

Appendix A: SHAC Member Biographies

Current Members:

PRODUCERS

Aaron Cooper

Cut Fresh Organics, LLC

A 5th generation farmer, Aaron Cooper and his wife farm 325 acres of organic grains and vegetables on Maryland's Eastern Shore. Mr. Cooper previously worked at the University of Maryland at College Park for 17 years and the Lower Eastern Shore Research and Education Center for two years. His farm was featured on Episode 413 of Maryland Public Television's popular program, Maryland Farm & Harvest.

Thomas W. Croghan, M.D.

The Vineyards at Dodon, LLC

Dr. Croghan owns The Vineyards at Dodon, LLC, a vertically integrated vineyard and winery operation located on a historic family farm in Davidsonville, Maryland. Dr. Croghan blends traditional farming methods with modern ecology to build soil health. Trained as a physician and cellular immunologist, he is a Senior Fellow at Mathematica, a policy research organization. He previously worked for the RAND Corporation and Eli Lilly and Company and has served on the medical staff and faculty of numerous medical institutions and universities.

Steven Darcey

Edgewood Farm and Prince George's Soil Conservation District

Steven Darcey is a 4th generation farmer from Prince George's County who also serves as district manager for the Prince George's County SCD. He manages 310 acres of family owned property producing corn, soybeans, small grains and straw compost. Together with his wife, he operates Edgewood Farm Stables. Edgewood Farm is certified by Maryland's Farm Stewardship Certification and Assessment Program (FSCAP). It was inducted into the Governor's Hall of Fame in 1991 and recognized as a Conservation Farm of the Year in 1995. A Maryland soil health champion, Mr. Darcey uses no-till planting techniques, crop residue management, crop rotation, composting, and cover crops to build his soil. He is a certified professional in erosion and sediment control, nutrient management and pesticide application in Maryland. Mr. Darcey received a B.S. from the University of Maryland in 1980.

Steve Ernst

Ernst Grain and Livestock

Steve Ernst is a sixth generation grain and livestock farmer in Clear Spring, Maryland. The farm produces hogs, sheep, grain, and non-GMO feeds and uses numerous best management practices including zero tillage and cover crops. In 2010, it became the first farm certified by the Farm Stewardship Certification and Assessment Program (FSCAP). Mr. Ernst is a senior agronomist at Martin's Elevator in Hagerstown and has worked for 32 years as an agronomy and nutrition consultant. He is a Certified Crop Advisor, Certified Maryland Nutrient Management consultant, and holds dairy nutrition and dairy nutrition management certificates. He serves on the Maryland Farm Service Agency Committee, University of

Maryland College of Agriculture's Global Leadership Council, Maryland Grain Producers Board of Directors, and Clear Spring High School Vocational Agriculture Program Advisory Council.

Matt Fry

Fair Hill Farms

Matt Fry is a managing partner at Fair Hill Farms, a 1,400 acre certified organic dairy and grain operation in Chestertown, Maryland. Mr. Fry and his family manage a diverse mix of perennial pastures while growing legumes, grains, and silage crops for their dairy cattle. Fair Hill Farms uses a reduced tillage organic system to feed its cows.

Trey Hill

Harborview Farms

A fourth generation grain farmer from Rock Hall, Maryland, Trey Hill and his family till corn, wheat, and soybeans on Maryland's Eastern Shore. Mr. Hill holds a degree in Farm Management and Economics from Purdue University and is committed to improving agricultural sustainability. He works tirelessly to bridge the gap between environmental and agricultural interests. Mr. Hill believes that with the right farming practices farmers can improve the quality of their lives, their land and waterways. Mr. Hill is married and has two children.

Robert Hutchison

Hutchison Brothers

Robert Hutchison and his family till approximately 3,400 acres of grain in Talbot and Caroline counties. The family focuses on innovative conservation practices including early adoption of cover crops, denitrifying bioreactors, and precision nutrient management. The Hutchisons are dedicated stewards of the land and have been widely recognized for their efforts. In 2005, the family was inducted into the Governor's Agricultural Hall of Fame. Mr. Hutchison is a member emeritus of the Harry Hughes Agro-Ecology Center in Queenstown and was named the first Master Farmer from Talbot County in 2017 by the Mid-Atlantic Master Farmers Association. In 2019, the Hutchison Brothers' operation was selected as a Chesapeake Champion for the Environment by the Horn Point Laboratory of the University of Maryland Center for Environmental Science. Mr. Hutchison lives in Cordova with his wife of 49 years.

