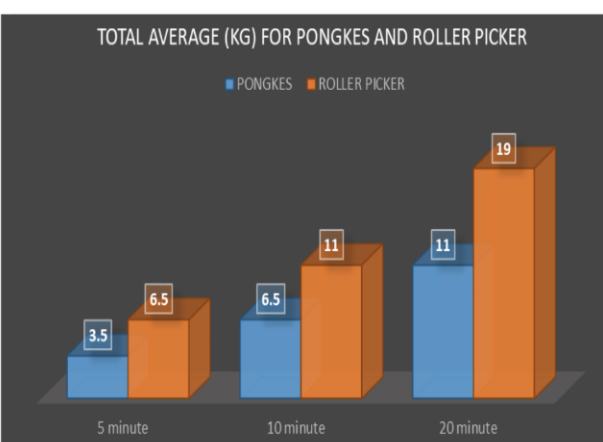


D. The loose fruit will fit safely into the basket without any defects.



IMPACT

TEST	METHOD	WEIGHT (kg)	TIME (minute)
1	PONGKES	3.5	5
	ROLLER PICKER	6.5	
2	PONGKES	6.5	10
	ROLLER PICKER	11	
3	PONGKES	11	20
	ROLLER PICKER	19	



NOVELTY

Firstly, the tests performed during this project can be used to **ensure the accuracy of the future design to be more appropriate**. The selection of materials used should be also emphasized in order to ensure that the **machine can be used for a long time**. In addition, a motorized power supply may be added to ensure that the project is **easier to use and can operate without any limitation of distance**.