Matthew M. Wendt

Graduate Assistant | Iowa State University
Ph.D. Student | Interdepartmental Genetics and Genomics
Yandeau-Nelson Lab | Department of Genetics, Development, & Cell Biology
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Research Summary.

Matthew M. Wendt is a Graduate Assistant and awarded Teaching Assistant in the Interdepartmental Genetics Genomics program from the Department of Genetics, Development, & Cell Biology at Iowa State University. Wendt's research on maize seeks to discover the regulatory mechanisms underlying maize cuticular wax accumulation, due to both genes and complex gene-by-environmental interactions. Wendt's research involves large-scale quantitative genetics and metabolomics analysis, multivariate mixed & Bayesian Modeling, estimation of genotype-by-weather effects, machine & deep learning, and molecular genetic cloning protocols. Wendt also teaches undergraduate genetics laboratory technique. Wendt prioritizes collaborative, highly interdisciplinary, open-source research, and total data transparency through data and code sharing.

Professional Experience.

2021 - Present *Graduate Researcher & Teaching Assistant, Iowa State University*.

- Principle Investigator: Marna M.D. Yandeau-Nelson.
- Research Goal: Mitigate abiotic stress in maize and across crops.
    1. Importance of weather for maize silk cuticular wax accumulation.
    2. Contribution of orphan sequences to maize silk cuticular wax accumulation.

2018 - 2020 *Undergraduate Researcher, Wisconsin Lutheran College.*

- Advisor: Allison R. Phillips.
- Research Goal: Investigate effects of *stunter2* and *stunter3* on maize kernel development and endosperm properties.

Education.

2021 - Present (*Ongoing*) Ph.D. Genetics and Genomics, Iowa State University.

- Statistics (*Minor*), GPA 3.7.

2017 - 2020 B.S. Biology, Wisconsin Lutheran College.

Teaching.

Spring 2023 & 2024 Principles of Genetics Lab 313L, Iowa State University.

Awards.

Spring 2024	Iowa State University Teaching Excellence Award.
Spring 2024	Poster, 1st Place ISU Interdisciplinary Biological Sciences Symposium.

Outreach.

2022 - Present	Presenter, Iowa State University Science Bound Saturdays.

Professional Membership.

2020, 2022-Present	Member, Maize Genetics Cooperation

Publications.

Chen, Keting, Rupam Kumar Bhunia, **Matthew M Wendt**, Grace Campidilli, Colton McNinch, Ahmed Hassan, Ling Li, Basil J Nikolau, and Marna D Yandeau-Nelson. "Cuticle Development and the Underlying Transcriptome–Metabolome Associations during Early Seedling Establishment." *Journal of Experimental Botany*, July 20, 2024, erae311. https://doi.org/10.1093/jxb/erae311.

(*Resubmission Ongoing*). Travis J Hattery* & **Matthew M Wendt***, Keting Chen, Karen Granados-Nava, Elly Schroeder, Bryn Myers, Riley Moore, Derek Loneman, Reid Claussen, Amanda M. Gilbert, Jacob Garfin, Dane Bjerklie, Nick Lauter, Candice N. Hirsch, Marna D. Yandeau-Nelson. "Key developmental windows and environmental parameters that influence cuticular wax composition on maize silks." *Authors contributed equally to this work.

Posters.

Wendt MM, Hattery TJ, Candice NH, Yandeau-Nelson MD. *Multi-environment multivariate genome wide association studies identify candidate loci underlying cuticular wax accumulation and composition on maize silks.*

- International Maize Genetics Meeting. Raleigh, NC. 2024
- Interdisciplinary Biological Sciences Symposium. Ames, IA. 2024

Wendt MM, et. al. *Key developmental windows and environmental parameters that influence cuticular wax composition on maize silks.*

- International Maize Genetics Meeting. St. Louis, MI. 2023
- American Society of Plant Biologists Midwest Conference. Ames, IA. 2023

(*Not Presented by Wendt MM*). Vischulis E, **Wendt M**, Swarztrauber W, Hilgendorf W, Brandt J, Bechtel J, Fleming H, Anderson J, Chettoor AM, Evans MMS, and Phillips AR. (2021) *Analysis of stunter2 and stunter3, Maize Maternal Effect Mutants with Reduced Kernel Size.*