Janet O'Meara

Stone Valley Farm

Janet O'Meara and her husband own and operate Stone Valley Farm, a beef and grain operation in Carroll County. She began her career as a technician for the Maryland Department of Agriculture in Carroll County and currently works for Carroll County as the Watershed Management Coordinator, implementing restoration projects for compliance with the County's National Pollutant Discharge Elimination System (NPDES) Permit. Ms. O'Meara serves as an Associate Supervisor for the Carroll SCD and is a member of the Carroll County Farm Bureau.

AGRICULTURAL ORGANIZATIONS

Michael Calkins

Maryland Young Farmers Advisory Board

Michael Calkins manages and writes conservation plans for all agricultural assessed parcels of land in Howard County. Before joining the Howard County SCD, Mr. Calkins worked for the Maryland Department of Agriculture as a Regional Equine and Soil Conservation Planner. He has extensive knowledge of Howard County agriculture and is a past president of the Howard County Farm Bureau Young Farmers. Mr. Calkins currently serves on the Maryland Farm Bureau Political Action Committee and is chairman of the Maryland Agricultural Land Preservation Foundation. He holds a B.S. from Delaware Valley College in Agronomy and Environmental Sciences with a specialty in Turfgrass Management.

Colby Ferguson

Maryland Farm Bureau

Colby Ferguson is the government relations director for the Maryland Farm Bureau, where he addresses state and national issues. Previously, he served as an agriculture business development specialist for Frederick County, a sales and marketing manager for Sinclair Cattle Company, and a nutrition specialist with Southern States Cooperative. Mr. Ferguson is a 2006 LEAD Maryland fellow. He serves on the LEAD Maryland Board of Directors, the Maryland Agriculture Council Board of Directors and the Maryland Agriculture Marketing Professionals Group. An experienced livestock judge, Mr. Ferguson lives with his family on his Walkersville, Maryland farm. He holds a Bachelor's Degree in Animal Science and Biotechnology from Oklahoma State University.

Denzell Mitchell Jr.

Farm Alliance of Baltimore

Denzell Mitchell Jr. is the Deputy Director of the Farm Alliance of Baltimore. Denzel is an educator, farmer, cook, and beekeeper. Born and raised in Guthrie, Oklahoma; he and his wife planted themselves in Baltimore in the fall 2004 and soon got active in Baltimore's urban agriculture. Denzel went on to found the Greening and Nutrition program at Baltimore Montessori Public Charter School and while there, heard the call from the land. On six vacant lots, various back yards and with the help of a chef and food historian, he brought a nearly-forgotten heirloom, Baltimore's Fish Pepper, back to the Chesapeake region's culinary palette. He left the classroom in 2010 to pursue dreams of vegetable farming and operated Five Seeds Farm until 2015. Denzel loves to eat, cook and play with his family and friends. He loves capoeira angola. He also enjoys books, music and movies. He lives in Union Square with his wife and 5 kids.

Jen Nelson

Maryland Association of Soil Conservation Districts

Jen Nelson joins as the new Executive Director of the Maryland Association of Soil Conservation Districts (MASCD). Through her business, Resource Smart LLC., Jen helps to coordinate partnerships and projects that support Delmarva and Mid-Atlantic farmers in improving the economic and environmental sustainability of their farms. Current projects include serving as the Executive Director for MASCD as well as the Delaware Association of Conservation Districts and helping to coordinate the Delaware Soil

Health Partnership. She has a B.S. in Environmental Science from Rutgers University, and has been a Certified Crop Advisor since 2004.

