

Daniel Kohlhase

Ames, IA 50014

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PROFESSIONAL SUMMARY:

- Plant breeder with 10 years of experience in agricultural research and production
- Diversely trained to perform field experiments, greenhouse experiments, wet-lab techniques and bioinformatic analyses
- Experience using state-of-the-art genomics technologies to study traits in various plant species
- Ability to write scientific code with multiple languages: R, Python, UNIX, and SAS
- Successfully collaborated with colleagues from diverse cultures as leader of multiple graduate organizations within the department and Graduate Student Senator

EDUCATION:

Ph.D. - Plant Breeding, minor genetics/genomics

January 2017-Fall 2021

Iowa State University, Ames, IA

- Major Professor: Dr. Michelle Graham
- Relevant Courses: Computational Biology/Bioinformatics, Molecular Plant Breeding, Advanced Plant Breeding, Experimental Design/Statistics, Quantitative Genetics, Crop Physiology

M.S. - Crop Production and Physiology

August 2013-December 2016

Iowa State University, Ames, IA

- Major professor: Dr. Mike Owen
- Thesis title: "A genetic and genomic study of resistance to 4-hydroxyphenylpyruvate dioxygenase (HPPD) inhibitor herbicides in *Amaranthus tuberculatus* (waterhemp)"

B.S. - Crop Science

August 2009-May 2013

University of Illinois, Urbana-Champaign, IL

EXPERIENCE:

Plant Breeding Graduate Research Assistant

January 2017-Fall 2021

Iowa State University, Ames, IA

- Applied RNA-seq pipeline utilizing Unix and R to process and analyze sequencing data of 200+ samples for differential expression analyses
- Performed greenhouse, growth chamber, and hydroponic experiments (controlled-growth environments)
- Designed and constructed 21 viral vectors for gene silencing experiments; delivered viral vectors to plant tissue using gold particle bombardment (biolistic transformation)
- Extracted plant RNA and DNA, designed primers, conducted PCR and gel electrophoresis
- Presented 8 abstracts for scientific and international conferences

Crop Production & Physiology Graduate Research Assistant August 2013-December 2016
Iowa State University, Ames, IA

- Wrote 2 manuscripts for publication in peer-reviewed journals
- Presented 3 abstracts for scientific and international conferences
- Supervised 5-10 students and staff in hand-harvested field experiments
- Trained ~5 students on phenotypic data collection in greenhouse experiments
- Optimized and increased throughput of RNA extraction protocol to increase RNA yield

Production/Crop Scout Intern May 2013-August 2013
Beck's Hybrids, Atlanta, IN

- Contributed to seed corn, soybean, and wheat scouting across ~10,000 acres
- Synthesized data to support decisions made by agronomy team
- Conducted personal summer research project and presented results

Undergraduate Hourly Employee September 2012-May 2013
USDA Soybean Breeding Program, Champaign, IL

- Supported the collection of data and harvesting of research plots
- Organized clean and packaged seed for research plots

Crop Scout Intern May 2012-August 2012
O'Neill Brothers & Scholl, Cooksville, IL

- Led crop scouting for ~3,600 acres of specialty commercial maize and soybeans
- Presented daily field data collected during the growing season
- Participated in daily farm operations and decision-making processes

Small Grains Breeding Research Intern May 2011-May 2012
University of Illinois Small Grains Breeding Program, Champaign, IL

- Prepared, planted, maintained, and harvested research plots
- Collected phenotypic data during the growing season and throughout harvest
- Learned how to operate field research equipment

LEADERSHIP SKILLS AND SERVICE:

Teaching Assistant – Ames, IA 2020-2021

- Taught 'R' programming skills to introductory statistics classes of 10-25 students

Graduate College Emerging Leader Academy – Ames, IA 2020
Cohort Member

- Selected as 1 of 26 graduate students in diverse cohort from across the university
- Participated in 80 hours of training to develop leadership, communication, and interpersonal skills

Enhancing Students Global Experience: Agriculture in Costa Rica 2018
Study Abroad

