



NOVEMBER 6-8, 2023

ANAEROBIC DIGESTION ON THE FARM

Optimizing Environmental & Economic Outcomes for Rural Communities & Beyond

Conference Co-Hosts:



IOWA STATE UNIVERSITY
Bioeconomy Institute

IOWA

College of Engineering
Wastewater and Waste to Energy
Research Program

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THANK YOU TO OUR SPONSORS

Contributions made by our sponsors and supporters made this conference possible. The financial support by these organizations is helping to facilitate anaerobic digestion knowledge exchange and networking opportunities. Spend some time in the exhibit hall to visit with conference sponsors!

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- The Global Methane Hub
- Roeslein Alternative Energy
- U.S. Department of Agriculture National Institute of Food and Agriculture

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*Note that, while U.S. EPA Region 7 is a conference co-host and exhibitor, sponsorship requests were made solely on behalf of Iowa State University and University of Iowa. EPA Region 7 is not participating in and does not endorse any sponsorship activity related to the conference. All sponsorships will go solely toward defraying conference expenses accrued by Iowa State University. EPA Region 7 will provide its own funding for its portion of the conference and will not receive any sponsorship support.

ACKNOWLEDGEMENTS

Conference Planning Committee

Vivian M. Cook
Craig Just
Jesse Kidwell
Bethany Olson
Brooke Rogers
Amanda Sawyer
Abigail Schulte
Lisa Schulte Moore
Ben Washburn
Andrew Wynne

Moderators

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Daniel Ciolkosz
Craig Hrinkevich
Ashley Allen Jones
Doug Jones
Craig Just
Doug Laird
Dan Nickey
Laurie Nowatzke
Elmin Rahic
Tom Richard
Ernie Shea
Bryan Sievers
Venus Welch-White

Pre-Conference Facilitators

Daniel Andersen
Jake Dunton
Craig Just
Stephanie Hayes Richards

Additional Conference Support

Gustavo Queiroz
Kelly Schumacher
Dana Schweitzer
Iowa State Center
Iowa Water Center
ISU Conference Planning and Management
ISU Lectures Program: Amanda Knief, Laura Bade
ISU Registration Services
ISU Memorial Union
All Presenters and Attendees

Virtual Tours Development

Staci Buchholz
Lia Carrillo
Greg Faith
Dwight Hasselquist
Heather L. Manuel
Maggie Norton
Nick Ohde
Holly Schnur
Collin Strickland

A special thank you to Lia Carrillo, Maggie Norton, and Nick Ohde for their leadership, creativity, and coordination in developing the virtual tours. And thank you to all of the contributing partners for providing content to make these virtual tours possible and for sharing their work with the conference.

CONFERENCE WELCOME

Welcome, attendees!

This Anaerobic Digestion on the Farm conference emerged from a partnership between the U.S. EPA Region 7, Iowa State University, and the University of Iowa. Our aim is to boost curiosity about anaerobic digestion's potential in the region and spark further interest around the country. On-farm anaerobic digestion has the capacity to provide foundational infrastructure to reduce greenhouse gas emissions and contribute to a more circular bioeconomy, while also providing new income streams for farmers and supporting rural economies. We hope this conference creates the first of many opportunities for diverse stakeholders from across the region and beyond to gather and share knowledge toward deployment of anaerobic digestion technology!

With your help, a vibrant conference program has emerged: one that provides a way for everyone to build connections, speak, and learn. Our conference begins with a pre-conference workshop for people who are just beginning their on-farm anaerobic digestion journey. The program also includes a series of virtual field days to develop in-depth understanding of the different kinds of operations that use anaerobic digestion, the new opportunities anaerobic digestion affords, and, frankly, the challenges involved in running on-farm digesters. After all, everyone who works in agriculture knows there are a lot of neat ideas out there that could work "in theory," but the proof lies in whether something truly adds value on the farm.

The conference also features:

- An on-campus lecture and reception to broaden participation,
- Keynote presentations that highlight local to global perspectives,
- An interactive poster session,
- Contributed sessions exploring a variety of anaerobic digestion topics,
- A dynamic, student-led forum,
- Discussion panels with farmers, extension professionals, and regulators,
- Solution-driven sponsors and exhibitors, and
- Plenty of time and space for socializing and networking.

We look forward to the next three days together and hearing your perspectives about on-farm opportunities for anaerobic digestion. We're confident we are all going to learn something and discover new friends and new perspectives, too!

Sincerely from your conference hosts,

Lisa Schulte Moore



Craig Just



Jesse Kidwell



Bethany Olson



Ben Washburn



Andrew Wynne



GENERAL INFORMATION

Land Acknowledgement

This conference is taking place on the ancestral lands of the Báxoje or Ioway, the Sauk, and the Meskwaki nations. As we engage in discussions about agriculture, sustainability, and land stewardship in the coming days, it is critical that we acknowledge the leadership of Indigenous communities in agriculture, sustainability, and land stewardship and also the history of forced removal and the ongoing inequities that Indigenous communities face in Iowa and beyond. During this conference, we encourage all attendees to recognize this context, discuss this history, and engage in conversations about environmental justice as it relates to anaerobic digestion.

Code of Conduct

As a participant, you are agreeing to be respectful and constructive in your interactions with all fellow attendees.

Attendee Expectations:

- Communicate transparently with consideration and respect for others. Assume positive intent.
- Do not direct personal attacks towards attendees, presenters, volunteers, students or staff.
- Please be mindful; alert a moderator/planning team member if you notice someone in need of assistance.
- Respect moderator and conference guidelines.

Conference Admission

The conference registration fee covers one participant. Your name badge acts as your admission ticket to educational sessions, including plenary sessions, exhibits, posters and special events. Please be sure your name badge is worn at all times in the conference area.

Internet

Select the "ISU-Guest" network, agree to the policy when prompted, and complete the required steps to connect to the free internet connection.

Lost & Found

Check with the registration desk.

Name Badge Recycling

If you wish to recycle your name badge, please return it to the registration desk at the end of the conference.

Photo Release

As an attendee of the conference, you agree to the following: In consideration of my registration and attendance at, or participation in, the Anaerobic Digestion on the Farm Conference, I hereby agree and authorize Iowa State University of Science and Technology to, without any restriction, record, use, publish, edit and distribute my photograph, image or likeness, and/or recording of my voice or the event in whole or in part, and authorize others to do so.

SCHEDULE IN BRIEF

Monday, November 6

Memorial Union

12:00 - 4:30pm	Registration
Sun Room	Poster Drop-Off 12:00 - 3:00pm
1:00 - 4:00pm	Introduction to Anaerobic Digestion
Room 3560	Pre-Conference
5:00 - 5:45pm	Conference Kickoff
Sun Room	
5:45 - 6:45pm	Poster Session
Sun & South Ballroom	Opening Reception
7:00 - 8:00pm	Keynote
Sun Room	Marcelo Mena-Carrasco
8:00 - 9:00pm	Keynote Reception
Sun & South Ballroom	Poster Viewing

Tuesday, November 7 Continued

Scheman Building, Iowa State Center

12:30 - 1:50pm	Lunch Buffet
Second & First Floor Lobbies	+ Exhibit Hall
12:50 - 1:50pm	Lunch Breakout Panel
Second Floor Dining Room	Farmer Digester Extension & Support
2:00 - 3:45pm	Concurrent Sessions
Rooms 175 & 179	Project Financing
Rooms 167 & 171	Minimizing Emissions
Rooms 150 & 154	Historical & Human Dimensions
4:00 - 4:45pm	Keynote
Benton Auditorium	Jerry Flint
4:45 - 5:15pm	Virtual Tour
Benton Auditorium	Gevo
5:15pm	Dinner on Your Own
Ames	

