

WSU Irrigated Agriculture Research Extension Center

Prosser, WA

Gilberto Camarillo

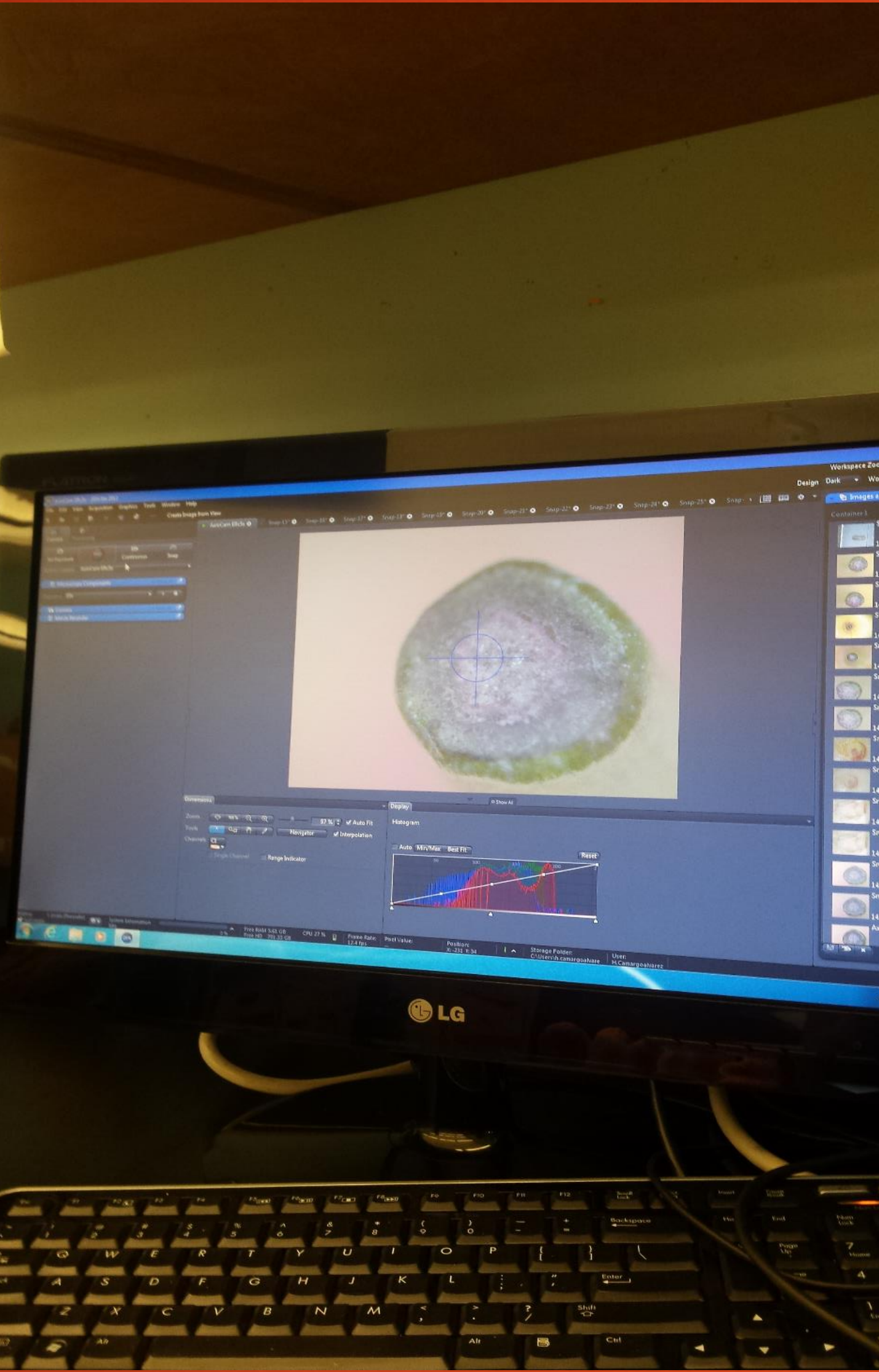
Summer 2015

Introduction:

My internship allowed me the opportunity to work at WSU’s Irrigated Agriculture Research Extension Center (IAREC). Under the supervision of Dr. Matt Whiting, I, with the help of 3 graduate students, was able to expand my field of knowledge relating to agriculture. WSU’s IAREC is a place where research is always being conducted, and in Dr. Whiting's department, my learning was centered on Whole Tree Fruit Physiology. For the first few weeks of the internship, I would tag along with some of the graduate students and help them take measurements for their projects. These projects focused on near-harvest irrigation termination, mechanical pruning, and artificial pollination. After gathering the data required for their projects, I was soon put to begin my own project.



Water Dye Movement test in which the pedicel of the cherry is submerged in the dye solution in the Eppendorf tubes. Next to it is an image of what the dye movement would look like under the microscope.



Responsibilities Performed

My Project:

- **Bench Test:** Harvest Early Robin cherries and take back to lab. From there, we have two trials of three repetitions, each with twenty cherries, and were to be checked every hour for five hours. This was to be done twice per week. The bench test purpose was to find the susceptibility of the cultivars cracking. Such findings were represented by using a cracking index, which is only used as a manner of comparing the number of cracked cherry every hour.
- **Water Dye Movement:** Using Early Robin cultivar, tree shoots of two year wood were harvested from an Olsen Brothers orchard, then immediately submerged in water, then cut again at the base to avoid cavitation. Once back at the lab, I would cut fifteen cherries, then again cut, with a razor, part of the stem to have it submerged in a dye solution. To track the movement, incisions were made to different parts to three cherries every 2, 4, 8, 24, and 36 hours, then looked under a microscope and photographed.
- **Transpiration Test:** Using the same tree shoots of two year wood, a set up of three trials with the treatments of: fruit with the pedicel covered in wax, fruit with pedicel uncovered, fruit without pedicel and covering the wound with wax. To test its transpiration rate, their initial weight was taken, then set in a controlled environment of 25 C. From there, their weight was taken and recorded every 24 and 48 hours.

Other Responsibilities:

- **Field Work:** At times I was asked to assist the graduate students when they would go to the orchards to take measurements for their experiments. These duties involved: measuring shoot length, cherry diameter, tree trunk circumference, and tree branch regrowth. Other duties were a bit more complicated, such as: using a neutron probe to measure soil moisture, test the Stem Water Potential using a chamber and nitrogen gas, or using a Portable Infrared gas analyzer (PP Systems) to measure the photosynthetic rate of trees.
- **Lab Analysis:** Each graduate student in the department I worked in had a project which would require for fruit from their trial orchards to be harvested then analyzed in the lab. I, along with the working lab crew, would run analysis on the harvested cherries and running tests such as: weight, diameter, color, firmness, stem pull retention force, brix, and pH content.



This is the set up of the bench test. There are six trays in total, 3 of each trial.



Using the portable infrared gas analyzer to measure the leaf-gas exchange rate.



Measuring labeled tree shoots in addition to measuring diameter for labeled cherries.

Summary:

Overall, this internship provided me with the best hands on approach as a learning experience. Understanding the science and the some of the requirements needed to produce some of the best quality fruit is something that will go a long ways for me. Not only that, but also having been given the opportunity to conduct my own project, take measurements, organize my data, and put it all together for write a report is a great experience which will come very handy in the near future. Also, working at the IAREC helped better my Excel skills, as inputting and organizing data was a little more complicated than I thought. This experience in general was a great contribution to my career goals as now I feel more comfortable in pursuing a graduates degree in the agricultural field. I hope to be able to expand on my newly learned skills in the future.



Using a New Holland tractor with a hedger and trimmer attached as part of the mechanical pruning experiment.