Amy Jacobs

Delaware-Maryland 4R

Alliance Amy Jacobs represents the Delaware-Maryland 4R Alliance, a collaboration between agribusinesses, farmers, government agencies, conservation groups, and scientists working to ensure that nutrients are applied using conservation stewardship practices. Additionally, Ms. Jacobs is a member of the Maryland/DC Chapter of the Nature Conservancy, where she leads efforts to improve water quality in agricultural landscapes throughout the Chesapeake Bay watershed. Ms. Jacobs received her M.S. in Environmental and Forest Biology from the State University of New York and Syracuse University, and a B.S. in Forestry and Wildlife from Virginia Tech

Mike Twining

Willard Agri-Service

Mike Twining is the Director of Sales and Marketing for Willard Agri-Service and has worked in the retail farm supply business for the last 25 years. Mr. Twining holds a Commercial Pesticide Applicators License and is a Certified Crop Adviser and Certified Nutrient Management Consultant in Delaware and Maryland. He serves as the nutrient management advisor to the Kent Conservation District's board of directors in Delaware. Mr. Twining grew up on a poultry and grain farm on Maryland's Lower Eastern Shore. He graduated from Cornell University with a degree in Agricultural Economics and Farm Business Management. He lives in Camden-Wyoming, Delaware with his wife and two children.

AGENCY REPRESENTATIVES

Christopher Beck

Maryland Department of the Environment

Christopher Beck is the Division Chief of the Climate Change Program at MDE. His division produces the Greenhouse Gas Reduction Act (GGRA) Plan, a comprehensive document that plots a course for Maryland to mitigate and adapt to climate change. Mr. Beck's work involves applying multidisciplinary approaches in climate and air pollution sciences to investigate how climate change impacts Maryland. Mr. Beck served on the Healthy Soils Consortium from 2016-2019. He received his Master's degree in Environmental Health Science and Engineering from Johns Hopkins University.

Elliot Campbell, Ph.D.

Maryland Department of Natural Resources

Dr. Elliot Campbell directs the Center for Economic and Social Science at DNR. The Center develops tools and data products on the ecological co-benefits of conservation and restoration, including climate resiliency and carbon storage. Dr. Campbell is responsible for quantifying the carbon benefits to meet Maryland's Greenhouse Gas Reduction Act goals. He represents DNR on the Maryland Commission on Climate Change's Mitigation Working Group. Prior to joining DNR, Dr. Campbell was a research faculty member at the University of Maryland College Park, where he received his doctorate.

Grace Garst

NRCS

Grace Garst is serving as the acting state Conservation Agronomist for NRCS until January in the absence of Christie Brown. Prior to this position, she was an NRCS Conservation Planner from Frederick County, Maryland where she worked one on one with farmers on a daily basis to get much needed conservation on the ground. Grace's formal education is in Plant Science, from the University of Maryland, College Park although her education in the agricultural industry stems from an upbringing on a family dairy farm surrounded by 4-H and FFA opportunities. Grace also previously worked for the USDA-Agricultural Research Service for six years as a field trials technician overseeing cover crop species and establishment trials. In her spare time, she and her significant other farm 300+ acres in Frederick and Carroll counties. Recognizing the importance of soil health and conservation, they practice no-till, utilize diverse cover crops, readily integrate livestock into the cropping systems, and rotational graze both beef and commercial goat herds

Deborah Herr Cornwell

Maryland Department of Planning

Debbie Herr Cornwell is a resource conservation planner with the Maryland Department of Planning. She represents the department on the Maryland Agricultural Land Preservation Foundation Board and the Critical Area Commission. As the department's lead for the Transfer of Development Rights initiative, she reaches out to county and municipal jurisdictions to discuss the program's benefits. She supports the department's work on the Chesapeake Bay restoration, climate change and the Patuxent River Commission. A licensed landscape architect in Maryland and New Jersey, Ms. Cornwell has worked in the private, nonprofit and government sectors for more than 30 years. Ms. Cornwell is a graduate of Temple University and Rutgers University – Cook College

Alisha Mulkey

Maryland Department of Agriculture

Alisha Mulkey is responsible for planning, developing, and coordinating policy, programs, and public information for the Office of Resource Conservation. She serves as Executive Secretary to the State Soil Conservation Committee, oversees the Animal Waste Technology Fund, and provides support to the Conservation Reserve Enhancement Program Advisory Committee. She formerly coordinated the department's Agricultural Watershed Implementation Program. Ms. Mulkey is nutrient management certified in Maryland. She received a B.S. in Soil Sciences from the University of Tennessee, Knoxville and an M.S. in Soil and Watershed Science from the University of Maryland.

