

**PERFORMANCE EVALUATION OF A DRUM SIEVE MACHINE IN COMPOSTING
OIL PALM EFB: A CASE STUDY**

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ABSTRACT

This case study is to know the performance evaluation of drum sieve machine on EFB composting. This case study was conducted at Kilang Baja Bio Organic Felcra Berhad, Maran Pahang. This machine process to sieve that EFB composting for making bio fertilizer. From that process the data was collected by the effective capacity per hour, human energy expenditure and cost effectiveness. That result on effective capacity per hour are 4648kg and the human energy use for this machine are 383 kcal per hour. For the total cost operation are RM 64.38 per hour. This performance machine are suitable to use in sieving EFB composting that can get higher production with reasonable cost for that company.

CHAPTER 1

INTRODUCTION

1.1 Background

Oil palm is a commercial crop which producing the oil as good as vegetable oil. Oil palm or scientifically known as *Elais guineensis* can be found in Africa, Latin America. Historically, oil palm is not originally and naturally lives in Malaysia. It is reported first evolved from the west coast of Africa (Turner, 1974). The Malaysian palm oil industry with a planted area of 4.48 million hectares, it generates 17.73 million tons of palm oil annually through a combined processing capacity of 92.49 million tons by 406 mills and 52 refineries. It was valued that 26.7 million tons of solid biomass and regular of 30 million tons of POME existed made from 406 palm oil mills in Malaysia. The biomass was made up of 53% Empty Fruit Bunch (EFB), 32% mesocarp and 15% fiber and palm kernel shell. It is assumed that this will constantly rise in amount to the world request of cooked oils. However that EFB had been burn to get the ash for making fertilizer. But nowadays it has been stop cause that their air polluted. So that EFB now are making fertilizer or mulching material. In the making of fertilizer that EFB must be shredded and sieve for get the best size and condition. From this 52 refiners they use different machine in sieve the empty fruit bunch (EFB) to make the new product. For the example of the product EFB composting