Aoran Diao

Dept. of Plant Science and Plant Pathology, Montana State University
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EDUCATION

M.S. in Plant Science and Plant Genetics May 2024
Montana State University (MSU), MT, USA
Thesis: Genetics and Seed Components of Pulse Crops (Peas, Chickpeas and Lentils)

B.S. in Agriculture June 2012
Fujian Agriculture and Forestry University (FAFU), Fuzhou, China
Independent Study: Rice Insect Interaction

SUMMARY OF PERTINENT EXPERIENCES

Research Associate, Department of Plant Science (Spring Wheat Program), MSU
September 2024 – May 2025

Project: Fine mapping a QTL on Chromosome 4A for spike-related traits in a spring wheat.
Narrowing down a genetic region that associated with spikelet number per spike and identifying genes that regulate this trait. Conduct greenhouse experiments to assess spike characteristics. Genotype experimental lines to identify recombinants in the target region.

- Fine-map genes and analyze the genetic relationship between grain number and productive tillers to enhance wheat yield potential
- Perform DNA extraction, PCR gel electrophoresis, and KASP genotyping to identify recombinant lines on chromosome 4A
- Perform statistical analysis (t-test, ANOVA) to analyze spikelet trait variations and improve data visualization
- Expand expertise in RNA extraction and gene expression analysis for candidate gene validation.
- Participate in lab meetings and discussions, refining research approaches based on team feedback.

Graduate Research Assistant, Department of Plant Science, MSU
September 2022 – May 2024
Project: abiotic stress and rhizobium effects on seed protein accumulation pea
Quantified the nitrogen fixation responses of four different pea varieties to rhizobial inoculation compared to non-inoculated peas, and assessed the impact of water stress on pea yield and protein content. Wrote proposals, performed data analysis, and presented research results in scientific conferences.

- Analyzed data in R to conduct two-sample t-test and ANOVA modeling, and created graphic data visualizations
- Understood the effect of abiotic factors (water stress), and rhizobia inoculant effect on protein accumulation and yield in pea
- Conducted crossbreeding, precise measurement of plant traits and agronomic data (fly DJI

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drones), and accurately determined seed protein content
- Screened Montana pulse crops' phenotypic characteristics
- Possessed solid skills in genomic background and gained experience in laboratory techniques including DNA and RNA extraction

Instructor, Principles Biological Diversity - Lab, MSU

August 2024 – May 2025

Held responsibilities in teaching, research and lab activities. Taught undergraduate students, conducted research on plant, aquatic, owl, human demography, and guided students through all steps of the science process, from designing and then conducting experiments.

- Instructed 300+ college students in developing research questions and scientific proposals, conducting research, and effectively communicating the findings
- Taught fundamental research skills, including hypothesis development, literature review, and statistical analysis.
- Facilitated peer review, critical thinking, and collaboration through group discussions and research presentations
- Provided support in a higher education setting and proficiently graded performance
- Actively engaged in regular communication with both students and lab coordinator, fostering a conducive learning environment and addressing queries promptly

SKILLS

- Molecular genetics: DNA/RNA extraction, PCR, RNAseq, Primer design.
- Programming: R, Excel
- Fieldwork: crossbreeding, seed treatment, soil sampling, drones, fertilizer mixing, and similar greenhouse skills

AWARDS & HONORS

National Annual Cargill Scholarship, $1500	2024
Montana State University Professional Advancement Grant, $500	2024
Montana State University Leadership Development Certificate	2023

LEADERSHIPAND SERVICE

MANRRS (Minorities in Agriculture, Natural Resources, and Related Sciences)
Member, 2023-2024
Engaged in diversity and inclusion initiatives through MANRRS, supporting underrepresented individuals in agriculture. Responsibilities included organizing events, workshops, and networking opportunities to facilitate the professional development and advancement of underrepresented

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individuals in agriculture. Supported departmental initiatives by mentoring students and facilitating discussions on research and career advancement.

Departmental and Graduate Student Engagement at MSU
Member, 2022-2023
Served at the Plant Science and Plant Pathology Department at Montana State University and played an active role in organizing a variety of professional and social events. Contributed to the planning of seminars, workshops, and faculty interviews for tenure-track positions, ensuring a smooth and welcoming experience for candidates. Involved in organizing social events for graduate students, including cross-country skiing outings, movie nights, and farewell parties. Fostered a strong sense of community, allowing students to relax, build long-lasting friendships, and create a collaborative atmosphere within the department.

Intern, Institute of Environmental Microbiology, FAFU
Trainee, 2021-2022
Collaborated with 4 designated center researchers on a Rice-Insect Interaction project related to plant disease, investigating whether the eb2 gene confers resistance or susceptibility to rice brown planthopper. Assisted in laboratory operations, including configuring nutrient solutions, conducting Polymerase Chain Reaction, and performing phenotypic experiments. Contributed to finalizing research for publication by supporting data analysis and project documentation.

PUBLICATIONS & PRESENTATION

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1) Pending Publication: Identified genes regulating spikelet number per spike by combining phenotypic evaluation with fine mapping on chromosome 4A
2) Seminar: Abiotic Stress and Rhizobium Effects on Seed Protein Accumulation in Pea, May 2023
3) Presentation : Montana State University Post Farm Field Days, Audience: 75 Producers and Researchers June 2023, June 2024