Tuesday, November 7

Scheman Building, Iowa State Center

7:00 - 8:00am	Exhibitor Set-Up
First Floor Lobby & Stage Door	
8:00 - 9:00am	Breakfast
Lounge 182,	+ Exhibit Hall
First Floor Lobby & Stage Door	
8:00 - 9:00am	Breakfast Breakout
Lounge 166	Student Networking Session
9:00 - 9:45am	Keynote
Benton Auditorium	Rudi Roeslein
9:45 - 10:15am	Virtual Tour
Benton Auditorium	Amana Farms
10:15 - 10:45am	Networking Break
First Floor Lobby & Stage Door	+ Exhibit Hall
10:45am - 12:30pm	Concurrent Sessions
Rooms 175 & 179	AD & the Renewable Fuel Standard
Rooms 167 & 171	Decarbonizing Ag. with Winter Biomass Crops
Rooms 150 & 154	Technical Innovations to Improve AD

Wednesday, November 8

Scheman Building, Iowa State Center

8:00 - 9:00am	Breakfast
Lounge 182,	+ Exhibit Hall
First Floor Lobby & Stage Door	
9:00 - 9:30am	Virtual Tour
Benton Auditorium	Verbio
9:30 - 10:30am	Next Gen Anaerobic
Benton Auditorium	Digestion Leadership Panel
10:45am - 12:30pm	Concurrent Sessions
Rooms 175 & 179	Enabling Circular Agricultural Systems
Rooms 167 & 171	Resilient Infrastructure Solutions
Rooms 150 & 154	Social & Environmental Concerns
12:30 - 1:50pm	Lunch Buffet & Farmer Panel
Second Floor Dining Room	
2:00 - 3:30pm	Closing Panel
Benton Auditorium	Government Priorities, Policies, & Resources
3:30 - 4:00pm	Wrap-Up
Benton Auditorium	Reflections, Takeaways & Networking

Monday, November 6 | 12:00 - 9:00pm

Monday, November 6 | 12:00 - 9:00pm

← WEST




NORTH

SECOND FLOOR

EAST ➔

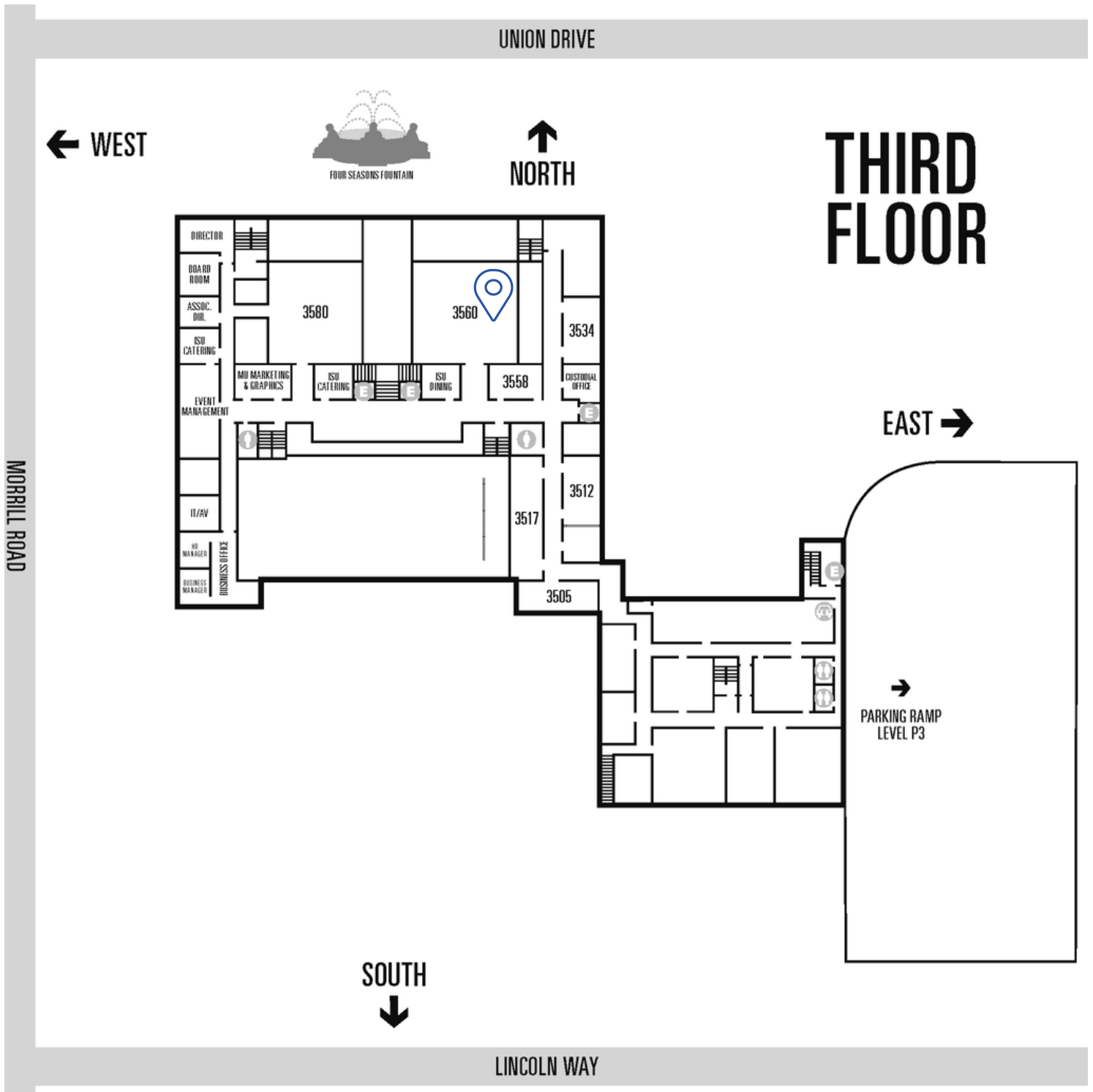
➔
**PARKING RAMP
LEVEL P2**

SOUTH

LINCOLN WAY

MEMORIAL UNION MAP

Monday, November 6 | 12:00 - 9:00pm



MONDAY SCHEDULE AT A GLANCE

Monday, November 6 | 12:00 - 9:00pm

Memorial Union | 2229 Lincoln Way, Ames, IA, 50011

12:00 - 4:30pm Sun Room	Registration (Poster Drop-Off 12:00 - 3:00pm)
1:00 - 4:00pm Room 3560	Introduction to Anaerobic Digestion (Pre-Conference)
5:00 - 5:45pm Sun Room	Conference Kickoff
5:45 - 6:45pm Sun Room & South Ballroom	Poster Session & Opening Reception (Heavy hors d'oeuvres will be served, and a cash bar will be available)
7:00 - 8:00pm Sun Room	Keynote: Marcelo Mena-Carrasco
8:00 - 9:00pm Sun Room & South Ballroom	Keynote Reception & Poster Viewing (Refreshments will be served)

PRE-CONFERENCE AGENDA

Introduction to Anaerobic Digestion Workshop

Monday, November 6 | 1:00-4:00pm | ISU Memorial Union Room 3560

Please join us for an interactive and engaging workshop focused on the basics of on farm anaerobic digestion to kickoff the upcoming Anaerobic Digestion on the Farm conference. The workshop agenda features a series of short presentations, hands-on demonstrations, videos, and facilitated question and answer sessions. Participants should leave the workshop with a better understanding of AD, feeling more equipped to pursue their own AD project.

Preliminary Agenda

- Welcome from Iowa State University:
 - Daniel J. Robison, Dean and Endowed Dean Chair, College of Agriculture and Life Sciences; Director for Iowa Agriculture and Home Economics Experiment Station
- Welcome & Introductions
- Introduction to AD and Biogas
- AD System Design & Technology
- Opportunities for AD in the U.S.
- Benefits of AD
- Introduction to the AgStar Program
- Potential Financing Mechanisms for AD
- Closing Remarks

To participate in the pre-conference session, you will need to have registered for the pre-conference as part of your registration for the three-day Anaerobic Digestion on the Farm Conference.