ACADEMIA**Ray R. Weil, Ph.D.**

University of Maryland

Dr. Ray R. Weil is an internationally recognized expert on soil science, nutrient cycling, soil organic matter, and cover crop systems for soil health and water quality. He developed methods for microbial biomass and active soil carbon adopted by the USDA's Natural Resources Conservation Service (NRCS) and ecosystem researchers worldwide. His research on multi-purpose cover crops and ecological

approaches to soil management are used on farms large and small. His textbook, *The Nature and Properties of Soils*, is used around the world.

Dietrich J. Epp Schmidt

University of Maryland

Dietrich J. Epp Schmidt is an environmental microbiologist who studies the impacts of human land management decisions on ecological outcomes. A Ph.D. candidate in Environmental Microbiology and the Food-Energy Nexus at the University of Maryland, Mr. Dietrich received his M.S. in Soil Microbiology and Urban Ecology from the University of Maryland and his B.A. in Biology from St. Mary's College.

Kathryne Everts, Ph.D.

Harry Hughes and Wye Research Education Center

The Harry R. Hughes Center for Agro-Ecology provides leadership to promote environmentally sound and economically viable agriculture and forestry as Maryland's preferred land use through research, outreach and collaboration. The Wye Research and Education Center's programs utilize nearly 800 acres of land on the shores of the Wye River on Maryland's Eastern Shore. The Center works to preserve the health of the Chesapeake Bay, sustain agricultural productivity and product diversity, and maintain Maryland's quality of life.

Kate Tully, Ph.D.

University of Maryland

Dr. Kate Tully is an Assistant Professor of Agroecology in the Department of Plant Science and Landscape Architecture at the University of Maryland. Her research assesses the sustainability of food production systems by examining their effects on interactions among plants, soils, carbon, nutrients, and water cycles. Her work examines how to balance farm productivity and ecosystem services. Along with collaborators at the USDA, she studies how cover crops can promote efficient on-farm nutrient cycling, sequester carbon, and improve water quality. Dr. Tully also serves as the Community Coordinator of the Columbia Heights Green, a quarter-acre urban farm in northwest Washington, DC. Previously, she worked at Columbia University's Earth Institute and the Agriculture and Food Security Center. Her research work at Columbia took her to Kenya and Tanzania where she studied the effects of increased fertilizer application in smallholder farming systems. Dr. Tully received her Ph.D. in Ecology from the University of Virginia.

MARYLAND LEGISLATURE

The Honorable Jason C. Gallion

Maryland State Senate, District 35

Elected to the Maryland Senate in 2018, Senator Jason Gallion represents District 35, covering Harford and Cecil counties. He sits on the Education, Health and Environmental Affairs Committee as well as its subcommittees on health and the environment and the Joint Subcommittee on Program Open Space and Agricultural Land Preservation. Senator Gallion owns a beef cattle and hay operation in Harford County where he has served as the agricultural specialist for the county since 2016. He is a member of the Nutrient Management Advisory Committee and the Harford County Farm Bureau. Senator Gallion

lives with his family on a farm in Level, Maryland where he has been an active member of the Volunteer Fire Company for 25 years.

The Honorable Dana Stein

Maryland House of Delegates, District 11

Delegate Dana Stein represents District 11 which covers a large portion of Baltimore County. He was elected to the House of Delegates in 2006 and currently serves as Vice Chair of the Environment and Transportation Committee and Chair of the Environment Subcommittee. Delegate Stein has long been concerned about the impacts of climate change and sponsored the legislation creating the Maryland Healthy Soils Program within the Maryland Department of Agriculture. Senator Stein is the executive director and founder of Civic Works, a nationally-recognized "Urban Peace Corps" that transforms the lives of young adults through community service. Prior to establishing Civic Works, Delegate Stein practiced law at Squire, Sanders & Dempsey in Washington, D.C. He has a B.A. in Government from Harvard University, a law degree from Columbia Law School, and a Masters in Public Affairs from the Woodrow Wilson School at Princeton University.

NONPROFIT ORGANIZATIONS

Phillip Bogdonoff

Biodiversity for a Livable Climate

Philip Bogdonoff helped construct carbon cycle models while at Cornell University in the late 1980s, served as a consultant in the World Bank's Environment Group, and has participated in a variety of other local, state, and international environmental initiatives. For the last 5 years he has served with BLC, whose mission is, through education, policy and outreach, to promote the power of the natural world to stabilize the climate and to restore biodiversity to ecosystems worldwide. We collaborate with organizations around the world to advocate for the restoration of soil, and of grassland, forest, wetland, coastal and ocean ecosystems – along with the associated carbon, water and nutrient cycles – to draw down excess atmospheric greenhouse gases, cool the biosphere, and reverse global warming. He is part of the steering committee for the Takoma Alliance for Local Living Economy (TALLE), and is involved in Montgomery County's Climate Action Planning as a member of the Adaptation and Sequestration Workgroup.

