

PICOGRAM V. 103 and Program

ACS FALL 2023

Harnessing the Power of Data San Francisco, California, USA – Hybrid

August 13 – 17, 2023



2023 AGRO Division Patrons *Thank you for your continued support!*

Diamond



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TABLE OF CONTENTS

Patrons	inside front cover				
From the Chair's Desk – Heidi Irrig	2				
Awards and Announcements					
Ag Tour Information Awards Committee Report Announcing the Award Winners	4 5 6 7				
Invitation for the AGRO 50 and Beyond Gala ACS Fellows from AGRO 2023 ACS Fellows from AGRO AGRO Fellows, Call for Nominations for AGRO Division Fellow Award 2023 AGRO Fellows 2023 IUPAC International Award for Advances in Harmonized Approaches to Crop Prote 2023 ACS International Award for AGRO Research 2023 AGRO Innovation Award for Chemistry of Agriculture 2023 USDA-ARS Sterling B. Hendricks Memorial Lectureship Award 2023 ACS Kansas City Section Kenneth A. Spencer Award 2023 JAFC Research Paper Lectureship Awards Call for Nominations, 2025 ACS International Award for AGRO Research	57 57 8 9 ection Chemistry 11 13 15 17 19 21 23				
Call for Nominations, 2024 AGRO Innovation Award for Chemistry in Agriculture Call for Nominations, 2024 USDA-ARS Sterling B. Hendricks Memorial Lectureship Awar Call for Nominations, 2024 Kenneth A. Spencer Award Call for Nominations, 2024 <i>JAFC</i> Research Paper Lectureship Awards	25 rd 27 29 31				
New Investigators and Students					
2023 AGRO New Investigator Award Finalists 2023 AGRO Education Awards for Student Travel – Pictures and List Invitation to Student & Post-Doc Luncheon Call for Applicants, 2024 AGRO New Investigator Awards Call for Applicants, 2024 AGRO Education Awards	33 34 37 39 41				
Programming					
Symposia Listed by Topic Notes from the Program Chair – Aaron Gross Strategic Programming with Standing Programming and Champions Comments from the Vice Chair – James Foster Invitation to Brewing for AGRO – Brainstorming for Denver Programming and Outreach Activities, 2023 – 2023 and Future ACS National Meetings Seven Easy Steps for Organizing a Symposium LAPRW 2023 Report Out AGRO Lunch and Learn Webinar Series NACRW – Save the Date	42 43 44 45 45 46 46 46 47 47 48				
AGRO DIVISION BUSINESS					
AGRO Officers, Councilors, Executive Committee, and Past Chairs List What the AGRO Committees Do AGRO Division Committees AGRO Conference Call Minutes Councilor Reports	49 50 51 52 55				

AGRO EVENTS AND TECHNICAL PROGRAM

Program-1



From the Chair's Desk

Heidi Irrig

Wow! Here we are participating the in the Fall 2023 meeting, and it feels like we just left the Spring 2023 meeting in Indianapolis. For most AGRO Program Chairs, organizing one meeting is quite a handful. Our deep and sincere gratitude and appreciation for all the time, energy, and enthusiasm from Aaron Gross for being our awesome Program Chair for the Spring and Fall meetings. His diligence creating awesome programs and patient persistence addressing so many details is awe inspiring. Ken Racke, AGRO Division Chair in 2011, also volunteered as his a very capable assistant to Aaron for the Spring 2023 event. Aaron has set a high standard for organizing a large scientific meeting dedicated to advancing agricultural science. **Many, many thanks Aaron for your dedicated serve to AGRO!!**



Spring 2023 in Indy at the Crossroads of Chemistry was an real treat for AGRO. Many of us do not normally attend the Spring meeting but ACS and Corteva really rolled out the red carpet for us! We experienced a meeting like none other from ACS President Judith Giordan's poignant welcoming comments at the AGRO Social held at the Corteva site to the fantastic sessions organized by so many Corteva colleagues. Judy enthusiastically recognized the important role AGRO has in advancing agriculture while bettering the planet. I felt inspired by being recognized for the role AGRO scientists have in reducing world hunger and food insecurity. Thank you, Judy, Ken Racke, and so many Corteva colleagues for being such gracious hosts!



