Summer J. Bjorn

Curriculum Vitae

618 Carroll Ave Ames, IA • Summ@iastate.edu • (314-221-8871)

EDUCATION

Iowa State University **exp. 2026**
M.S., Soil Science
Advisor: Dr. Marshall McDaniel

University of Missouri-Columbia **2022**
B.S., Environmental Science

RESEARCH TEACHING AND EXPERIENCE

Iowa State University • Ames, IA **(2024-present)**
Graduate Research Assistant

• Investigated the impact of anaerobic digestate and manure on nitrogen cycling in a cereal rye growth chamber study.
• Quantified nitrogen loss pathways by concurrently measuring N_2O emissions and leachate and soil pore water chemistry.
• Designed and built custom pot systems to enable the simultaneous data collection for this multi-faceted experiment.

Ambassador Bilingual School • Chiang Mai, Thailand **(2022-2024)**
Grade 6 Science Teacher

• Developed and implemented a dynamic Grade 6 Science curriculum, integrating hands-on experiments and cross-disciplinary themes to foster real-world connections.
• Cultivated an inclusive classroom environment that promoted critical thinking, curiosity, and a lifelong passion for scientific discovery.
• Employed innovative, student-centered teaching methods to actively engage students and enhance overall comprehension.

USDA Agricultural Research Service • Columbia, MO **(2021-2023)**
Research Associate

• Led field and lab operations for study on soil greenhouse gas emissions, managing direct sampling, laboratory analysis, and data integrity.
• Developed and optimized a lab analysis protocol for gas chromatography using a Shimadzu AOC-5000 to ensure accurate and efficient data generation.
• Collected and processed agronomic data, including crop phenology and biomass, from long-term research plots to correlate with environmental findings.

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ADDITIONAL RESEARCH EXPERIENCE

MU Soil Health Assessment Center • Columbia, MO **(2020-2021)**
Technical Assistant

• Quantified soil biogeochemical properties, including total carbon, nitrogen, sulfur, and organic matter, using LECO CN/S analyzers.
• Prepared and analyzed hundreds of soil samples to support the organization's standardized testing protocols.

MU Environmental Education Research Lab Columbia, MO **(2020-2021)**
Research Assistant

• Led educational outreach on climate science, facilitating hands-on workshops for youth and forums for the broader community.
• Evaluated program effectiveness through the collection and analysis of participant survey data.

PUBLICATIONS

• Flater, J., Adjuik, T., **Bjorn, S. J**., McDaniel, M. D., Heaton, E., VanLoocke, A. In progress. Cereal Rye Cover Crop Reduces Nitrogen Losses in Biomass Sorghum. Nutrient Cycling in Agroecosystems

CONFERENCES AND PRESENTATIONS

• **Bjorn, S. J.**, McDaniel, M. D., Rahic, E. (2025) Comparing Nitrous oxide emissions and Nitrogen leaching losses from three fertilizer sources (synthetic, manure, & anaerobic digestate). Poster presentation at Canvas International Annual Meeting, Salt Lake City, UT.
• **Bjorn, S. J.**, Davis, M. P., Abendroth, L. J. (2021) Nitrous oxide emissions from a long-term research site with varying topsoil thickness. Poster presentation at ASA-CSSA-SSSA International Annual Meeting, Salt Lake City, UT.

AWARDS

• *Honorable Mention* for National Science Foundation Graduate Research Fellowship Program (2025)
• *Honorable Mention* for National Science Foundation Graduate Research Fellowship Program (2023)
• MU Spiese Scholarship (2019-2020), Wurdack Scholarship (2020-2021), and Carol Joy Brooks Memorial Scholarship (2021-2022)