

Alexander Schaller

602-803-2113 | alexander.j.schaller@gmail.com

EDUCATION

Ph.D. in Environmental Horticulture
University of Florida

Expected Graduation December 2024

Masters in Horticultural Science
Washington State University

Completed March 2020

Bachelor of Science Sustainable Plant Systems
Bachelor of Science Agriculture Economics and Management
Business Administration Minor
University of Arizona, Tucson, Arizona.

Completed May 2017

RESEARCH EXPERIENCE

Graduate Research Assistant

August 2020-Present

Dr. Zhanao Deng Lab, Department of Environmental Horticulture, Balm, Florida, University of Florida

- Plan and coordinate horticultural practices for pomegranates
- Evaluate fruit and growth habits of pomegranates in variety trials as well as breeding populations
- Develop and screen new breeding population of pomegranates
- Screen pomegranate varieties for resistance to the multiple fungal pathogens (*Dwiroopa punicae*, *Pseudocercospora punicae*, & *Colletotrichum sp.*)
- Test defoliation of pomegranates as new horticultural method for growing in the southeastern United States
- Develop novel system of genetic analysis and mapping in pomegranate using short juvenility pomegranates cultivars
- Develop breeding populations for ornamental pomegranate cultivars
- Resequencing and analysis of genetic information to identify genes associated with important ornamental traits as well as disease resistance
- Develop breeding populations of *Nandina* and *Stachytarpheta* for reduced sterility
- Utilized ploidy manipulation techniques to develop new phenotypes of *Stachytarpheta*
- Assisted with selection of *Lantana camera*

Graduate Research Assistant

January 2018- December 2018 & January 2020-May 2020

Dr. Cameron Peace Lab, Department of Horticulture, Washington State University, Pullman, Washington.

- Collected leaf tissue samples for DNA extractions and genome scans
- Extracted DNA from leaf tissue samples for DNA marker testing
- Performed PCR on apple DNA
- Assisted with pollination of cherry and apples, including pollen collection, emasculation and pollination
- Trained new graduate students on PCR and DNA extraction techniques
- Performed marker assisted seedling selection and field selection for cider apple seedling
- Developed and improved method for deducing genotypes utilizing both curated and un-curated SNP data
- Translated alleles of fruit quality loci in apple cultivars' SNP haplotypes
- Confirmed expected inheritance across numerous generations and families within the data set
- Determined allelic combinations of each germplasm individual
- Identified allele origin for loci related to fruit storage in the top 10 apple cultivars produced in the U.S.

Research Assistant

September 2016- May 2017

Dr. Rod Wing Lab, Arizona Genomics Institute, The University of Arizona, Tucson, Arizona.

- Performed modified CTAB DNA extractions for genome sequencing on a wide variety of plant species including rice, pecan, and sugar cane
- Performed quality control test of the extracted DNA using a Qubit and nanodrop
- Analyzed the size of DNA through the use of gel electrophoresis and chef gel

Research Assistant

August 2014- May 2017

Dr. Steve Smith Lab, School of Natural Resources and the Environment, The University of Arizona, Tucson, Arizona.

- Conducted a variety of trials for multiple species of alfalfa, analyzing the salt tolerance of each variety
- Planted and cared for a large number of alfalfa plants and evaluate for diseases, pest, and nutrient deficiencies. Modify plant care to address plant needs
- Conducted germination trials with multiple seed varieties
- Analyzed germination rates for salinity levels
- Assisted with the field harvest of research alfalfa and sorghum

Research Assistant

January 2015-August 2016

Dr. Chieri Kubota Lab, School of Plant Science, The University of Arizona, Tucson, Arizona.

