Observation and genetic testing of virus infected *V. vinifera* vines at the

Located at: The Washington State University Irrigated Agriculture and Research Extension; Prosser, Washington
By: Corydon Funk; Summer Semester 2017

Introduction:

Responsibilities Day-to-Day

Occasional Duties/Experiences

- Sometimes I would only perform a duty once or twice, however it would still enhance my understanding of my work
- I gained some training in how to treat, avoid, and discover pesticide usage in the field
- One of the first examples were matrices I worked with regarding leafroll infected plants
- Occasionally, we would read scientific articles related to the topics we were studying and observing
- I learned to observe and track the spread of a virus throughout and untreated field with these matrices
- I learned alternative gel practices, which would only be used once but retained the basics of normal gels
- I also learned about the different insect vectors for different viruses
- Clones, were shown to play an important role in vine health and resistances occasionally
- I used a leaf area measurement device which used displaced light to give the area of a leaf in centimeters squared
- Occasionally, I would practice my pruning, leaving on the proper amount of buds and vines to prevent too much vigor
- Additionally, I used training skills for small vineyard blocks we were preparing for the following year
- Growers would sometimes meet with us to discuss what has been happening in relation to the vines or mesoclimate of that area
- Additionally, I would contact or meet field managers to check for pesticide presence in our test fields
- I attended one seminar by a guest, to give our attention to advances in the field of virology
- I would be available to the students to assist with sampling of new leaf materials
- Occasionally, I was called upon to mark plants from a list within a field for symptomatic and asymptomatic plants
- Once, we had to travel to older fields and determined if infected plants had died from previous years
- I was also available for driving students longer distances to other fields
- Miscellaneous greenhouse travels happened a few times early into the internship
- The greenhouse consisted mostly of checking pipes to see if they were being watered properly
- Additionally, we would assist in moving dirt or plants to the greenhouse itself
- Finally, we'd sometimes use liquid nitrogen to freeze berries and leaves
- These frozen berries and leaves would be analyzed different from regular samples
- The freezing process also doubled as a preservation technique for long drives

Summary

- Overall I'm glad I finally had a professional work experience related to my major, unlike previous summer semesters
- Plenty of these techniques I did for the first time in class, but now I've seen their practical applications
- Wasn't my first time pruning, training, preparing gel electrophoresis, or my first field study, however it reinforced my understanding of all
- I've often felt open to a research pathway after my graduation, and I've really enjoyed my time in academia
- Otherwise, I've still had time dedicated to talking with viticulturists and scientists to expand my ideas of different concepts
- Finally, I've made even more connections in the industry that I can add as supporters for my future career
- I learned and expanded my understanding of basic and in-depth viticultural concepts

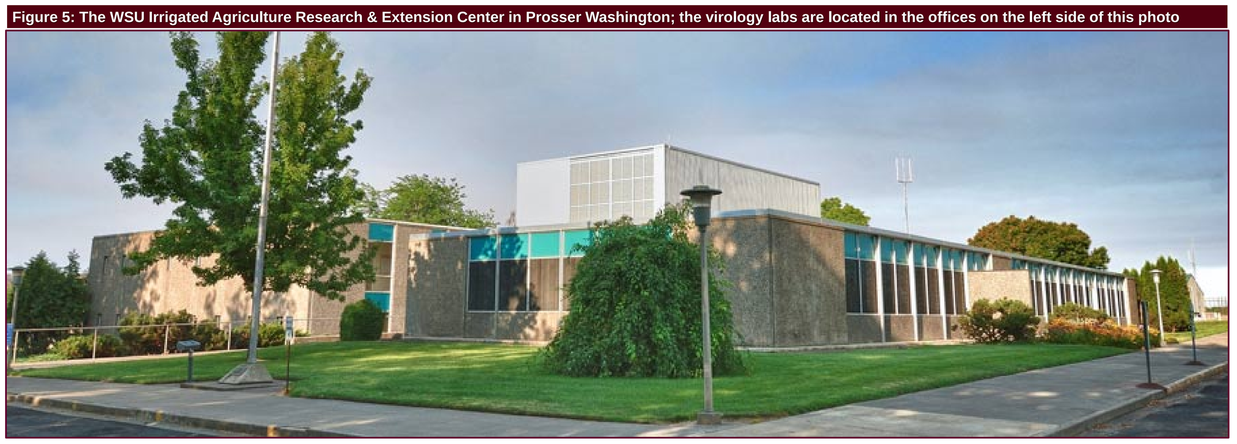
Learning Outcomes

- I learned the proper technique to perform gel electrophoresis
- I learned proper field and lab safety
- I acquired the ability to critically think about why a result happens, not simply witnessing the result
- I learned to use my previous experience effectively
- I expanded my ability to work well with others and communicate effectively
- I learned to keep a good and consistent schedule
- I was educated on proper sanitary management of both lab and field equipment
- I attended seminars on a wide array of virus related topics
- I learned about three prominent grape viruses: Grapevine Leafroll, Tobacco Ringspot Virus, and Red Blotch Disease

Figure 1-2: Measurements were taken weekly, with attendance in the morning to ensure we stayed cool ; these field were also used for sampling

Figure 3-4: Lab work consisted of creating gels for testing the presence of a virus in the sample (gel shows positive and negative controls)

Figure 5: The WSU Irrigated Agriculture Research & Extension Center in Prosser Washington; the virology labs are located in the offices on the left side of this photo



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