CONFERENCE KICKOFF SPEAKER LINEUP

Monday, November 6 | 5:00 - 5:45pm

Memorial Union Sun Room



Lisa Schulte Moore

Professor, Iowa State University and Co-Director, ISU Bioeconomy Institute

Dr. Lisa Schulte Moore is a professor in the Department of Natural Resource Ecology and Management and Co-Director of the Bioeconomy Institute at Iowa State University. She conducts research and teaches in the areas of agriculture, ecology, forestry and human-landscape interactions. Her research addresses the strategic integration of perennials into agricultural landscapes to support new agricultural markets and to meet societal goals for healthy soils, clean water, abundant wildlife and inspiring recreational opportunities. She works to return more of the value from agricultural supply chains to rural communities and the land. She develops relationships and institutional capacity so diverse groups of people can more effectively work together. She is a Fellow of the Leopold Leadership Program, Ecological Society of America and the MacArthur Foundation (2021 Fellow).



Mike Naig

Secretary, Iowa Department of Agriculture and Land Stewardship

Mike Naig grew up on a family farm in the northwest corner of the state near Cylinder, Iowa and he continues to be involved in the operation today. Mike is a graduate of Buena Vista University in Storm Lake with degrees in biology and political science. He and his wife Jaime have three boys. Mike was elected as the 15th Iowa Secretary of Agriculture in November 2018 and was re-elected in 2022. As Secretary, he is committed to lead efforts to expand economic opportunities for Iowans and is an advocate on behalf of the hard-working men and women who keep us fed and fueled.



Kayla Lyon

Director, Iowa Department of Natural Resources

Kayla Lyon is the eighth director of the DNR and is thrilled to serve in this role, combining her agriculture background with her passion and love for natural resources. Kayla spent her early career in policy and government affairs working on agriculture, renewable fuels, water quality, and environmental issues while representing farmers and agribusiness. She served as a policy advisor for Governors Branstad and Reynolds before being appointed as the first female Director of the DNR in July 2019. Kayla often joins her staff in the field and utilizes her agricultural upbringing to find ways for agriculture and natural resources to thrive. In her free time, she enjoys outdoor activities with her family.

CONFERENCE KICKOFF SPEAKER LINE UP

Monday, November 6 | 5:00 - 5:45pm

Memorial Union Sun Room



Meg McCollister

Regional Administrator, U.S. Environmental Protection Agency Region 7

Meg McCollister has a strong advisory and advocacy background with nearly two decades of experience serving nonprofits, candidates for public office, and public policy campaigns. Born in Kansas and raised in both Kansas and Missouri, she received her bachelor's degree from the University of Kansas before attending the University of Missouri-Kansas City School of Law, where she earned her Juris Doctorate with an emphasis in urban, land use and environmental law. After law school, McCollister and her husband moved to Sonoma County, California, where she served on the Board of Directors for Sonoma County Conservation Action and worked on environmental campaigns and in local government. Upon her return to the Midwest, she has continued to serve as an advisor and strategic thinker in areas including environmental, health, and social improvement initiatives as well as communication strategies.



Rod Snyder

Senior Agriculture Advisor, U.S. Environmental Protection Agency

Rod Snyder was appointed senior advisor for agriculture to the EPA Administrator in October 2021. He is recognized for his nearly two decades of leadership at the intersection of agricultural and environmental policy. From 2014 - 2021, Snyder served as president of Field to Market: The Alliance for Sustainable Agriculture, which is the largest multi-stakeholder initiative working to advance the sustainability of commodity crop farming in the United States. In this role, he forged science-based consensus among diverse stakeholders across the food and agriculture value chain on complex issues such as climate change, water quality, biodiversity, and pest management. In 2015, Snyder co-founded the Sustainable Agriculture Summit, which has grown to be the largest and most prominent annual sustainable agriculture conference in North America. Prior to his time at Field to Market, Snyder held positions as public policy director for the National Corn Growers Association and government affairs leader for CropLife America. He has been a longtime champion of agricultural solutions to climate change and has, on two occasions, organized farmer delegations to participate in U.N. Climate Summits in Paris and Copenhagen.



Theresa Greenfield

Rural Development State Director for Iowa, U.S. Department of Agriculture

Theresa Greenfield is a committed public servant with a career focused on community development, housing, and real estate. She grew up on a small family farm outside the small town of Brice lyn, Minnesota and graduated with a degree in design and human environment from Minnesota State University Mankato. She has been a lifelong advocate for rural communities.

OPENING RECEPTION AND POSTER SESSION

Monday, November 6 | 5:45 - 6:45pm

Join the poster session to engage poster presenters about their projects and research.

Posters will be available to view throughout the entirety of the conference.

(During the session, heavy hors d'oeuvres will be served, and a cash bar will be available.)

[Development of Biogas Scrubber \(Water Scrubber\)](#)

Mary Tutuola Akingbasote, Graduate Student, Agricultural and Biological Engineering, Penn State University

[Breaking the Lignin Barrier with Termite TAV5 Treatment Technology \(T4\): Biopower and Biofuel from Agricultural Waste](#)

Hussain Ali, Postdoctoral Research Associate, Civil Engineering, University of Texas at Arlington

[Opportunities to Modify the Ecology and Functionality of Anaerobic Digestion Processes](#)

Robin Anderson, Research Microbiologist, USDA/ARS

[First Lego League: Double Anaerobic Digester Solution](#)

Attack of the Energizer Bunny Snacks, 2022 First Lego League Team #27662, Ames Middle School

Team Members: Daniel Carlson, Finley Hargrafen, Mae Loecke, Uliana Markutsya, William McDeid, Archer Niemi, Arnabh Swamy, Joshua Thompson, Harry Wang, Olivia Zhang

Coaches: Jarad Niemi and Dagny Paskach

[Processing Swine Manure Digestate to Organic Fertilizer 8-0-0 — Virtual Tour](#)

Eugenio Giraldo, Founder and Chief Technology Officer, NuOrganics LLC

[Valorization of Digestate for Organic Agriculture](#)

Eugenio Giraldo, Founder and Chief Technology Officer, NuOrganics LLC

[Digestate Filtration to Reduce Volume, Recover Clean Water, and Make Organic Fertilizer](#)

Don Heilman, Director of Sales and Marketing, Digested Organics LLC

[Financial Stacking Opportunities for Anaerobic Digestion](#)

Michael Helbing, Staff Attorney, Center for Energy Law and Policy, Penn State University

[Double Use of Double Crops: Management, Forage Quality, and Revenue Opportunities for Feed and Bioenergy](#)

Stephanie Herbstritt, Bioenergy Manager, Clean Air Task Force (CATF)

[Leveraging NIR-S for Enhanced Production and System Health in Middlebury, IN AD Site](#)

Carl Hinchman, Chief Analytical Officer, Valkyrie Analytics Inc.

[Advancing Stability Assessments for Anaerobic Co-digestion](#)

Zoe Kramin, Ph.D. Candidate, Environmental Engineering, University of Iowa

OPENING RECEPTION AND POSTER SESSION

Monday, November 6 | 5:45 - 6:45pm

Join the poster session to engage poster presenters about their projects and research.

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(During the session, heavy hors d'oeuvres will be served, and a cash bar will be available.)

