

Gabrielle M. Myers

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Education

Ph.D. Agricultural and Biological Systems Engineering

May 2024

IOWA STATE UNIVERSITY

Ames, Iowa

- Dissertation: Analysis and Assessment of Novel Food, Bioenergy, and Cropping Systems: Cultured Meat, Anaerobic Digestion, and Perennial Groundcover
- Data-Driven Food, Energy and Water Decision Making Certificate
- GPA: 3.95

B.S. Biological Systems Engineering

2020

IOWA STATE UNIVERSITY

Ames, Iowa

- GPA: 3.69

Research Experience

Associate Research Hydrologist

July 2024 - February 2025

USDA AGRICULTURAL RESEARCH SERVICE

Madison, WI

- Developed a robust R workflow for processing and analyzing closed chamber carbon dioxide monitoring data from agricultural lands
- Planned research project to measure ecosystem carbon balance at cranberry farms in Wisconsin

Graduate Research Assistant

June 2020-June 2024

IOWA STATE UNIVERSITY

Ames, Iowa

- Wrote Iowa Nutrient Research Center Grant "Evaluating Manure Application and Cover Crop Planting Timing to Maximize Water Quality Benefits in Corn" funded for \$90,316 in 2024
- Led 3-yr, 36-acre farm trial in Nashua, IA studying subsurface drainage water quality and soil impacts of perennial, annual interseeded, and annual winter cover cropping in corn-soybean rotations
- Analyzed, organized, and summarized data from field trial, including: water quality (nitrate and total reactive phosphorus), soils (aggregate stability, moisture, cotton decomposition, erosion pads, and late spring nitrate test), cover crop biomass (harvest and nutrient composition), and corn and soybean yields
- Supervised and coordinated work of undergraduate research assistants to complete essential project tasks, such as sample collection, lab processing, and trips to field site
- Developed a technoeconomic model to analyze the viability of corn stover and swine manure anaerobic digestion systems
- Collaborated with PIs and graduate students in the trans-disciplinary and multi-institutional research project RegenPGC
- Presented research findings at academic conferences and farmer-focused field days as oral presentations, posters, and infographics
- Completed two-year, fully-funded National Science Foundation research traineeship with DataFEWSion by attending weekly learning community meetings with graduate students across the university studying food, energy, and water systems, completing the graduate certificate courses, attending monthly professional development workshops, and participating in the special events planning committee

Undergraduate Research Assistant

Jan 2018 - May 2020

IOWA STATE UNIVERSITY

Ames, Iowa

- Responsible for conducting literature reviews, assembling information, and performing technoeconomic analysis in organized spreadsheets for cell-cultured meat production

Publications

Peer Reviewed

Myers, G.M., Moore, K.J., Andersen, D.S., & Raman, D.R. 2025. Assessing the Impact of Perennial Groundcover and Interseeded Cover Crops on Maize Yield and Drainage Water Quality. *In preparation.*

Brittes Tuthill, J., **Myers, G.M.,** Soetan, S., MacKenzie, C.A., & Kaleita, A.L. 2025. Data-Driven Decision-Support Framework for Optimizing the Iowa Food-Energy-Water Nexus: A Multi-Criteria Decision-Making Approach. *In review.*

Myers, G.M., MacKenzie, C.A., Martens, B.J., Nichols, G.A., Bartel, C.A., Andersen, D.S., & Raman, D.R. 2025. A multi-criteria decision analysis framework for comparing cover cropping systems. *In review*.

Myers, G.M., Jaros, K.A., Andersen, D.S., & Raman, D.R. 2023. Nutrient recovery in cultured meat systems: Impacts on cost and sustainability metrics. *Frontiers in Nutrition*, 10. <https://doi.org/10.3389/fnut.2023.1151801>

Myers, G.M., Andersen, D.S., Martens, B.J., & Raman, D.R. 2023. Cost assessment of centralizing swine manure and corn stover co-digestion systems. *Energies*, 16(11), 4315. <https://doi.org/10.3390/en16114315>