- Participated in ongoing experiments examining plant physiology of cucumbers utilizing end of day red light and experiments of tomato seedlings using light quality to mitigate intumescence
- Assisted with research focusing on analysis of the viability of commercial production of hydroponically grown strawberries
- Inspected plant health and pruned plants to reduce potential plant pest and health problems.
- Conducted research analyzing production requirements of grafted vegetables
- Assisted with field trials of grafted watermelon which focused on comparison of the quality and quantity of fruit on grafted plants versus non grafted plants
- Maintained growth plots, monitored plants for pest, and tagged plants for first female flowers to evaluate production rate of initial flowers
- Harvested and analyzed melons for weight and brix content
- Independently designed, conducted, and presented research focused on optimizing light quality for the growth and nutrients of three common microgreens; tatsoi, perilla, and red cabbage. This research was conducted under the direction Dr. Chieri Kubota
- Designed the microgreen growth chamber to ensure equal light intensity and temperature for each trial
- Analyzed growth of each species under different ratios of red and blue LED's and white/UVA LED's
- The control group was grown under CWF lights, a common standard for the industry
- Measured, documented, and analyzed the results including height, weight, dry weight, anthocyanin content, and carotenoid content
- Used JMP software to discover statistical significance among trials

Research Assistant

June 2015-August 2016

Dr. Shirley Papuga Lab, School of Natural Resources and the Environment, The University of Arizona, Tucson, Arizona.

- Participated in an experiment focused on the use of a two layer approach to analyze water utilization of semi-arid shrubs, specifically *Larrea tridentata*

- The experiment used stable isotopes to analyze how the plant utilized water that was present in their growing environment
- Constructed two layer containers for the experiment
- Researched germination techniques and conducted initial trials for germination of *Larrea tridentata*
- Measured and maintained daily records of soil moisture and temperature for each container
- Analyzed the level of isotopes in the plants and soil samples using the Picarro stable isotope analyzer

Research Assistant

January 2014-February 2015

Dr. Dan Papaj Lab, *Ecology and Evolutionary Biology*, The University of Arizona, Tucson, Arizona.

- Assisted with research examining the foraging habits of the common eastern bumble bee.
- Cared for eastern bumblebee colony
- Assisted with experiment chamber set up
- Collected and marked worker bees for the experiment based on foraging performance
- Assisted with forage habit data collection through observation and documentation

REFEREED PUBLICATIONS

Schaller, A., Chater, J., Vallad, G., Moersfelder, J., Heinitz, C., Deng, Z. 2023. Pomegranate Cultivars with Diverse Origins Exhibit Strong Resistance to Anthracnose Fruit Rot Caused by *Colletotrichum gloeosporioides*, a Major Disease in Southeast United States. *Horticulturae*, 9, 1097.

<https://doi.org/10.3390/horticulturae9101097>

Schaller, A., Vanderzande, Z., Peace, C. 2023. Deducing genotypes for loci of interest from SNP array data via haplotype sharing, demonstrated for apple and cherry. *PLoS ONE* 18(2): e0272888

James, T., Johnson, A., **Schaller, A.,** Vanderzande, S., Luo, F., Sandefur, P., Ru, S., Peace, C. 2022. As It Stands: The Palouse Wild Cider Apple Breeding Program. *Plants* 2022, 11, 517 doi: 10.3390/plants11040517

Vanderzande, S., Piaskowski, J., Luo F., Edge-Garza, D., Klipfel, J., **Schaller, A.,** Martin, S., Peace, C. 2018. Crossing the finish line: How to develop diagnostic DNA tests as breeding tools after QTL discovery. *Journal of Horticulture*. 05. 10.4172/2376-0354.1000228.

TEACHING EXPERIENCE

Teaching Assistant

August 2022-December 2022

Department of Environmental Horticulture, Gainesville, Florida, University of Florida

- Teaching assistant for online course PLS3223/5222C-Plant Propagation
- Planned and organized extra credit opportunities for students
- Assisted with review sessions for students prior to exams
- Monitored course delivery and student questions

Teaching Assistant

January 2019-December 2019

Department of Horticulture, Pullman, Washington, Washington State University

- Teaching Assistant for Advanced Plant Physiology and Introduction to Cultivated Plants
- Grade student tests and assignments
- Assist in answering student class questions

INVITED PRESENTATIONS

Oral Presentations

Schaller, A., Chater, J., Vallad, G., Deng, Z. 2023. Evaluation of Pomegranate Cultivars for Resistance to Fruit Rot Caused by *Colletotrichum gloeosporioides*, July 31-August 4th, Orlando FL

Schaller, A., Deng, Z. 2022. Ornamental Pomegranate Varieties. Annual Conference of American Society for Horticulture Society, July 30-August 3rd, Chicago IL

Schaller, A., Vanderzande, S., Peace. C. 2018. Fruit Quality Trait Locus Genotypes in Apple from Rosbreed's SNP Array Data. Annual Conference of American Society for Horticultural Science, July 30-August 3, Washington DC.

