

UNIVERSITI TEKNOLOGI MARA

**THE EFFECT OF AGRONOMIC
PRACTICES AND RELATIONSHIP
OF SMALLHOLDERS
PERSPECTIVE ON POPULATION
AND ABUNDANCE OF *ORYCTES*
RHINOCEROS IN RELATION TO ITS
NATURAL ENEMIES IN OIL PALM
IN JOHOR**

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

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ABSTRACT

Oryctes rhinoceros is a major pest of oil palm in South-eastern Asia. The severe damage of young oil palm done by *Oryctes rhinoceros* can cause the death of palm tree. The *Oryctes rhinoceros* feeds on plant sap of the palm tree. A study was carried out on the population dynamics of *Oryctes rhinoceros* and its natural enemies in North Johor for 10 months started from January 2017 to October 2017. Besides, there survey on knowledge and awareness towards Good Agronomic Practices (GAP) of the independent smallholders has been conducted in three selected district (Muar, Segamat and Tangkak). Pheromone trap (ethyl 4-metyloctanoate) was used to capture the *Oryctes rhinoceros* and yellow sticky trap was used to trap the natural enemies. The result shows that the population of *Oryctes rhinoceros* in oil palm's smallholders and the present of natural enemies helped to reduce the *Oryctes rhinoceros* population. Interestingly, relationship between damage symptom and pest was significantly observed. Surprisingly, the present of *Oryctes rhinoceros* in the trap was categorised low but the damage symptoms of the oil palm tree were quite severe. For bio control aspect, the population of the natural enemies was found low due to lack of breeding site or host for natural enemies surrounding oil palm area. As conclusion, low population of the *Oryctes rhinoceros* could give significant effect to plant damage which was very difficult to control probably due to resistance development against insecticides. Re-evaluation of the threshold level of the *Oryctes rhinoceros* on the oil palm should be carried out in future. For the intervention program, the presence of natural enemies in oil palm area such as *Platymeris laevicollis* is greatly important, therefore, the smallholders are encouraged and suggested to plant beneficial plants to increase the population of natural enemies which subsequently could enhance the predation and parasitization rate. The baseline data of the status and relationship between pest and natural enemies should be updated from time to time for better understanding and could improve sustainability program of pest management.

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