[Impact of Soil Amendments with Anaerobic Digestate on Soybean Sudden Death Syndrome](#)

Leonor Leandro, Professor, Department of Plant Pathology, Entomology and Microbiology, Iowa State University

Brady Clausen, Undergraduate Student Assistant, Department of Plant Pathology, Entomology and Microbiology, ISU

[Harvesting and Digesting Winter Rye Cover Crop Double-cropped with Soybean](#)

Rob Malone, Agricultural Engineer, National Laboratory for Agriculture and the Environment, USDA ARS

[The Agricultural Utilization Research Institute \(AURI\) Anaerobic Digestion Services and Capabilities](#)

Brad Matuska, Business Development Director of Biomass Feedstocks, Agricultural Utilization Research Institute (AURI)

[Biodigester Supply Chains: How Are We Going to Do That?](#)

Frank Montabon, Professor, Supply Chain Management, Iowa State University

[Emission Factor Variation for Manure Management Technologies used for Cattle, Poultry, and Swine Husbandry](#)

Melissa Moore, Postdoctoral Researcher, Joint Bioenergy Institute, Lifecycle, Economics, and Agronomy Division

[Techno-economic and Life-cycle Analysis of Renewable Natural Gas Derived from Anaerobic Digestion of Grassy Biomass: A U.S. Corn Belt Watershed Case Study](#)

Olumide Olafasakin, Ph.D. Candidate, Mechanical Engineering, Iowa State University

[The Role of Anaerobic Digestion in Fueling Regenerative Agriculture](#)

Elmin Rahic, Ph.D. Candidate, Agricultural and Biosystems Engineering, Iowa State University

[New Targets, Sustainable Markets: Reimagining Anaerobic Digestion for the Future](#)

Tom Richard, Professor Emeritus, Agricultural and Biological Engineering, Penn State University

[Assessing Feedstock Flexibility in On-Farm Digesters via Batch and Continuous Biomethane Measurements and Microbial Community Analysis](#)

Emily Schmitz, Ph.D. Candidate, Civil and Environmental Engineering, University of Iowa

[Machine Learning to Predict Biogas Flows from Anaerobic Digestion: Using Existing Data to Gain New Insights](#)

Hunter Schroer, Professional Engineer and Research Scientist, University of Iowa

OPENING RECEPTION AND POSTER SESSION

Monday, November 6 | 5:45 - 6:45pm

Join the poster session to engage poster presenters about their projects and research.

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(During the session, heavy hors d'oeuvres will be served, and a cash bar will be available.)

Optimizing Solid State Anaerobic Digestion of Prairie Grass and Beef Manure

Abigail Schulte, Graduate Student, Agricultural and Biosystems Engineering, Iowa State University

Green Hydrogen Production Optimization and its Utilization in Anaerobic Digestion Process

Sujesh Shrestha, PhD Scholar, Faculty of Technology, Natural Sciences and Maritime Sciences, University of South-Eastern Norway
and Department of Environmental Science and Engineering, Kathmandu University

Revitalizing Watersheds: Anaerobic Digestion Approaches

Anika Shrotriya and Shreya Srinath, Students and Members of CySTEM4Fun (4-H club), Ames High School

Anaerobic Digestion as a Keystone for Sustainable and Circular Farm Operations

Bryan and Lisa Sievers, Owners, Sievers Family Farms

The Impacts of Anaerobically Digested Liquid Separated Dairy Manure Application Methods on Ammonia Emissions and Corn Silage Production

Sailesh Sigdel, Ph.D. Candidate, Agricultural and Environmental Plant Science, Penn State University

A Techno-economic Analysis of Impermeable Cover to Renewable Compressed Natural Gas Projects

Luke Soko, Ph.D. Candidate, Agricultural and Biosystems Engineering, Iowa State University

Biogas Plants for the Ethanol and Distillation Industries

Loren Steenhoek, President, LYS Enterprises

Adding By-products from Anaerobic Digestion to Farm Fields Increases Soil Organic Carbon

Sebastian Villarino, Post-Doc Agronomist, Iowa State University

Techno-Economic Analysis and Life Cycle Assessment for Biogas Upgrading to Renewable Natural Gas with Hydroxycinnamic Acids

Katherine Wild, Graduate Student, Mechanical Engineering, Iowa State University

Special Thanks to Our Opening Reception/Poster Session Sponsors:

IOWA STATE UNIVERSITY
Bioeconomy Institute

IOWA

College of Engineering
Wastewater and Waste to Energy
Research Program

WALTON FAMILY
FOUNDATION

MONDAY KEYNOTE

Monday, November 6 | 7:00 - 8:00pm

Memorial Union Sun Room



Marcelo Mena-Carrasco

CEO of Global Methane Hub

Methane Reduction: The Fastest Way to Reduce Warming

Marcelo Mena-Carrasco is CEO of the Global Methane Hub, an international alliance for developing and implementing global methane reduction solutions. In 2021, he launched the Global Methane Pledge, with over 110 countries, including the U.S., signing on to reduce methane emissions by more than 30% by 2030. Previously, Mena-Carrasco served as climate change advisor and practice manager for the World Bank, as minister and vice minister for the environment in Chile, and as co-chair for the Climate and Clean Air Coalition.

He is a recipient of awards from the United Nations Environment Programme, Oceans Unite, National Geographic Society, and others for his work on promoting renewable energy, air pollution control, carbon taxation, and the creation of over one million square kilometers of marine protected areas, and 45,000 kilometers of national parks in Patagonia. A biochemical engineer by training, Mena-Carrasco received his Ph.D. in environmental engineering from the University of Iowa.

Keynote Agenda

Keynote Welcome:

Vivian M. Cook, Regenerative Agriculture Specialist, Iowa State University Bioeconomy Institute

Keynote Introduction:

Craig Just, Associate Professor, Department of Civil and Environmental Engineering, University of Iowa

Keynote and Q&A with Marcelo Mena-Carrasco

Keynote Reception with Refreshments and Poster Viewing

Special Thanks to the ISU Lectures Program

Special Thanks to our Keynote Reception Sponsor:



SCHEMAN BUILDING MAP

Tuesday, November 7 | 8:00am - 5:15pm

Wednesday, November 8 | 8:00am - 4:00pm

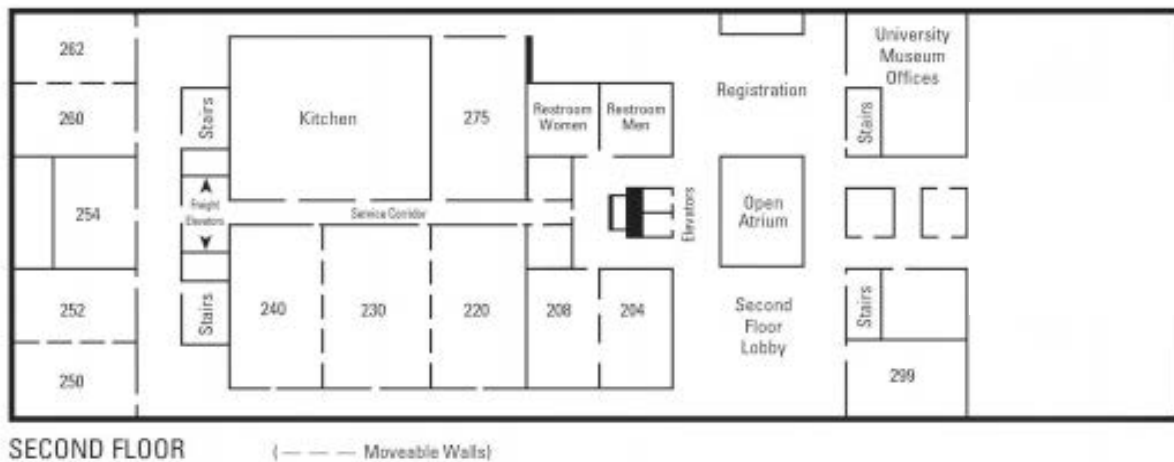
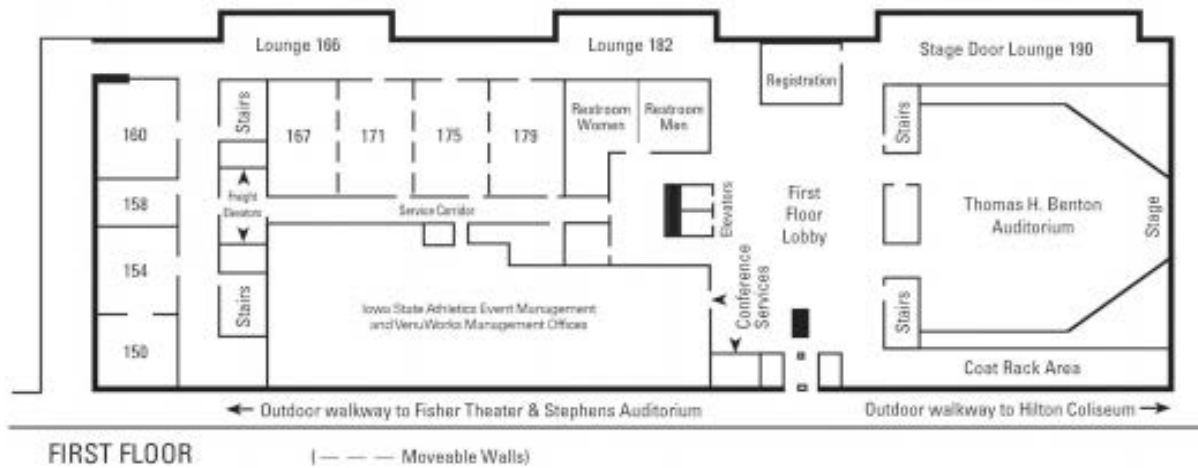
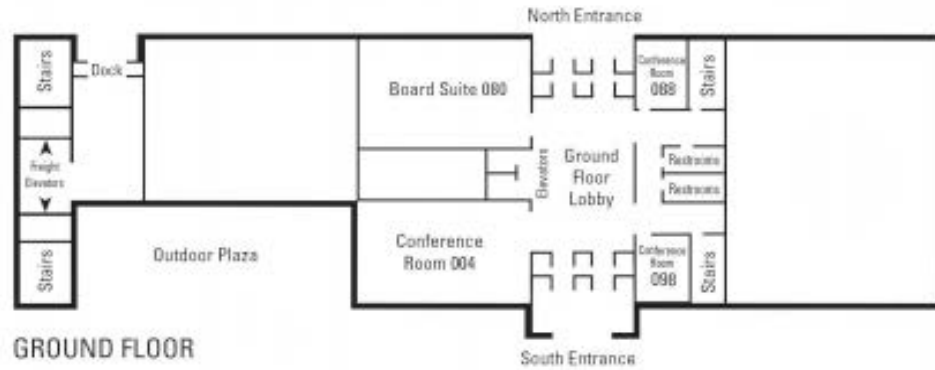
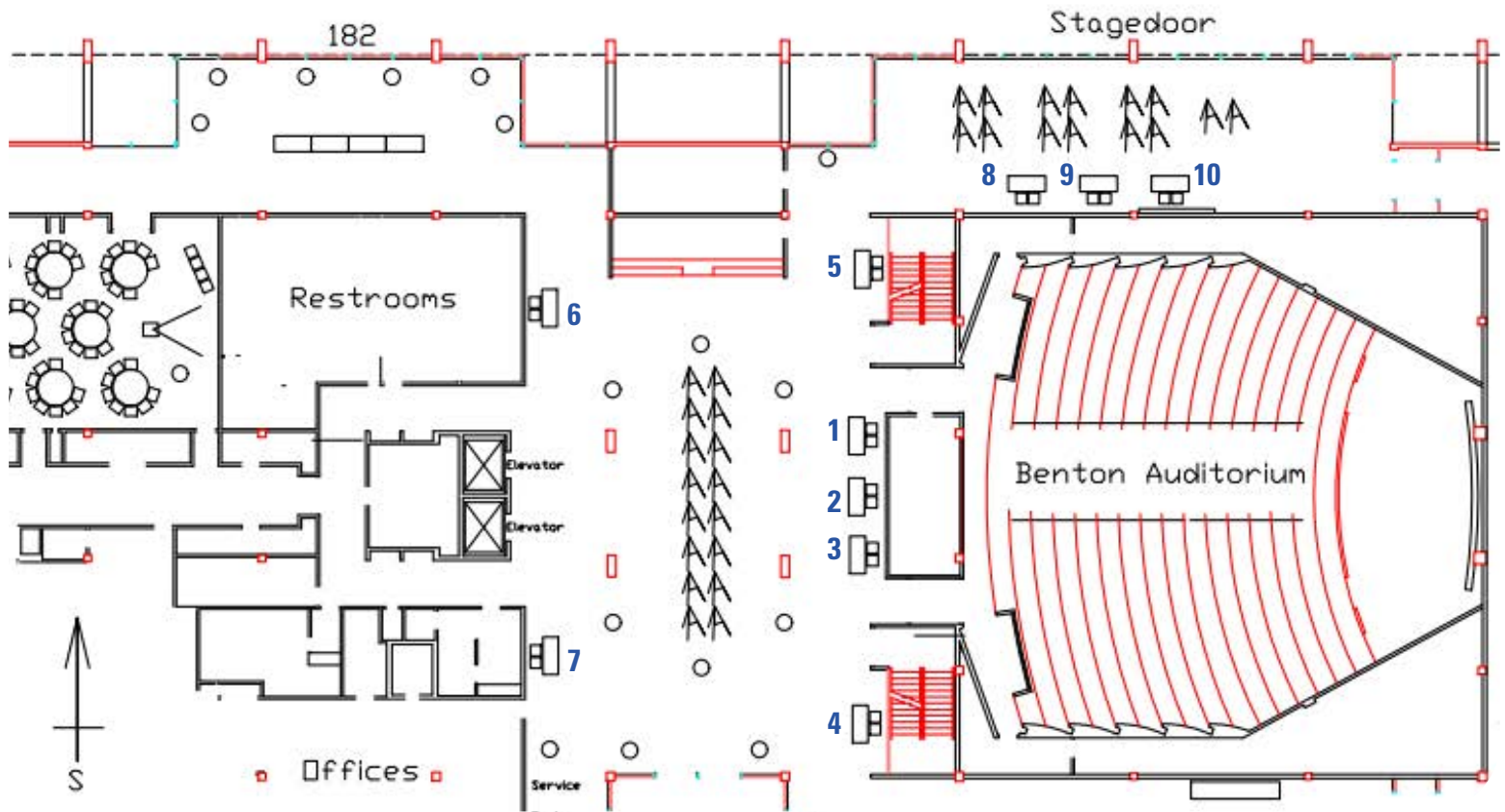


EXHIBIT HALL LAYOUT: SCHEMAN FLOOR 1



Booth

Exhibitor

1	Iowa State University Bioeconomy Institute
2	Iowa Wastewater & Waste to Energy Research Program
3	U.S. Environmental Protection Agency Region 7
4	AgSTAR
5	Roeslein Alternative Energy
6	Chevron Corporation
7	Valkyrie Analytics, Inc.
8	Fluence Corp.
9	Iowa Agriculture Water Alliance
10	Krieg & Fischer Ingenieure GmbH and LYS Enterprises

TUESDAY MORNING SCHEDULE AT A GLANCE

Tuesday, November 7 | 8:00am - 12:30pm

Scheman Building, Iowa State Center | 1805 Center Drive, Ames, IA, 50011

7:00 - 8:00am First Floor Lobby and Stage Door	Exhibitor Set-Up
8:00 - 9:00am Lounge 182, First Floor Lobby and Stage Door	Breakfast & Exhibit Hall
8:00 - 9:00am Lounge 166	Breakfast Breakout: Student Networking Session Join fellow scholars for breakfast and to chat about current work and what you hope to take away from the conference in the next two days.
9:00 - 9:45am Benton Auditorium	Morning Keynote: Rudi Roeslein
9:45 - 10:15am Benton Auditorium	Anaerobic Digestion Virtual Tour: Amana Farms
10:15 - 10:45am First Floor Lobby and Stage Door	Networking/Coffee Break & Exhibit Hall Thank you to our networking/coffee break sponsor:  The logo for Valkyrie Analytics features a stylized blue graphic of a fan or a set of radiating lines above the word "VALKYRIE" in a bold, blue, sans-serif font, with "ANALYTICS" in a smaller, blue, sans-serif font below it, flanked by two horizontal blue lines.
10:45am - 12:30pm Rooms 175 & 179 Rooms 167 & 171 Rooms 150 & 154	Concurrent Sessions Anaerobic Digestion and the Renewable Fuel Standard Decarbonizing Agriculture with Winter Biomass Crops Technical Innovations to Improve Anaerobic Digestion