Reports

Myers, G., Dougherty, B., Pedersen, C., Andersen, D., Peckinovsky, K., Raman, D., Moore, K., & Helmers, M. 2021 and 2022 Drainage Water Quality Impacts of Agricultural Management Practices. 2023. Farm Progress Report. <https://www.iastatedigitalpress.com/farmreports/article/id/16218/>

Dougherty, B., **Myers, G.,** Pedersen, C., Andersen, D., Helmers, M., Raman, D. R., & Moore, K. Effect of Annual and Perennial Cover Crops and Manure Application Timing on Yields in 2021. 2022. Farm Progress Report. <https://www.iastatedigitalpress.com/farmreports/article/id/15562/>

Conference Proceedings

Myers, G.M., Andersen, D.S., & Raman, D.R. 2022. Cost assessment of centralizing a swine manure and corn stover co-digestion system for biogas production. 2021 ASABE Annual International Virtual Meeting, July 12-16, 2021. Conference Paper. doi:10.13031/aim.202100888

Dissertation

Myers-Bailey, G.M. Analysis and assessment of novel food, bioenergy, and cropping systems: Cultured meat, anaerobic digestion, and perennial groundcover. Iowa State University. 2024. <https://www.regenpgc.org/wp-content/uploads/2024/07/Gabrielle-Myers-Thesis.pdf>

Teaching and Mentoring

Instructor of Record

Fall 2023

TSM 115: SOLVING TECHNOLOGY PROBLEMS; 38 STUDENTS; 3 CREDITS

Ames, Iowa

- Planned and developed coursework for 15-weeks of instruction in problem solving, technology tools, and effective communication
- Designed engaging hands-on learning activities that received positive feedback from students
- Demonstrated commitment to student success by providing timely and constructive feedback
- Cultivated positive relationships with students, creating an inclusive and supportive learning environment

Research Experience for Undergraduates Mentor

Summer 2022, 2023

REGEN PGC, IOWA STATE UNIVERSITY

Ames, Iowa

- Developed small summer project for STEM education-track undergraduate student to complete.
- Provided supervision and mentoring to student in lab work and data analysis
- Guided preparation of end-of-program presentation and poster

Graduate Teaching Assistant

Fall 2020

ABE 160 (APPROX. 40 STUDENTS) AND ABE 316 (APPROX. 30 STUDENTS)

Ames, Iowa

- Effectively addressed students' questions and identified areas of difficulty
- Efficiently graded student assignments and provided constructive feedback
- Led weekly help sessions to guide students through questions or concerns

Undergraduate Teaching Assistant

Fall 2018

ABE 160 (APPROX. 90 STUDENTS)

Ames, Iowa

- Provided prompt grading and feedback of student assignments and exams
- Communicated with instructor to address areas of student difficulty

Extension Activities

RegenPGC Field Day. Iowa State University Northeast Research and Demonstration Farm. Nashua, Iowa. September 27, 2023. In-field talk. Est. 20 attendees.

RegenPGC Field Day. Sorensen Research Farm. Boone, Iowa. September 5, 2023. In-field talk. Est. 30 attendees.

Perennial Groundcover Field Day. Sorensen Research Farm. Boone, Iowa. September 15, 2022. In-field talk. Est. 25 attendees.

Annual Fall Field Day. Iowa State University Northeast Research and Demonstration Farm. Nashua, Iowa. August 24, 2022. In-field talk. Est. 50 attendees.

Perennial Cover Crop Field Day. Iowa State University Northeast Research and Demonstration Farm. Nashua, Iowa. May 23, 2022. Oral Presentation. Est 20 attendees.

Perennial Cover Crop Field Day. Corteva York Research Center. York, Nebraska. May 26, 2022. Poster Presentation. Est. 50 attendees.

Presentations

Myers, G.M., Nichols, G.A., Bartel, C.A., MacKenzie, C.A., Raman, D.R., and Andersen D.S. 2024. "A multi-criteria decision-making model framework for comparisons of cover cropping systems." American Society of Agricultural and Biological Engineers Annual International Meeting." Anaheim, California. July 28-31, 2024. Oral Presentation. *Presentation Excellence Award*.

