



University Of Maryland Entomology Assistant

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College Park Scholars – Science & Global Change Program

Biochemistry

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Introduction

Starting from fall 2019 to spring 2020, I have worked on research with the Hamby Lab at the University of Maryland. I have been involved in tasks occurring in the lab such as collecting and recording data for the various projects going on in the lab. I mainly focus on the study concerning aphids their parasitoids, specifically on how different pesticides and fungicides affect the life quality of the parasitoids which are non-target species .



This is one of the sample wheat plants infested with aphids.

Materials/ Methods :

- With the various projects going on there are different requirements and methods for each one. In the study that I mainly focused on we used different treatments: imidacloprid, thiamethoxam, and fungicide.
- These pesticides were placed with wheat plants that later infested with 75 aphids.
- Aphid parasitoids are added to the plants in pairs and left in the plant for 1 day and are then removed.
- The plants are checked daily for the mummies until there are no more mummies being formed.
- The mummies are collected, and their length, emergence and death date are recorded.

Activities:

- Set up both aphid and their parasitoid colonies
- Set up the plant studies with the different pesticide and fungicides containing aphids with parasitoid.
- Collected the parasitoid mummies to record their life span and their body length
- Collected data on dectes larva from soybean plants that were located in different farms under different conditions.
- Counted the aphids on the plants with the different treatments.



This is a wheat plant with aphid parasitoid mummies. The mummies are the white spheres.

Site Information:

University of Maryland: Hamby Lab

4291 Fieldhouse Dr, College Park, MD 20742

Aditi Dubey (Graduate Student) and Dr. Kelly Hamby

Mission Statement: The Hamby lab works to improve agricultural sustainability and productivity using the Integrated Pest Management (IPM) paradigm.



Me on the way to the farm at USDA.



This is one of the soybean plants I dissected for dectes larva.



This is one of the aphid parasitoids that was measured under the microscope.

Discussion:

Agriculture has a huge impact on the environment and the surrounding biodiversity especially through the use of pesticides. Pesticides have been used for decades to kill off unwanted pests and to increase crop yield. The use of pesticides brings different problems such as pesticide resistance and contaminating the surrounding environment. They can also kill non target species which is what the lab focuses on. Determining the effect of the three different treatments imidacloprid, thiamethoxam, and fungicide on not only their target species aphids but also the aphid parasitoids is important to the production of crops and biodiversity.

I have learned various research techniques and experienced how research has been conducted. I personally wish to continue helping with the projects to understand the effects of parasites on non-target species.

Acknowledgments:

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