SHANTEL A. MARTINEZ

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Career focus is on contributing novel genetic research based on large data sets through advanced statistical methods while maintaining direct application towards helping farmers sustainably increase their productivity. Believes strongly in being able to communicate science to non-scientists, mentoring young scientists and peers, along with cultivating a collaborative work environment as career priorities.

EDUCATION

Ph.D., Molecular Plant Science, Washington State University, Pullman WA   2018
M.S., Crop Science, Washington State University, Pullman WA   2013
B.S., Bioengineering, Washington State University, Pullman WA   2011

RESEARCH EXPERIENCE

Wheat Molecular Genetics and Prediction Modeling

Post-doctoral | Dr. Mark E. Sorrells Lab | Cornell Univ.   2018 - Mar 2020
SKILLS: **Quantitative genetics**, **strong daily R use**, git version control, **genomic prediction** using ridge and Bayesian regression models, strong layman communication, basic python and bash, electronic lab notebook techniques
TOPIC: Producing genomic prediction models on large-scale wheat genomic and phenotypic datasets to reduce grain sprouting when certain climate patterns increase, such as heavy rainfall during harvest time.

Improving Germplasm Resources for the Northwest

PhD | Dr. Camille M. Steber and Dr. Kimberly Garland Campbell Labs | Washington State Univ. 2013 - 2018
SKILLS: Comprehensive markdown use, **large-scale field data collection and coordination**, technical writing, applied plant breeding, **quality R data visualization** and slide design, mutation genetics
TOPIC: After the 2016 Low Falling Numbers crisis, wheat farmers needed an immediate solution to ensure their crop would not succumb to the loss of millions of dollars they had just experienced. My research on preharvest sprouting tolerance (PHS) and Falling Numbers was accelerated to meet these demands. After screening 469 PNW wheat breeding lines, I identified 12 new genetic locations that WSU and USDA wheat breeders immediately used to introgress tolerance into their germplasm. Increased grower knowledge on agronomic best practices were also a result of this project.

Investigating a PHS Tolerant Wheat Mutant

MS | Dr. Arron H. Carter and Dr. Camille M. Steber Labs | Washington State Univ.   2011 - 2013
SKILLS: SAS, **research-based statistics**, hormone seed biology, lab notebook techniques, **cereal crop field practices**
TOPIC: Worked with a molecular geneticist and a wheat breeder to find an applied solution to PHS susceptibility through mutation genetics and field trials. This basic/applied hybrid research experience resulted in learning how to balance an attention-to-detail molecular approach while keeping the large-scale agronomic breeding scope in mind.

PROFESSIONAL DEVELOPMENT

Large-Scale Field Experiments: Washington cereal breeders and colleagues often requested my field **management skills** for projects that require succinct coordination of large labor teams (20+ people) while maintaining timely execution of the experiment (i.e. before the heat becomes a danger).

SciComm Workshop: three-day training on **communicating science** to the laymen audiences 2019
Journal Peer Reviewer: Agronomy, Molecular Breeding, Theoretical and Applied Genetics
Director of Professional Development   2016-2017
During my PhD, a handful of graduate students and I noticed a need for opportunities to develop professional skills across all disciplines that just weren't being met within graduate programs. With this crucial need in mind, the Professional Development Initiative (PDI) was created and in one year I implemented 30 new professional development events, served over 1,800 attendees, coordinated and lead 11 graduate student senators, and sat on both the PDI and GPSA Executive Boards.
SKILLS: Efficient **peer-to-peer communication**, **interdisciplinary collaboration**, conflict resolution, leadership, professionalism, **strong organization**, built relationships with top-level university leadership

COMMUNICATION

INVITED TALKS | TECHNICAL

1. Soft Wheat Quality Council Meeting, Raleigh, NC. Identifying Loci and Genomic Prediction Models for PHS Tolerance in Northeast Soft Wheat Breeding Programs   2019
2. Western Wheat Quality Meeting: Falling Numbers Workshop, Portland, OR. The First Step to Tackling the FN Problem: Identifying Tolerant Genes/QTL in PNW Germplasm   2019
3. International Seed Science Society Conference, Monterey, CA. Identification of a Locus Corresponding to the Preharvest Sprouting Tolerance Mutant, ERA8, in Wheat   2017
4. ASA, CSSA, SSSA International Annual Meeting, Phoenix, AZ. Genome-wide Association Mapping of Preharvest Sprouting in PNW White Winter Wheat   2016
5. Plant and Animal Genome Conference, San Diego, CA. Higher Seed Dormancy and ABA Sensitivity Improves Wheat Preharvest Sprouting Tolerance   2016

OUTREACH | NON-TECHNICAL

1. Small Grains Field Days | Audience: **Farmers, Breeders, Pathologists**
2. Grow NYC Variety Showcase | Audience: Chefs, **Public, Fresh Market Buyers**
3. MPS Plant Science Day | Audience: Parents and Children K-8
4. WSU Extension Wheat Academy Workshop | Audience: **Producers**, Farmers, Commissioners
5. LSAMP End of the Year Banquet Keynote Speaker | Audience: Undergraduates in STEM
6. Future Cougars of Color Plant Science Workshop | Audience: High School **Students**

MENTORING | SELECTED

Katherine Roberts, Project Awards: 1st Place Plant Science, New York HS Science Program   2018
Samantha Beck, Project Awards: 1st Place Molecular Biology, CAHNRS Internship Program   2017

DEPARTMENTAL SERVICES | SELECTED

▪ Corteva Plant Breeding Symposium Committee Role: Host speakers, implementation of symposium   2019
▪ WSU Upward Bound Internship Program Role: Recruiter, volunteer, mentor   2009-2015

TECHNICAL PUBLICATIONS

1. **Martinez, S.A.**, Godoy J., Huang M., Zhang Z., Carter A.H., Garland Campbell, K.A., and Steber, C.M. (2018a). Genome-Wide Association Mapping for Tolerance to Preharvest Sprouting and Low Falling Numbers in Wheat. Frontiers in Plant Science. 9, 1-16.
2. **Martinez, S.A.**, Thompson A.L., Wen N., Murphy L., Sanquinet K.A., M., Steber, C.M., and Garland Campbell, K. (2018b). Registration of the Louise/Alpowa Wheat Recombinant Inbred Line Mapping Population. Journal of Plant Registrations.
3. **Martinez, S.A.**, Tuttle, K., Takebayashi, Y., Seo, M., Garland Campbell, K., and Steber, C.M. (2016). The Wheat ABA Hypersensitive ERA8 Mutant is Associated with Increased Preharvest Sprouting Tolerance and Altered Hormone Accumulation. Euphytica. 212, 229-245.
4. Tuttle, K.M., **Martinez, S.A.**, Schramm, E.C., Takebayashi, Y., Seo, M., and Steber, C.M. (2015). Grain dormancy loss is associated with changes in ABA and GA sensitivity and hormone accumulation in bread wheat, Triticum aestivum (L.). Seed Science Research 1–15.
5. **Martinez, S.A.**, Schramm, E.C., Harris, T.J., Kidwell, K.K., Garland-Campbell, K., and Steber, C.M. (2014). Registration of Zak Soft White Spring Wheat Germplasm with Enhanced Response to ABA and Increased Seed Dormancy. Journal of Plant Registrations 8, 217-220.