TUESDAY AFTERNOON SCHEDULE AT A GLANCE

Tuesday, November 7 | 12:30pm - 5:15pm

Scheman Building, Iowa State Center | 1805 Center Drive, Ames, IA, 50011

12:30 - 1:50pm Second Floor Lobby & First Floor Lobby	Lunch Buffet & Exhibit Hall
12:50 - 1:50pm Second Floor Dining Room (Rooms 220 - 240)	Lunch Breakout Panel: Farm Digester Extension Needs & Opportunities
2:00 - 3:45pm Rooms 175 & 179 Rooms 167 & 171 Rooms 150 & 154	Concurrent Sessions Project Financing Minimizing Emissions Historical and Human Dimensions
4:00 - 4:45pm Benton Auditorium	Afternoon Keynote: Jerry Flint
4:45 - 5:15pm Benton Auditorium	Anaerobic Digestion Virtual Tour: Gevo
5:15pm Ames	Dinner On Your Own

TUESDAY MORNING KEYNOTE

Tuesday, November 7 | 9:00 - 9:45am

Scheman Building, Iowa State Center | Benton Auditorium



Rudi Roeslein

CEO of Roeslein Alternative Energy

Horizon II — A Climate Smart Future in Agriculture

Rudi Roeslein is founder and CEO of Roeslein & Associates (1990) and sister company Roeslein Alternative Energy (2012). Roeslein and RAE develop and operate renewable energy production facilities that convert agricultural and industrial wastes, along with renewable biomass feedstocks, into renewable natural gas and sustainable co-products. Operations focus on ecological and economical sustainability, protection and restoration of the environment and ecosystems, and collaboration for risk reduction and mutual benefit. Beyond the millions of tons of CO₂-equivalent methane captured, diesel-gallon equivalents created, and native prairie acres restored, Roeslein and RAE have demonstrated innovation in achieving the first CARB (California Air Resource Board) swine pathway registration and the lowest Carbon Intensity score for CARB swine pathway ever achieved.

Roeslein has been recognized for turning environmentally problematic situations into wins for investors, community members, and the environment with awards such as the National Lewis and Clark Conservation Award, Conservation Federation of Missouri Air Conservationist of the Year, BBI International Groundbreaker of the Year, and American Biogas Council (ABC) "Friend of the ABC."

Keynote Agenda

Conference Day 2 Welcome and Keynote Introduction:

Lisa Schulte Moore

Professor, Department of Natural Resource Ecology and Management, Iowa State University
Co-Director, Bioeconomy Institute, Iowa State University

Keynote and Q&A with Rudi Roeslein

ANAEROBIC DIGESTION VIRTUAL TOUR: AMANA FARMS

Followed by Q&A with Collin Strickland

Moderated by Maggie Norton, Project Manager, ISU Bioeconomy Institute



Amana Farms is one of the largest contiguous farms in Iowa and includes 8,500 acres of row crops, a 2,400 head cow calf herd, a 4,000 head cattle feedlot, a 1.69 million gallon anaerobic digester, and Iowa's largest privately held forest. A video tour of the digester will explain the process of converting liquid and dry manure mixed with off-site organic waste products, into heat and biogas. The biogas is converted to electricity that is used on-site and sold to Amana Society Service Company for use across seven villages within the Amana Colonies. The remaining digestate-byproduct is applied as fertilizer to the farm's row crop acres. Amana Farms' systems-based approach to farming, referred to as Amana's Circle of Life, allows the operation to produce renewable energy and simultaneously keep materials out of landfills, decrease input costs, and reduce greenhouse gas emissions.



Collin Strickland

Anaerobic Digester Manager

Anaerobic Digester Manager, Collin Strickland, manages the day-to-day operation of Amana Farms' 1.69 million gallon anaerobic digester in Amana, Iowa. For over 15 years, the digester has been converting cattle manure and off-site waste products into electricity that powers the Amana Colonies. Collin has been manager since May 2022.



CONCURRENT SESSION 1 LINEUP

Tuesday, November 7 | 10:45am - 12:30pm

Session 1: Anaerobic Digestion and the Renewable Fuel Standard (Rooms 175 & 179)

Moderator: Doug Jones, Senior Advisor for Agriculture, U.S. EPA Region 7

Gain foundational understanding of the legal and policy framework of the Renewable Fuel Standard, as well as perspectives on leveraging the standard and working beyond its limitations.

[Introduction to the Law and Policy of Anaerobic Digestion](#)

Michael Helbing, Staff Attorney, Center for Energy Law and Policy, Penn State University

[Looking Beyond the RFS](#)

Faizal Hassan, Vice President, Environmental Products, Anew

[Overhauling Carbon Accounting](#)

Brad Pleima, President, EcoEngineers

[eRINs — The Time is Now](#)

Maureen Walsh, Director of Federal Policy, American Biogas Council

Session 2: Decarbonizing Agriculture with Winter Biomass Crops (Rooms 167 & 171)

Moderator: Tom Richard, Professor Emeritus, Agricultural and Biological Engineering, Penn State University

Explore the potential of winter biomass energy cover crops and scaled anaerobic digesters to increase cellulosic bioenergy production, reduce negative environmental impacts, and decarbonize the agricultural sector.

[Sustainable Intensification: Impacts of Winter Rye Energy Crops on Biomass Quantity, Nitrogen Loads, and Water Quality in the North-Central U.S.](#)

Rob Malone, Agricultural Engineer, National Laboratory for Agriculture and the Environment, USDA ARS

[How Does Cover Crop Harvest Impact Soils?](#)

Sabrina Ruis, Research Soil Scientist, National Laboratory for Agriculture and the Environment, USDA ARS

[Rye as an Energy Cover Crop: Doubling Up for Energy, Carbon and Economic Sustainability](#)

Stephanie Herbstritt, Bioenergy Manager, Clean Air Task Force

[Farm and Industry Perspectives on Harvesting Cover Crops for Bioenergy](#)

Bryan Sievers, Owner, Sievers Family Farms and Director of Government Relations, Roeslein Alternative Energy

Session 3: Technical Innovations to Improve Anaerobic Digestion (Rooms 150 & 154)

Moderator: Craig Just, Associate Professor, Department of Civil and Environmental Engineering, University of Iowa

Although anaerobic digestion and biogas use are well-established, technical innovations are improving their design, supporting real-time decision making, and facilitating the optimization of operations.

[Feature Engineering and Supervised Machine Learning to Forecast Biogas Production During Municipal Anaerobic Co-Digestion](#)

Craig Just, Associate Professor, Dept. of Civil and Environmental Engineering, University of Iowa

[Redefining Maximum Performance: The Unparalleled Power of Innovative Optimization and Real-Time Analytics](#)

Will Charlton, President, Digester Doc

[Integrating Vespene's Data Center Microgrid with Agricultural Anaerobic Digesters for Profitable Methane Emission Mitigation](#)

Brett Arnold, Business Development Manager, Vespene Energy

[Breaking the Lignin Barrier with Termite TAV5 Treatment Technology \(T4\): Biopower and Biofuel from Agricultural Waste](#)

Hussain Ali, Postdoctoral Research Associate, Civil Engineering, University of Texas at Arlington

[Scheduling Optimal Anaerobic Digestion Feeding Regimes for Co-Digestion Using an Interactive Decision Support Tool](#)

Eugenio Giraldo, Founder and Chief Technology Officer, NuOrganics LLC

LUNCH BREAKOUT PANEL

Tuesday, November 7
12:50 - 1:50pm

Farmer Digester Extension Needs & Opportunities

Moderator: Daniel Ciolkosz, Associate Research Professor, Dept. of Agricultural and Biological Engineering, Penn State University

Extension experts and key stakeholders highlight challenges facing on-farm anaerobic digestion and explore innovative approaches to facilitating the successful growth of digestion as a component of the agricultural economy.