- Traveled to farms across Costa Rica and learned about diverse cropping systems
- Gained experience in Spanish speaking skills

Girls in Science– Des Moines, IA 2018-2020
Volunteer

- Engaged with the public while promoting agricultural and biological science to young audience

R.F. Baker Plant Breeding Symposium – Ames, IA 2017-2019
 Co-chair (treasurer), Speaker committee chair, Speaker committee member

- Managed 6 committees and ~\$15,000 budget for annual plant breeding symposium with ~121 participants and associated workshop with ~40 participants

Agronomy Graduate Student Club – Ames, IA 2013-2019
 President, Secretary, Fall Seminar Series Co-Chair

- Promoted sense of community among departmental graduate students with activities
- Organized semester-long weekly departmental seminar with external guest speakers

Graduate & Professional Student Senate – Ames, IA 2013-2015
 Senator, Agronomy Department

- Communicated relevant information from regular Senate meetings to department faculty and students

HONORS/AWARDS:

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| • Brown Graduate Fellowship | 2021-2022 |
| • C.R. Weber Award for Excellence in Plant Breeding | Spring 2020 |
| • Oblinger Graduate Student Travel Award | Fall 2018 |
| • Monsanto Graduate Student Travel Award | 2018 |
| • 1 st place MS Oral Presentation Contest – WSSA Annual Meeting | 2017 |
| • Honor Society of Agriculture Gamma Sigma Delta | Spring 2016 |
| • Dean's List | Fall 2012 |
| • Daniel E. & Joan Pfister Scholarship | 2012-2013 |
| • Robert & Dorothy Spillman Scholarship | 2011-2012 |

PRESENTATIONS:

Oral

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| • (Invited) R.F. Baker Plant Breeding Symposium - Ames, IA | April 2, 2021 |
| • (Invited) Plant & Animal Genome XXVII - San Diego, CA | January 15, 2019 |
| • Global Herbicide Research Challenge 2017 - Denver, CO | May 18, 2017 |
| • Weed Science Society of America Annual Meeting - Tucson, AZ | February 7, 2017 |
| • NCWSS Annual Meeting - Des Moines, IA | December 13, 2016 |

Poster

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| • R.F. Baker Plant Breeding Symposium - Ames, IA | April 2, 2021 |
| • R.F. Baker Plant Breeding Symposium - Ames, IA | March 6, 2020 |
| • Soybean Breeders Workshop - St. Louis, MO | March 3, 2020 |
| • University of Minnesota Plant Sciences Symposium - St. Paul, MN | March 29, 2019 |
| • R.F. Baker Plant Breeding Symposium - Ames, IA | March 1, 2019 |
| • Plant & Animal Genome XXVII - San Diego, CA | January 14, 2019 |
| • Mol. & Cell. Biology of the Soybean Biennial Conference, Athens, GA | August 27, 2018 |
| • University of Minnesota Plant Sciences Symposium - St. Paul, MN | March 23, 2018 |
| • R.F. Baker Plant Breeding Symposium - Ames, IA | March 2, 2018 |
| • NCWSS Annual Meeting - Indianapolis, IN | December 9, 2015 |
| • ASA, CSSA, and SSSA Annual Meeting - Long Beach, CA | November 4, 2014 |

PUBLICATIONS:

Kohlhase, D.R., O'Rourke, J.A., Owen, M.D.K., Graham, M.A. Using RNA-seq to characterize 4-hydroxyphenylpyruvate dioxygenase (HPPD) inhibitor herbicide resistance in waterhemp (*Amaranthus tuberculatus*). *BMC Plant Biology*; 2019; 19:182.

Kohlhase, D.R., Edwards, J.W., Owen, M.D.K. Inheritance of 4-hydroxyphenylpyruvate dioxygenase inhibitor herbicide resistance in an *Amaranthus tuberculatus* population from Iowa, USA. *Plant Science*; 2018; 274:360-368.

PROFESSIONAL ASSOCIATIONS:

- American Society of Agronomy 2014-2021
- Crop Science Society of America 2014-2021
- North Central Weed Science Society (NCWSS) 2013-2016