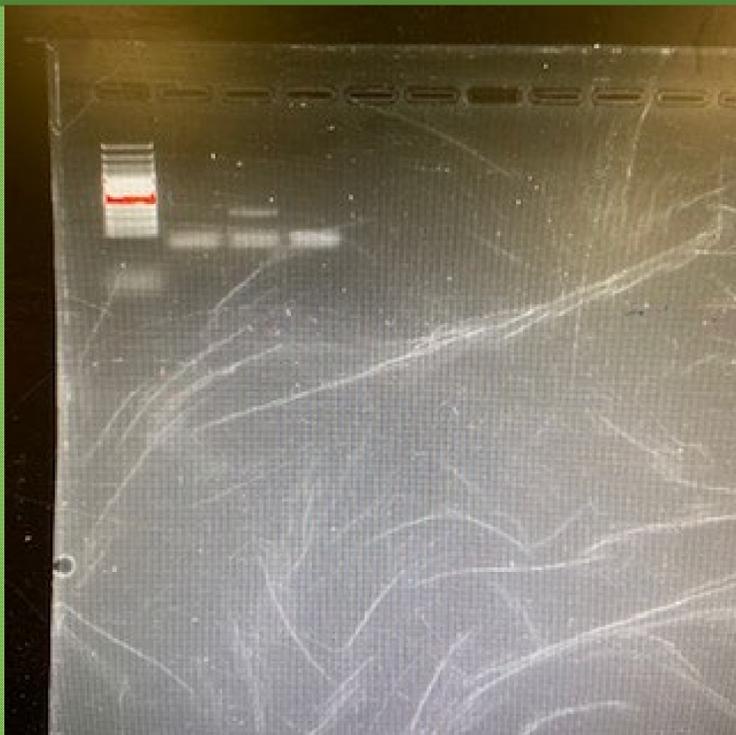


Overview

The Crowder Lab is operated out of WSU FSHN building and is run by David Crowder. It is inherently an entomology lab, and the focus of my experience was on aphid-pea-virus interaction. My work experience mostly involved molecular functions with an emphasis on DNA evaluations such as qRT-PCR and PCR visualizations. Extensive work was also conducted in plant and insect rearing in a greenhouse setting.

Over the course of the Spring 2021 semester, I was involved in two distinct research experiments involving pea aphid interactions with a pea virus, pea mosaic virus (PEMV), and its impact on the green pea, which is an agriculturally significant crop. Over the course of these experiments, I gained new and deeper insights into lab management, plant and insect rearing, and molecular functions.



Successful gel electrophoresis visualization using PCR products from non-aphid, aphid, and infected aphid treated pea plants.

Crowder Lab Pullman, WA Chase Baerlocher Spring 2021

Work Conducted

Work in the lab fell into two major categories: molecular and plant cultivation. Peas would be grown under specific circumstances, such as without any stressors, infested with aphids, or infested with a aphids carrying a specific RNA virus, PEMV, and were then evaluated to determine how they reacted to these situations. Plants were grown in a separate greenhouse space and were carefully looked over. Likewise, aphid colonies were carefully maintained by transferring mature adults to young pea plants to repopulate.

Plant evaluations were done by grinding plant tissue using liquid nitrogen, extracting RNA for cDNA synthesis in order to allow PCRs to be conducted, followed by PCR reactions which were used in gel electrophoresis for DNA concentration visualization or qRT-PCR reactions which gave more specific quantitate data regarding virus presence in host plants.

Alongside these responsibilities, I was also responsible for maintaining a clean and orderly lab space. Daily laboratory responsibilities included disinfecting equipment and work surfaces before, during, and after sensitive reactions which could lead to cross contamination, restocking materials, and compiling data from reactions for later evaluation.

Summary

My time working in the Crowder Lab was marked by significant personal growth and gave me a deeper understanding of many of the processes undertaken by an agriculturally-focused laboratory. My work with plants, insects, and molecular evaluations were highly informative and experiences I would have absolutely regretted not being involved in had I not undertaken my research experience with the lab.

My ultimate goal regarding a future career is to work in a research program such as the one ran by the Crowder Lab, and as such experience in lab etiquette, molecular functions, and sample handling will greatly influence the decisions I make on the road to reaching that goal. In the end, I am very thankful to have been given this opportunity.



Average experiment setup with plants being infested with non-infectious and infectious aphids being isolated in growing tubs.