Cleo Braver

Maryland Pesticide Education Network

A board member and representative of the Pesticide Education Network, Cleo Braver formerly served as General Counsel for a publicly traded company that engineered and built pollution control capital equipment. Ms. Braver and her husband have lived on Cottingham Farm in Talbot County for more than 20 years, where they grow certified organic vegetables and herbs, pastured heritage hogs, and layers for grocers, restaurants, and the public. The farm's regenerative agricultural practices include pastured animal production, reduced tillage, rotation with the integration of animals and cover crops, and the elimination of synthetic fertilizers and pesticides.

Alan Girard

Eastern Shore Director, Chesapeake Bay Foundation

Alan Girard oversees environmental protection and restoration programs on Maryland's Eastern Shore, where he leads the organization's regional efforts to help communities reduce pollution entering the Chesapeake Bay and its tributaries. Since joining CBF in 2001, Mr. Girard has developed public policy, coordinated advocacy campaigns, and engaged citizens, businesses, and government in work needed to clean up waterways. Mr. Girard completed his undergraduate work at Ithaca College and holds a Master's Degree in Environmental Management from Indiana University. Before joining CBF, he was a manager at Pickering Creek Audubon Center and has performed conservation work in Indiana, Montana, Rhode Island, and Vermont. Mr. Girard serves on a number of boards and committees and lives with his family in Easton, Maryland.

Lisa Garfield

Future Harvest CASA

Lisa Garfield joins as the representative of Future Harvest. Lisa has a dozen years of farming experience, primarily as the owner/operator of Calliope Farm, a diversified vegetable farm on the Delmarva Peninsula of Maryland. In 2014, after hosting several university research projects on her farm, participating in a Johnny's Seeds breeding trial, and completing two of her own SARE funded on-farm projects, she succumbed to the promise that research could provide "all of the fun, with none of the risk," that farming does, and pursued an M.S. in Plant and Soil Science, from the University of Maryland Eastern Shore. While she has found this to be mostly true, she misses the great food, so still keeps a garden and has plans to transition her farm to a food forest model. Lisa now holds the position of Million Acre Challenge Manager here at Future Harvest, heading up the Soil Health Benchmark Study, and other soil-health focused programming. She has a B.A. English Literature from UNM and M.S. Plant and Soil Science, UMES.

Tim Rosen

ShoreRivers

Tim Rosen manages ShoreRivers' Agriculture and Restoration Department. He partners with academic, state, and federal agencies to advance research on agricultural best management practices, manages restoration projects, completes watershed assessments, and works with farmers and landowners to reduce land-based pollution. Mr. Rosen majored in biology and minored in environmental studies at Mount St. Mary's University. He earned his Master's degree in Watershed Hydrology at Louisiana State University.

Previous Members

Lindsay Thompson

Maryland Association of Soil Conservation Districts

As the owner of Thompson Ag Consulting, LLC, Lindsay Thompson provides association management and government relations services for 10 agriculture and natural resources related nonprofit organizations. Ms. Thompson earned her Master's Degree in Environmental Policy from the University of Maryland while working for the Maryland State Legislature. She is active in the Chesapeake Bay Program and

serves on the Water Quality Goal Team. Ms. Thompson specializes in coalition building to achieve common goals. She lives in Queenstown, Maryland with her family.

Christy Brown

USDA NRCS

Christy Brown has served as the State Conservation Agronomist for USDA's Natural Resources Conservation Service for the past six years. She received her B.S. in Plant Science and Agronomy from Delaware State University.

David Smith

USDA Soil Science Consultant, retired

David Smith is a retired Deputy Chief of Soil Science and Resource assessment for USDA's Natural Resources Conservation Service (NRCS). In this position Mr. Smith led the U.S. National Cooperative Soil Survey and directed other nationwide programs. During his 39-year career, he served on numerous committees and task forces including the USDA Science Council, USDA Task Force for Climate-Smart Agriculture and Forestry, USDA Climate Hubs Executive Committee, and the Soil Science Interagency Working Group of the National Science and Technology Council. He currently serves as a senior advisor with Oliver Wyman, a global management consulting firm.

