Pia Spychalla

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EDUCATION

Cornell University

Doctoral Student in Plant Breeding and Genetics..... June 2022 - Present

University of Wisconsin - Madison

Bachelor of Science, Major in Molecular Biology..... August 2018 - May 2022

RESEARCH AND WORK EXPERIENCE

Cornell University: Department of Plant Breeding and Genetics
Laboratory of Dr. Walter De Jong
Ph.D. Candidate June 2022 - Present

- Cloning candidate genes for the potato virus Y (PVY) resistance gene, *Ry-adg*, via Gateway cloning and performing stable transformations for evaluation.
- Investigating the resistance levels against *Globodera pallida* when stacking the resistance genes *Pa2/3_A, Gpa5* and *Gpa6* in an Innovator x NY166 population.
- Increasing the carotenoid content of the white flesh cultivar, Upstate Abundance, through stable transformation of beta carotene hydroxylase and its native promoter.
- Assisting with breeding program activities including pollinations, planting, harvesting, evaluating potato clones, and on-farm trials.
- Communicating with growers about research and industry needs
- Creating content about the potato breeding process in both video and blog format at potatonematodes.org

University of Wisconsin – Madison: Department of Plant Pathology
Laboratory of Dr. Amanda Gevens
Undergraduate Research Assistant June 2019-May 2021; September 2021-May 2022

- Conducted an independent project studying mutations in the cytochrome b sequence of *Helminthosporium solani* associated with azoxystrobin resistance by screening with a PCR-based test with 5 different primers and DNA sequencing.
- Studied the effectiveness of biopesticide and copper hydroxide as organic preventative methods in *Phytophthora infestans* management for tomatoes. Specifically, investigated the sensitivity of contemporary *P. infestans* to copper on amended agar; together with graduate student Tina Wu.
- Assisted with potato foliar disease control trials at UW-Hancock Agricultural Research Station (ARS) by preparing crop protectants for application.
- Assisted with potato plot trial harvest at Hancock ARS.
- In addition, performed media preparation, general greenhouse work, inoculating tubers, inoculating tomato plants, plot trial preparation, qPCR, RNA extractions and data entry.

Washington State University: Department of Crop and Soil Sciences
Laboratory of Dr. Arron Carter
Undergraduate Research Assistant June 2021-August 2021

- Developed a nondestructive method for metribuzin-tolerance detection in winter wheat using unmanned aerial vehicles (UAV's) and spectral reflectance indices (SRI's) to be used in a breeding program. Specifically, investigating the SRI's indicating chlorophyll content, water content, and canopy cover; together with graduate student Andrew Herr.
- Assisted with harvest of wheat breeding trials at research farms across the state of Washington
- Attended field days and discussed research with local farmers

University of Wisconsin – Madison: Neuroscience Training Program
Graduate Program and Outreach Office
Office Assistant/Graphic Designer October 2018 - August 2019

- Created graphic designs for flyers, booklets, thesis defense brochures, banners, and tablecloths using Adobe Illustrator, Photoshop, and InDesign.
- Assisted with graduate program management including maintaining the websites, updating the database, event planning, and sending emails.
- Prepped outreach materials for school visits and educational events

Merry's Berries- Antigo, WI
Field Worker June 2014-Aug. 2014; June 2015-Aug. 2015; June 2016-Aug. 2016; June 2017-Aug. 2017; June 2018-August 2018

- Responsible for customer service at a pick-your-own strawberry farm, also helped with field operations, e.g. picking, transplanting, irrigating, weeding.

PUBLICATIONS

- **Spychalla P.,** and De Jong WS (2024). Breeding for Potato Cyst Nematode Resistance in Solanum tuberosum. Crop Science 64:1167-1182. https://doi.org/10.1002/csc2.21244
- Wu, K. T., **Spychalla, P.**, Pereyra, M., Liou, M., Chen, Y., Silva, E., & Gevens, A. (2024). Impacts of a Commercially Available Horticultural Oil Biopesticide (EF-400) on the Tomato-Phytophthora infestans Pathosystem. Plant Disease, 108(6), 1533-1543. https://doi.org/10.1094/pdis-12-22-2968-re
- Zubrod, M., Herr, A., **Spychalla, P.**, Pearson-Godon, E., Burke, I., & Carter, A. (2023). Utilizing High-Throughput Phenotyping for Identifying Metribuzin Tolerance in Winter Wheat. https://doi.org/10.22541/essoar.169766279.96169103/v1

TALKS

- **Spychalla, P**. 2023. Towards Cloning Ry-adg: A Resistance Gene Against Potato Virus Y. Cornell Plant Breeding & Genetics Student Seminar. Recorded Talk.

POSTER PRESENTATIONS

- **Spychalla, P.**; Herr, A., and Carter, A. 2021. Using Unmanned Aerial Vehicles (UAV) to Identify Metribuzin-tolerant Winter Wheat (Triticum aestivum L.). Washington State University Summer Research Symposium. Virtual Poster Presentation
- **Spychalla, P.**; Wu, T., Chen, Y., and Gevens, A. 2020. Investigating the sensitivity of Phytophthora infestans isolates to copper hydroxide. American Phytopathological Society Virtual Poster Presentation.

OUTREACH

- Graduate Student School Outreach Program (GRASSHOPR). 2024.
  Taught middle school students about the potato breeding process.

LEADERSHIP

Cornell Synapsis
Invited Speaker Chair 2024
Communications Chair 2022-2023

Photography Club at UW-Madison
Co-president: Fall 2021 - Spring 2022
Activities Director: Fall 2020 - Spring 2021

ACHIEVEMENTS

Hagedorn Plant Pathology Scholarship 2021

Dean's List - Spring 2022, Fall 2021, Fall 2020, Spring 2020, Fall 2019, Spring 2019, Fall 2018

UW-Madison Global Gateway Scholar Recipient - Peru 2020

Academic Excellence Scholarship 2018-2022