Tackling Hunger, a Convergent Chemistry Community. Many of us are engaged in a new AGRO Working Group *Tackling Hunger* (see agrodiv.org). This is a Convergent Chemistry Community (CCC) dedicated to addressing Food Security:

Tackling Hunger by fostering collaboration among other ACS Divisions by disseminating how chemistry is tackling the challenges associated with the United Nations Sustainable Development Goals of Zero Hunger by 2030. AGRO is participating with AGFD, ANYL, and ENVR in this endeavor. To stay aware of our activities, you are invited to join our LinkedIn group (https://www.linkedin.com/groups/12750126/).

Welcome to the Fall 2023 Meeting! What goes around comes around and this is so true for AGRO! Back in 2019 we started planning several events to celebrate the 50th Anniversary of the AGRO Division at the Fall 2020 meeting which was planned to be held in San Francisco. Here we are again, live and in-person, back in San Francisco, ready to celebrate AGRO's 50th! Many members have spent hours planning a gala, a tour and so much more!!

Harnessing the Power of Data is the theme for Fall 2023. AGRO will happily provide many examples from our 50-year

AGRO will happily provide many examples from our 50-year history of data revolutionizing agricultural science. ACS's commitment to sustainable meeting is evident in Fall 2023 as hybrid is in full swing and we all now understanding and are reaping the benefits of having a hybrid option for our presenters and speakers.



AGRO Governance Meeting continues to take advantage of a virtual format to allow for greatest participation. Although AGRO by-laws state Executive Committee (EC) governance meetings are to take place the Sunday night of the ACS meeting, EC members prefer the flexibility of attending virtually. The EC voted to have a virtual governance meeting after the Fall 2023 meeting so all could participate.

Opportunities do not just happen, AGRO members create them! I am honored to serve as the 2023 AGRO Division Chair and happy to see plans being made to continue developing AGRO into a Division beneficial to our scientific community.

AGRO Strategic Planning IPG. An Innovative Program Grant for strategic planning is in place. Leah Riter, Ed Norris, and Kevin Armbrust are co-leading. They represent a cross-section of the disciplines in engaged in agricultural science: academia, government, and industry and at differing levels of experience and disciplines. The retreat will be in late 2023, and details are being finalized now.

AGRO Awards. Thank you, Qing Li and the 2023 Awards Committee, for your dedicated actions to recognize those that have made such wonderful contributes to AGRO. Also, special thank you to Aaron Gross and Sara Whiting for leading the Early Career Scientists Committee and all the members who manage the awards and activities.

Congratulations to our newest **AGRO Fellows**, **Mingming Ma and Daniel R. Swale**. AGRO Fellow criteria include continued and substantial contributions of time, talents, and service to the AGRO Division of ACS and to the agrochemical science over a period of at least six years. See page 5 for additional AGRO award winners.

2023 ACS Fellow from AGRO congratulations to Qing X. Li and Leah S. Riter for being named 2023 ACS Fellows. The selection of ACS Fellows is based on documented excellence and leadership in both of two areas: (1) science, the profession, education, and/or management, and (2) volunteer service in the ACS community. ACS Fellows are recognized for outstanding achievements in and contributions to science, the profession and the Society. It is great to see so many very worth nominations and recipients each year. Nominations for AGRO must be submitted through the AGRO Chair, which will be Aaron Gross, adgross@vt.edu, in 2024.

Division Membership. We welcome new members. Do you know colleagues that would benefit from AGRO membership? Could your employer explore an AGRO membership campaign? One does not need to be an ACS member to be an AGRO Division member, and the price is \$16 or less. ACS has a direct link for online division memberships

(https://home.acs.org/forms/s/technical-divisions?). Please contact the Membership Chair Chris Bianca,

 $chris.bianca@jrfamerica.com, with \ questions \ or \ references.$

AGRO Website and Email. We continue to update our website, thanks to Edmund Norris, to provide easy to access information regarding future meetings, events, webinars, job announcements etc. Please contact us at https://www.agrodiv.org/contact-us/ to submit events, news articles, job announcements, and collaborative efforts with other entities on our website. And thank you, Pat Havens, for volunteering to take over e-newsletter and to Laura McConnell for training both Edmund and Pat.



Volunteers. The AGRO Division runs on volunteers, so thank you for the good membership response. Please check out the AGRO Division Committee (p. 53) for new Chairs and membership changes in several committees. To get involved in AGRO activities, please fill out the **Get Involved** form available on the AGRO website (https://www.agrodiv.org/get-involved/). Your ideas, concerns, and input are valuable and helpful to enhance the AGRO Division and our services for our membership.