Steven B. Mirsky, Ph.D.

USDA Agricultural Research Service

Dr. Steven Mirsky is a research ecologist for the USDA's Agricultural Research Service. He conducts research on the multifunctional role of cover crops in controlling weeds, nitrogen scavenging, fixation and use efficiency, greenhouse gas emissions and carbon sequestration. Dr. Mirsky's cover crop systems research focuses on maintaining profitability while enhancing soil and water quality and reducing crop production energy requirements. Data from these studies are used to parameterize models that aim to optimize agro-ecosystem economic profitability and environmental sustainability. Dr. Mirsky received his Ph.D. from Pennsylvania State University.

Dena Leibman

Future Harvest Chesapeake Alliance for Sustainable Agriculture

Dena Leibman is executive director of Future Harvest CASA, a farmer-based nonprofit working to advance sustainable agriculture in Delaware, Maryland, Virginia, West Virginia, and Washington, DC. Ms. Leibman's commitment to conservation and sustainable agriculture has propelled her through a long career in wildlife biology and communications at environmental policy and scientific institutions. She is co-owner of ZigBone Farm Retreat, a 100-acre sheep and goat farm in Maryland's Catoctin Mountains. Ms. Leibman has an undergraduate degree in environmental biology and a Master's degree in Journalism.

Theodore “Tod” S Wickersham, Jr.

Beneficial Results, LLC

Tod Wickersham, Jr. has over 25 years of experience in starting and developing businesses, expanding new markets, and influencing and improving public policies and programs related to energy efficiency, renewable energy, energy storage, environment, air and water quality, public health, agriculture, climate, and transportation. As president of Beneficial Results LLC, Mr. Wickersham’s work in Maryland and Virginia focuses on soil health, biodiversity, regenerative agriculture, building the resiliency of farms and ecosystems, improving water quality, sequestering carbon, and increasing farmer profits. Mr. Wickersham received a double B.A. degree in Environmental Studies and Economics from the University of California, Santa Cruz, where he completed his senior thesis project at a research farm by evaluating the ability of live mulch to suppress weeds.

Lori Arguelles

Director of Policy Engagement, COMPASS

As Director of Policy Engagement for COMPASS, Lori Arguelles connects scientists to decision makers in the United States, bridging the worlds of science and policy and supporting scientists to engage. Prior to joining COMPASS, she served as President & CEO of the Alice Ferguson Foundation. Her 25 years of experience in executive management, public relations, and government relations included positions as Vice President of Media and Policy Strategy for the marine conservation nonprofit organization SeaWeb, founding President and CEO of the National Marine Sanctuary Foundation, Director of Communications for Girl Scouts of the USA, and Director of Public and Constituent Affairs for the U.S. Commerce Department’s National Oceanic and Atmospheric Administration. Additionally, Ms. Arguelles has worked for several news outlets as an anchor, reporter, and producer and served as press secretary for two members of Congress. She received her undergraduate degree in Broadcast Journalism and Political Science from Northern Arizona University and her M.A. in Public Communication from American University.

Laura Starr

Delaware-MD 4R Alliance/TNC

Laura earned her Ph.D. in Agronomy from Kansas State University where she worked on nutrient cycling, soil health, and water quality in corn and soybean cropping systems and a M.S. in Natural Resources Management from the University of Alaska Fairbanks, where she studied nutrient management in grazing systems. Her research focused on the linkages between agricultural management, soil health, carbon cycling, and water quality at the field scale using field and laboratory techniques. She developed a new methodology to measure microbial biomass phosphorus, using organic acids as an extractant in high P soils, tested the NRCS “Dynamic Soil Properties” that included sampling across Kansas and evaluating a variety of soil health metrics to determine their ability to detect management changes as part of a national soil health project, and applied GeoChip – a microarray to investigate microbial functional gene diversity in response to soil health and fertilizer management.

Laura's experience also includes producer outreach events and workshops. She is a member of the Southern Extension and Research Activity 17 (SERA-17), a group that specializes in P management. Her passion is to collaborate with producers and colleagues to bring the most relevant and cutting-edge science to develop and accelerate implementation of practices that benefit farmers and the environment.