POPULATION DYNAMICS OF COFFEE INSECT PESTS AND THEIR NATURAL ENEMIES IN AMADEO, CAVITE

THESIS

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ABSTRACT

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The study was conducted from June to December 2018 in a coffee farm located at Dagatan, Amadeo, Cavite, to assess the population dynamics of coffee insect pests and their natural enemies. Specifically, the study aimed to: (1) identify the coffee insect pests observed in the coffee farm; (2) identify the natural enemies associated with the insect pests of coffee; (3) determine the incidence of coffee insect pests; (4) determine the infestation rate of coffee insect pests; and (5) distinguish the factors affecting the population dynamics of the insects in the coffee farm.

This study is a descriptive type of research. Visual observation, recording, collection and preservation of insects found from the top, middle and bottom portion of the 30 sample trees located in the area were done to gather relevant data for the study. Data gathering was done every morning, and once a week for six months.

Twenty-three insect pests which belong to the insect order Coleoptera, Diptera, Hymenoptera, Hemiptera and Homoptera were collected from the study site. In addition, ten natural enemies which belong to the orders Coleoptera, Hymenoptera, Neuroptera, Mantodea and Arachnida (order Araneae) were encountered in the study site. The most notable natural enemy identified is the mealy bug destroyer larvae which feeds on green coffee scale and green lacewings which predates on leafhoppers and green coffee scale. On the other hand, the green coffee scale has the highest pest incidence and highest infestation rate.

The population of insect pests show an increasing trend from June to September which decreased thereafter. Temperature and relative humidity appear to have no significant effect on the pest population. On the other hand, the population of natural enemies increased in June and July which then decreases the following month. The temperature but not relative humidity reveals to have significant effect on their reproduction. However, there are other factors such as elevation and rainfall that must be considered to truly determine the population dynamics of coffee insect pests and natural enemies in Amadeo, Cavite.

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INTRODUCTION

Coffee (*Coffea sp.*) is a significant agricultural commodity known across the world for its demand as a beverage. This crop captivated the heart of approximately one-third of the world's population placing it second most important commodity after gasoline (Cleland, 2010; Shrestha & Adhikari, 2011). There are four species of coffee and the two commonly grown species are *C. arabica* and *C. canephora* which contributes 75% and 25% respectively, on the world's overall produce (Mussatto, Machado, Ercilia, Martins, &Teixeira, 2011). In the Philippines, Mindanao's small scale farmers are the highest producers of coffee and the commonly grown species is *C. canephora* (commonly known as Robusta coffee). As of 2015, the production of coffee was only 36.171 MT and 0.30 tons per hectare was the average yield per farm (Bureau of Plant Industry, 2017). CALABARZON is one of the regions that contribute to the overall production and Cavite has the highest coffee production among provinces located on the said region. Three