Panelists

Daniel Andersen, Associate Professor, Iowa State University

Karl Crave, EVP for Special Projects, Dynamic Renewables

Amro Hassanein, Associate Research Scientist, University of Maryland

Matt Helmers, Professor, Iowa State University

Jamie Horbach, Director of Public Affairs, Iowa Select Farms

Brett Reinford, Farmer, Reinford Farm

CONCURRENT SESSION 2 LINEUP

Tuesday, November 7 | 2:00 - 3:45pm

Session 4: Project Financing (Rooms 175 & 179)

Moderators: Craig Hrinkevich, Managing Director, Fixed Income Capital Markets, D.A. Davidson Companies
Ashley Allen Jones, Founder and CEO, i2 Capital

Tailor the commercial and financial structure of your anaerobic digestion project for success with the financing options and business development best practices shared in this presentation session. Learn about financing options that could support future projects.

[Biogas Project Financing Options](#)

Andrew Eastman, Senior Counsel, Husch Blackwell

[Project Development Considerations for Biogas Projects](#)

Loren Steenhoek, President, LYS Enterprises

[Project Development and Financing – The Developer Perspective](#)

Peter Petrovski, Chief Commercial Officer, Sevana Bioenergy

[How to Successfully Finance a Waste-to-Value Project](#)

Jon Ellis, VP of Alternative Energy, Pathward

[Unlocking Adoption of Anaerobic Digestion Through Incentives-Based Financing](#)

Gideon Gradman, Managing Director, Energy and Infrastructure Group, Baker Tilly

Session 5: Minimizing Emissions (Rooms 167 & 171)

Moderator: Dan Nickey, Associate Director, Iowa Waste Reduction Center, University of Northern Iowa/College of Business

Explore technologies and strategies to reduce emissions and enhance the overall sustainability of on-farm anaerobic digestion.

[Making Molehills Out of Mountains: Minimizing Methane and Ammonia Emissions](#)

Tom Richard, Professor Emeritus – Agricultural and Biological Engineering, Penn State University

[Managing Digestate Storage to Improve Digester Efficiency and Reduce Emissions of Ammonia and Greenhouse Gases](#)

Fiona Kurylowicz, Research Analyst, Environmental Defense Fund

[Anaerobic Membrane Bioreactors \(AnMBR\) Platform for Total Resource Recovery from Livestock and Co-Digested Wastes](#)

Prathap Parameswaran, Associate Professor, Civil Engineering, Kansas State University

[An Introduction to Selecting Appropriate Biogas Treatment Equipment](#)

Natalie Burton, Pipeline Engineer, Burns and McDonnell

Session 6: Historical and Human Dimensions (Rooms 150 & 154)

Moderator: Laurie Nowatzke, Midwest Climate Hub Coordinator, USDA Agricultural Research Service

Learn how agricultural industrialization, technology successes and failures, economic forces, policy shifts, and public engagement have shaped the framework for anaerobic digestion adoption today.

[A Contextual History of Digester Technology](#)

Bob Watson, Decorah

[Economic Aspects of Carbon Markets and Anaerobic Digesters in the U.S.: The Case of Swine Production](#)

Jerome Dumortier, Associate Professor, O'Neill School, IUPUI and Co-Editor-in-Chief, BioEnergy Research

[Perspectives and Salience of On-Farm Anaerobic Digestion in American Newspapers, 1980 – 2023](#)

Forrest Stagner, Postdoctoral Scholar, Penn State University

[Technology Legitimacy in Energy Transitions: Stakeholder Perspectives on an Alternative Feedstock Anaerobic Digester Project](#)

Chris Morris, Postdoctoral Research Associate, Iowa State University

TUESDAY AFTERNOON KEYNOTE

Tuesday, November 7 | 4:00 - 4:45pm

Scheman Building, Iowa State Center | Benton Auditorium



Jerry Flint

Chief Administrative Officer, National Pork Board

Anaerobic Digester Use in Swine Production

Prior to his employment with the National Pork Board, Jerry joined Corteva Agriscience in 2010 and held positions specifically linked to global business management, sustainability, external relations, regulatory approvals and product research and development. He also served as director of regulatory affairs at Monsanto, which included spending three years in Singapore leading technology research and development in the Asia Pacific region.

Flint currently serves on the Dean's Advisory Council for the College of Agriculture at Purdue University, served as past president of the American Seed Trade Association and past chair of the Biotech Innovation Organization Food and Agriculture Governing Board, and has served on the USDA Agriculture Advisory Council.

Jerry was born and raised on his family's farm in western Ohio and spent his career in agriculture with progressive leadership roles in production agriculture, science, research, biotechnology and sustainability. He has both a Doctorate and a Masters of Science degree in crop science from the University of Kentucky (Lexington) and an undergraduate degree in agriculture from Purdue University (West Lafayette, Indiana). Jerry and his wife Dayna live in Des Moines, Iowa.

Keynote Agenda

Keynote Introduction:

Bethany Olson

Air Permitting and Planning Branch, Air Planning Section

U.S. Environmental Protection Agency Region 7

Keynote and Q&A with Jerry Flint

ANAEROBIC DIGESTION VIRTUAL TOUR: GEVO

Followed by Q&A with Dwight Hasselquist

Moderated by Maggie Norton, Project Manager, ISU Bioeconomy Institute



Gevo's RNG (Renewable Natural Gas) business is a pioneering venture that focuses on the sustainable production and distribution of biogas extracted from dairy cow manure, known as the "feedstock." This innovative business operates in Northwest Iowa and relies on feedstock sourced from three dairy farms housing more than 20,000 milking cows. One of the standout features of Gevo's RNG business is its commitment to environmental responsibility. The RNG project not only reduces waste by converting manure into renewable energy but also significantly lowers carbon emissions, making it a green energy solution. The RNG produced is injected into pipelines for transportation and use in California. Gevo has demonstrated its dedication to growth and expansion in this sector. A recent upgrade to the facility is expected to boost RNG production to approximately 400,000 MMBtu annually in 2024, signifying a substantial increase in their capacity. Gevo's RNG business has agreements with BP Canada Energy Marketing Corp. and BP Products North America Inc. to facilitate the sale of the RNG production, underlining the growing demand for clean and renewable energy sources. Gevo's RNG business is at the forefront of sustainable energy production, utilizing an unconventional but highly effective source of biogas to reduce waste, lower carbon emissions, and contribute to a greener, more sustainable future.



Dwight Hasselquist

Business Development Team

Dwight Hasselquist joined Gevo in October of 2021. He currently serves on Gevo's Business Development Team. Previously, he was the Operations Manager for Gevo's RNG facilities in NW Iowa. Dwight's lifelong background in the dairy industry has provided a valuable skill set which benefits our mission at Gevo. Before coming to Gevo, Dwight began his career by owning and operating his family's dairy farm near Center City, Minnesota. After leaving Minnesota, Dwight successfully managed two large commercial dairies in northwest Iowa for 15 years. Dwight then served as a key service leader for one of the largest dairy equipment and construction organizations in the country.

