Pia Spychalla

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Summary

Fourth-year Ph.D. candidate specializing in potato genetics and breeding, with hands-on training in cultivar development and applied research that directly supports growers. As a fifth-generation family member of my family's 800-acre potato farm in northern Wisconsin, I bring a unique perspective to agricultural research. I am passionate about science communication and making agricultural research accessible.

Education

PhD, Plant Breeding and Genetics	Cornell University	June 2022 – June 2027
BS, Molecular Biology *Graduation with Distinction*	University of Wisconsin - Madison	August 2018 - May 2022

Research & Work Experience

June 2022 - Present — **Graduate Student**, De Jong Lab, Dept. of Plant Breeding and Genetics, Cornell University

- Cloning candidate genes identified with SMRT-AgRenSeq-d 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 pyramiding the resistance genes *Pa2/3_A* and *Gpa5* in an Innovator x NY166 tetraploid population.
- Mapping the QTLs responsible for russeting in potato using a 320_02 x 07248_02 diploid population, DArTag sequencing, PolyOrigin, and diaQTL. Mentoring an undergraduate research assistant assisting with this project.
- Assisting with breeding program activities including pollinations, planting, harvesting, evaluating potato clones, and on-farm trials.
- Communicating with growers and other stakeholders about research and industry needs.
- Creating content about the potato breeding process in both video and blog format at potatonematodes.org

June 2019-May 2021; September 2021-May 2022 — **Undergraduate Research Assistant**, Gevens Lab, Dept. of Plant Pathology, University of Wisconsin – Madison

- 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 preparation and harvest at Hancock ARS.

June 2021-August 2021 **Undergraduate Research Assistant**, Carter Lab, Dept. of Crop and Soil Sciences, Washington State University
- 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

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

Summer 2014; Summer 2015; Summer 2016; Summer 2017; Summer 2018 **Field Worker**, Merry's Berries - Antigo, WI
- Responsible for customer service at a pick-your-own strawberry farm
- Managed point-of-sale transactions and customer engagement
- Assisted with field operations, e.g. picking, transplanting, irrigating, weeding, scouting.

Leadership & Service

- Mentor for undergraduate student 2025-2026
- Cornell Synapsis Graduate Student Group
  - Invited Speaker Chair 2024-2026
  - Communications Chair 2022-2023
- Photography Club at UW-Madison
  - Co-president Fall 2021 - Spring 2022
  - Activities Director Fall 2020 - Spring 2021

Outreach & Teaching

- *PLSCI 2250 Teaching Assistant.* Spring 2025.
  - Organize and conduct lab sections, hold office hours for students, and grade class material.
- Graduate Student School Outreach Program (GRASSHOPR).
  - Homer Jr High School. 2024. Taught middle school students about the potato breeding process.
  - South Hill Elementary School. 2025-2026. Taught 2nd graders about crop domestication, pollination, seed dispersal, and plant anatomy.

Grants and Awards

- 2026 Three Minute Thesis Competition Finalist
- Smith Clinton Dewitt Student Research Grant - $2,800
- Cornell Graduate School Research Travel Grant - $2,000
- 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

Publications

- Zubrod, M., Herr, A. W., **Spychalla, P. M.,** Burke, I. C., & Carter, A. H. (2026). Utilizing high-throughput phenotyping to identify metribuzin tolerance in winter wheat. The Plant Phenome Journal, 9, e70058. https://doi.org/10.1002/ppj2.70058
- **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

Oral Presentations

- **Spychalla, P.** 2025. Ry-adg Updates: The Process of Elimination. NCCC215 Potato Breeding and Genetics Technical Committee.
- **Spychalla, P.** 2023. Towards Cloning Ry-adg: A Resistance Gene Against Potato Virus Y. NCCC215 Potato Breeding and Genetics Technical Committee.
- **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, J.; **Spychalla, P.**; and Spychalla, J. 2025. Variables influencing root vigor and *Pythium ultimum* levels during aeroponic potato production. Potato Association of America Annual Meeting. Madison, WI.
- **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.