Myers, G.M., 2024. Assessing the Impact of Perennial Groundcover and Interseeded Annual Cover Crops on Corn Yield and Drainage Water Quality. Iowa Learning Farms 2024 Webinar Series. Ames, Iowa. June 5, 2024. Invited Talk. <https://vimeo.com/showcase/10108315/video/954076577>

Myers, G.M., 2024. "Water quality impacts of perennial groundcover in tile-drained corn production." Iowa Nutrient Research Center Focus on the Future Seminar Series. Ames, Iowa. March 6, 2024. Invited Talk. <https://www.cals.iastate.edu/inrc/video/inrc-seminar-spring-2024-focus-future-march-6>

Bradford, I., Andersen, D., **Myers, G.M.,** Rockson, P. 2023. "Comparison and Evaluation of SLAKEs and Cornell Aggregate Stability Test." American Society of Agricultural and Biological Engineers Annual International Meeting." Omaha, Nebraska. July 9-12, 2023. Poster.

Myers, G.M., Raman, D.R., Andersen D.S., Moore, K.J., Peckinovsky, K.T. 2023. "Yield, soil, and water quality implications of conventional, cover-cropped, and perennial groundcover corn production systems in tile-drained Iowa cropland." American Society of Agricultural and Biological Engineers Annual International Meeting." Omaha, Nebraska. July 9-12, 2023. Oral Presentation. *Presentation Excellence Award*.

Myers, G.M., Raman, D.R., Andersen D.S., Moore, K.J., Dougherty, B.W., Pedersen, C.H., Hintz, R.L., Peckinovsky, K.T. 2022. "Can perennial groundcover (PGC) decrease nutrient export through subsurface drainage without negatively impacting corn yields?" Iowa State College of Engineering Advisory Board Meeting. Ames, Iowa. May 10, 2023. Poster.

Myers, G.M., Andersen, D.S., Martens, B.J., Raman, D.R. 2023. "Cost Assessment of Centralizing a Swine Manure and Corn Stover Co-Digestion System." Iowa State Agricultural Engineering In-Service. Ames, Iowa. May 9, 2023. Oral Presentation.

Myers, G.M., Raman, D.R., Andersen D.S., Moore, K.J. 2023. "Yield and Drainage Water Quality Impacts of Agricultural Management Practices." Iowa Pork Congress. Des Moines, Iowa. January 25-26, 2023. Poster. *Producers' Choice Award*.

Myers, G.M., Raman, D.R., Andersen D.S., Moore, K.J., Dougherty, B.W., Pedersen, C.H., Hintz, R.L., Peckinovsky, K.T. 2022. "Can perennial groundcover (PGC) decrease nutrient export through subsurface drainage without negatively impacting corn yields?" 2023 DataFEWSion Symposium. Ames, Iowa. January 10, 2023. Poster.

Myers, G.M., Raman, D.R., Andersen D.S., 2022. "Can we improve soil and water quality in the Corn Belt with Perennial Groundcover?" Integrated Crop Management Conference. Ames, Iowa. November 30-December 1, 2022. Infographic.

Myers, G.M., Raman, D.R., Andersen D.S., Moore, K.J., Dougherty, B.W., Pedersen, C.H., Hintz, R.L., Peckinovsky, K.T. 2022. "First year outcomes of field trials to evaluate N export from perennial groundcover corn systems." Iowa Water Conference. Dubuque, Iowa. September 28-29, 2022. Poster.

Myers, G.M., Andersen, D.S., Raman, D.R. 2022. "Cost Assessment of Centralizing a Swine Manure and Corn Stover Co-Digestion System." American Society of Agricultural and Biological Engineers Annual International Meeting. Houston, Texas. July 17-20, 2022. Poster. *Student Poster Award*.

Myers, G.M., Raman, D.R., Andersen D.S., Moore, K.J., Dougherty, B.W., Pedersen, C.H., Hintz, R.L., Peckinovsky, K.T. 2022. "First year outcomes of a perennial groundcover corn system. American Society of Agricultural and Biological Engineers Annual International Meeting." Houston, Texas. July 17-20, 2022. Oral Presentation.

Myers, G.M., Raman, D.R., Andersen D.S. 2022. "Technoeconomic analysis finds centralized swine manure and corn stover co-digestion systems have an economic advantage over distributed Systems." 2022 DataFEWSion Symposium. January 11, 2022. Poster.