WEDNESDAY SCHEDULE AT A GLANCE

Wednesday, November 8 | 8:00am - 4:00pm

Scheman Building, Iowa State Center | 1805 Center Drive, Ames, IA, 50011

8:00 - 9:00am Lounge 182, First Floor Lobby and Stage Door	Breakfast & Exhibit Hall
9:00 - 9:30am Benton Auditorium	Anaerobic Digestion Virtual Tour: Verbio
9:30 - 10:30am Benton Auditorium	Next Gen Anaerobic Digestion Leadership Panel
10:45am - 12:30pm Rooms 175 & 179 Rooms 167 & 171 Rooms 150 & 154	Concurrent Sessions Enabling Circular Agricultural Systems Resilient Infrastructure Solutions Roundtable: Social and Environmental Concerns
12:30 - 1:50pm Second Floor Dining Room (Rooms 220-240)	Lunch Buffet & Farmer Panel
2:00 - 3:30pm Benton Auditorium	Closing Panel: Government Priorities, Policies & Resources for AD
3:30 - 4:00pm Benton Auditorium	Wrap-Up: Reflections, Takeaways, Final Networking

ANAEROBIC DIGESTION VIRTUAL TOUR: VERBIO

Followed by Q&A with Greg Faith

Moderated by Maggie Norton, Project Manager, ISU Bioeconomy Institute



VERBIO Vereinigte BioEnergie AG (VERBIO AG), headquartered in Leipzig, Germany, is a leading independent manufacturer of biofuels and bioenergy in Germany and Europe. The company began producing biofuel in 2001 and today has approximately 1,000 employees at its locations in six countries producing biodiesel, bioethanol and renewable natural gas, as well as feed, bio-fertilizers and other high-value by-products for the nutrition, pharmaceutical and cosmetics industries. The Verbio North America site, located in Nevada, IA, is committed to the principle of sustainability and treats natural resources in a socially responsible and ethical manner. Using the latest technologies developed in-house, the Verbio team is creating sustainable alternatives for a world whose desire is to move away from fossil fuels. Verbio's business model attempts to ignite change and create platforms where the path to green energy is contagious.



Greg Faith

President, Verbio Nevada Biorefinery

Greg leads Verbio's ethanol and renewable natural gas biorefinery in Nevada, Iowa, and is responsible for managing plant costs, reliability, quality and maintenance. Greg is an accomplished chemical engineer with 25 years of experience in agricultural processes in the areas of operations leadership, process engineering, project management, and product development. Greg joined Verbio in 2019 and has extensive background providing leadership and technical direction to teams in development and optimization of production plants, including startup activities. He enjoys being part of a team and thrives in challenging work environments. Greg's academic background includes a BS (chemical engineering) from Iowa State University and an MBA from Bellevue University.

The Verbio logo, featuring the word 'verbio' in a bold, green, italicized sans-serif font.

CONCURRENT SESSION 3 LINEUP

Wednesday, November 8 | 10:45am - 12:30pm

Session 7: Enabling Circular Agricultural Systems (Rooms 175 & 179)

Moderator: Ernie Shea, President, Solutions from the Land

Anaerobic digestion offers so much more than biogas. Anaerobic digestion can provide a hub in a restorative and regenerative circular bioeconomy.

Maximize Profitability through New Markets and Co-Products of Anaerobic Digestion

Dan Tyndall, Director of Technology, Roeslein Alternative Energy

Examining the Biogas Circular Economy of a Commercial Dairy Farm in Pennsylvania

Siobhan L. Fathel, Assistant Professor, Susquehanna University

Co-Digesting Agricultural and Food Waste: A Case Study of "Jugnon" Anaerobic Digester

Junius Perluss, American Business Developer, Methalac Biogas

Midwestern Livestock Farms as a Template for Understanding, Evaluating, and Improving the Circularity of Bioeconomic Systems

Daniel Andersen, Associate Professor and Extension Specialist, Iowa State University

Session 8: Resilient Infrastructure Solutions (Rooms 167 & 171)

Moderator: Doug Laird, Chief Operating Officer, Livestock Water Recycling

Adaptive anaerobic digestion systems are being designed and configured to avoid digester failure and optimize across multiple outcomes.

A Farm-Scale Approach to RNG

Noah Carlson, Senior Application Engineer, BIOFerm

The Art of Anaerobic Digestion: How to Insure a Successful AD Project

Bernie Hoffman, Partner, Progressive Energy Co

Avoiding Farm Digester Failure: Lessons Learned from Agricultural, Industrial, and Municipal Applications

Tim Ellis, Associate Professor, Civil, Construction, and Environmental Engineering, Iowa State University

A Farmer's Perspective on a Real-Time Co-Digestion Feedstock Analysis Pilot Project

Maclaine Putney, Wastewater Specialist, Iowa Wastewater and Waste to Energy Research Program, University of Iowa

Session 9: Social & Environmental Concerns Roundtable (Rooms 150 & 154)

Moderator: J. Arbuckle, Professor, Rural Sociology, Iowa State University

Gather for a roundtable discussion of potential social and environmental concerns associated with farm-based anaerobic digester development and ideas for addressing those concerns.

Panelists

Fiona Kurylowicz, Research Analyst, Environmental Defense Fund

Julie McNamara, Deputy Policy Director, Climate & Energy Program, Union of Concerned Scientists

Patti Naylor, Farmer and Board Member, Pesticide Action Network and Family Farm Defenders

Lynn Utesch, Farmer and Co-Founder, Kewaunee CARES (Citizens Advocating Responsible Environmental Stewardship)

Alicia Vasto, Water Program Director, Iowa Environmental Council

Venus Welch-White, Senior Advisor to the Agriculture Advisor, U.S. EPA

WEDNESDAY PANELS

Next Gen Anaerobic Digestion Leadership Panel

9:30 - 10:30am

Moderator: Elmin Rahic, Ph.D. Candidate, Agricultural and Biosystems Engineering, Iowa State University

The next generation of agricultural leaders summarize their research, reflect on conference content, and share their vision for the future of anaerobic digestion.

Panelists

Mary Tutuola Akingbasote, Graduate Student, Agricultural and Biological Engineering, Penn State University

Derek Franklin, Ph.D. Candidate, Rural Sociology and Sustainable Agriculture, Iowa State University

Emily Schmitz, Ph.D. Candidate, Civil and Environmental Engineering, University of Iowa

Abigail Schulte, Graduate Student, Agricultural and Biosystems Engineering, Iowa State University

Luke Soko, Ph.D. Candidate, Agricultural and Biosystems Engineering, Iowa State University

Farmer Panel

12:50 - 1:50pm

Moderator: Bryan Sievers, Owner, Sievers Family Farms

Join farmer panelists as they discuss motivations for and experiences engaging with anaerobic digestion and their hopes for the future of on-farm anaerobic digestion.

Panelists

John McGrath, General Manager, Amana Farms

Ryan Rogers, Homestead Green Energy

Rob Stout, President, BDKR, Inc.

Government Priorities, Policies & Resources for AD

2:00 - 3:30pm

Moderator: Venus Welch-White, Senior Advisor to the Agriculture Advisor, U.S. EPA

Government agencies share resources and perspectives on making an effective regulatory and policy environment for anaerobic digestion to better support farmer, environmental justice, and climate change goals.

Panelists

Benjamin Hartenbower, Water Resources Engineer, Wisconsin Department of Natural Resources

Paul Petitti, Senior Environmental Engineer, Iowa Department of Natural Resources

George Schwint, Principal Feedlot Engineer, Minnesota Pollution Control Agency

Hillary Stoll, Professional Engineer, Nebraska Department of Environment and Energy

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THANK YOU

Thank you to all Anaerobic Digestion on the Farm conference attendees, presenters, and supporters. We hope you enjoyed your stay in Ames and that you learned something new, gained additional perspectives on anaerobic digestion, and found time to connect with existing and new collaborators.

Please reach out to Vivian M. Cook, Bioeconomy Institute Regenerative Agriculture Specialist, at vmcook@iastate.edu with any post-conference feedback.

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