Schaller, A., Kubota, C., Kroggel. M. 2016. Effects of Light Quality on the Morphology, Growth, and Quality of Common Microgreens. Annual Conference of American Society for Horticultural Science, August 8-11, Atlanta, GA.

Poster Presentations

Schaller, A., Chater, J., Vallad, G., Deng, Z. 2023. Screening for *Colletotrichum* Leaf Spot Resistance in Pomegranate Varieties, July 31-August 4th, Orlando FL

Schaller, A., Chater, J., Vallad. G., Deng. Z. 2022. Pomegranate Cultivar differences in Susceptibility to Major Fungal diseases in Florida. Annual Conference of American Society for Horticulture Society, July 30-August 3rd, Chicago IL

Schaller, A., Deng, Z. 2021. Pomegranate Variety Trials in Central Florida. Annual Conference of American Society for Horticultural Science, August 5-9, Denver, CO.

Schaller, A., Hernández, R., Kroggel, M., Kubota. C. 2016. Effect of End-of-day Red Light on Squash Rootstock and Cucumber Hypocotyl Length. Annual Conference of American Society for Horticultural Science, August 8-11, Atlanta, GA.

EXTENSION EXPERIENCE

Schaller, A. 2023 Exploring pomegranates as an alternative crop for Florida. UF Southwest Florida Green Team Meeting. Balm, FL

Schaller, A., Parrish, S.B. Cordova, G. 2023. Stroll and Learn: Ornamental Breeding and Genetics Lab. GCPSA event. Balm, FL

Schaller, A., Deng, Z. 2023. Research for pomegranate fruit rot. UC Davis Pomegranate Extension Meeting. Davis, California

Schaller, A., Parrish, S.B. 2022. Breeding of ornamental and tree crops for Florida. Ag Expo Day. Balm, FL

Schaller, A., Parrish, S.B., Cordova, G. 2022. Micropropagation and its uses in the agriculture industry. Tomlin Middle School Agriculture Students. Balm, FL

Schaller, A., Parrish, S.B. 2022. Overview of plant breeding in ornamental and fruit tree crops. RCMA middle school students. Balm, FL

Schaller, A. 2021. Pomegranates in the Southeastern United States. UF Southwest Florida Green Team Meeting. Balm, FL.

LEADERSHIP & INVOLVMENT

University of Florida Environmental Horticulture Graduate Student Association

- President (2022-Present)

- Directed and oversaw the planning and execution of the club's plant sale which raised over \$23,000
- Organized club trips and social activities
- Secretary (2021)
 - Assisted with the planning and execution of the club's plant sale which raised over \$21,000
 - Organized design and ordering of club T-shirts for plant sale
- Plant Sale Advertising Committee (2020 & 2021)

University of Arizona Horticulture Club

- President (2015 & 2016)
 - Organized a team of 7 students for propagation and preparation of plants for weekly sales
 - Organized and taught classes on propagation of multiple species and grafting of citrus
- Vice President (2014)
 - Assisted with planning of plant sale activities
 - Organized club field trips and
- Plant Sale Director (2014-2016)
 - Worked with local farmers markets to secure a booth for the horticulture club
 - Planned and organized inventory for the bi-weekly farmers market booths
- Secretary (2013)
- Greenhouse Manager (2013)

American Society for Horticultural Science

- Member, 2016-Present
- Moderator for Ornamental/Landscape and Turf Session 2022
- Member of Fruit Breeding interest group
- Member of Ornamental Plant Breeding interest group
- Member of Graduate Student interest group

International Plant Propagators Society

- Member, 2022-Present

SCHOLARSHIPS AND AWARDS

- Bloom and Grow Scholarship 2023
- Orlando Garden Club Scholarship 2022
- Grinter Fellowship 2020-2023
- National Greenhouse Manufacturers Association Scholarship 2016
- BioWorks IPM/Sustainable Practices Scholarship 2016
- Arizona Nursery Association Scholarship 2015 & 2016
- CHS Foundation Scholarship 2013
- American FFA Degree Recipient 2013