Myers, G.M., Raman, D.R., Andersen D.S. 2021. "Carbon Balance for Conventional and Cell-Cultured Meat Production." American Society of Agricultural and Biological Engineers Annual International Meeting. Virtual Meeting. July 12-16, 2021. Oral Presentation.

Myers, G.M., Andersen D.S., Raman, D.R. 2021. "A Cost Assessment of Centralizing a Co-Digestion System for Biogas Production." American Society of Agricultural and Biological Engineers Annual International Meeting. Virtual Meeting. July 12-16, 2021. Oral Presentation.

Myers, G.M., Andersen, D.S., Raman D.R. 2020. "Biogas Production Cost Model." C-Change Conference: Why are we missing the boat on biogas? Virtual meeting, Oct. 19, 2020. Oral Presentation.

Honors & Awards

Awards

- 2024 ASABE Annual International Meeting Presentation Excellence Award
- 2024 Reverend P.T. Taiganides Outstanding ABE PhD Student
- 2024 Harold and Katherine Guy Graduate Fellowship
- 2023 Iowa State University Graduate Research Excellence Award
- 2023 ASABE Annual International Meeting Presentation Excellence Award
- 2023 ASABE Iowa Section PhD Student of the Year
- 2023 David L. Calderwood Graduate Fellowship
- 2023 Iowa Pork Congress Student Poster Competition Producers' Choice Award
- 2023 Harold and Katherine Guy Graduate Fellowship
- 2022 ASABE Annual International Meeting Student Poster Competition Awardee
- 2021-23 NSF Funded Certificate, DataFEWSion Research Traineeship

Honor Societies

- Tau Beta Pi, Engineering Honor Society
- Gamma Sigma Delta, Agriculture Honor Society
- Alpha Epsilon, Agricultural and Biological Systems Engineering Honor Society

Work Experience

Starbucks Shift Supervisor

August 2018 - June 2020

HY-VEE

Ames, Iowa

- Trained employees, delegated tasks, and ensured smooth store operations
- Developed and maintained positive relationships with management, coworkers, and customers

Environmental Engineering Intern

May 2018 - August 2018

POET PLANT MANAGEMENT

Sioux Falls, South Dakota

- Gathered, analyzed, and presented data related to air emissions compliance
- Prepared system improvement projects related to environmental compliance and plant safety
- Assisted in the development of Toxic Release Inventory training and served as point of communication for plant questions
- Completed environmental compliance reviews, assisted in stack test oversight, and participated in communication meetings at seven biorefineries

Field and Lab Technician

May 2017 - December 2017

DOW AGROSCIENCES

Nevada, Iowa

- Prepared and organized for month-long planting process
- Communicated with team members to delegate project tasks
- Assisted in outdoor work, such as cross pollination, tissue sampling, and stand counts

Leadership and Service

Volunteer Head Coach

2022-2023

GIRLS ON THE RUN OF CENTRAL IOWA

Ames, Iowa

- Lead two seasons of 20 girls in grades 3-5 through 10-week curriculum encouraging the development of confidence, conflict resolution skills, and wellness
- Motivate participants to complete workouts to prepare for 5k
- Communicate with guardians to outline activities and coordinate participation in special events

ABE Peer Mentor

2019

IOWA STATE UNIVERSITY

Ames, Iowa

- Form relationships with first-year students in the ABE department to foster a sense of belonging

ABE Curriculum Committee Biosystems Engineering Student Rep

IOWA STATE UNIVERSITY

- Provide student prospective to faculty committee on curriculum decisions

2019

Ames, Iowa

Skills

Software

Proficient in R, Python, SAS, VBA, and Matlab programming; Experience with Arduino, ArcGIS Pro, AutoCAD, and Inventor; Advanced data management skills in Excel

Data Analysis

Accomplished with complex dataset management, cleaning, and organization; Comfortable with statistical analysis of field data; Experienced with machine learning techniques in Python

Communication

Skilled at public speaking, developing and leading skill sharing presentations, and developing visual aids for both specialized and general audiences; Success in collaborating in multidisciplinary teams