AGRO Elections. We appreciate the work of the Nominations and Election Committee, Qing Li (Chair), Leah Riter, and Cheryl Cleveland for



arranging the AGRO annual ballot process this year. We thank all the candidates for their willingness to serve. Each year, AGRO votes in members to the Executive Committee for a three-year term; a Vice-Chair who serves a three-year rotation of Vice-Chair, Program Chair, and Chair; and one-year terms for Secretary and Treasurer. Every three years, we vote for two Councilors and two alternate Councilors who serve three-year terms. AGRO 2023 election closed in mid-July, results will be announced in August.

2024 Officers

Vice Chair: Mingming Ma Secretary: Sharon Schneider Treasurer: Del Koch

<u>Serving 3-year terms (2024 – 2026)</u>

Councilors: Rodney Bennett, Jeanette Van Emon Alternate Councilors: Kevin Armbrust, Leah Riter Executive Committee Members: Ashli Brown, Andrew Coates, Pat Havens, Beth Lorsbach, Eden Tesfu Congratulations to all!

AGRO holds annual elections, so if you are interested in running for an office or the EC in 2024, please contact me (heidi.irrig@syngenta.com), as I will be leading the Nominating and Election Committee and will take nominations for our annual elections – available positions will include the Executive Committee, Vice Chair, Secretary, and Treasurer. All positions are always in need of good candidates.

It has been a pleasure to serve AGRO as Division Chair!

I thank you all for your support, guidance, and encouragement. It has been a real growth experience for me to be part of a constantly evolving community of scientist dedicated to advancing and promoting AGRO's goal to provide the means to feed the world while ensure it is protected through innovations in agricultural science.





AGRO 50th and Beyond Celebration

At the ACS Fall 2023 Meeting San Francisco, California, USA August 13 – 17, 2023

AGRO 50th Anniversary Tour of California Agriculture Thursday, August 17, 2023

Join us for a special educational tour of scenic California agriculture! Discover the many advances in agriculture over the past 50+ years!



Tour Agenda

6:45 AM BOARD BUS, Depart 7:00 AM from Moscone Center

8:30 AM STOP #1: University of California, Davis, Research Orchard

- Welcome by Dean of Agricultural and Environmental Sciences
- Brad Hanson, Plant Sciences, Pesticide research for specialty crops
- Matt Hengel, Environmental Toxicology, IR-4 program overview

9:45 AM Stop #2: Robert Mondavi Institute for Wine and Food Science

- Arran Rumbaugh, Viticulture and Enology, Smoke taint in wine
- Glen Patrick Fox, Malting and Brewing Sciences
- Alyson Mitchell, Food Science and Technology, Beneficial compounds in foods
- Selina Wang, Food Science and Technology, Avocado oil standards.

12:00 PM Stop #3: Putah Creek Lodge – LUNCH

1:15 PM Stop #4 Plant Pathology Research, Old Davis Rd

 Jim Adaskaveg, Microbiology and Plant Pathology of UC Riverside, Fungicide research on fruit trees

2:00 PM Stop #5 Wolfskill Experimental Orchards, Putah Creek Rd

Claire Heinitz, Plant Sciences, Ongoing research at facility

2:45 PM Stop #6 Prune Plot

• Joseph Turkovich, Prune Production.

Participation is limited.

Check our website: agrodiv.org/agro-50th-anniversary-celebration/ for updates on the registration process, fee, and agenda



SENIOR AWARDS. Thomas M. Stevenson, a Corporate Research Fellow at FMC Corporation, is the recipient of the 2023 ACS International Award for Research in Agrochemicals. He will be recognized for his contribution to the commercialization of multiple ground-breaking products that work through new biochemical modes-of-action which include the fungicide famoxadone and the insecticides indoxacarb, chlorantraniliprole, and cyantraniliprole. Kathleen Shelton and Seva Rostovtsev will organize a symposium in Tom's honor at the ACS Meeting in August 2023 in San Francisco.

John M. Clough at Syngenta is the winner of the 2024 ACS International Award for Research in Agrochemicals. He will be recognized for his pioneering work in natural product chemistry for crop protection and his leadership in agrochemical research. His groundbreaking research on and invention of strobilurin fungicides led to the invention of azoxystrobin, then to more than 1000 strobilurin patents and almost 20 commercial products worldwide. A symposium will be organized to honor John at the ACS Meeting in Denver in fall 2024. We thank Corteva Agriscience for their sponsorship.

Kevin G. Meyer at Corteva Agriscience is the winner of the 2023 AGRO Award for Innovation in Chemistry of Agriculture. He will be recognized for innovation and leadership in the discovery of important new fungicides with a novel mode of action. Kevin Meyer led the discovery of fenpicoxamid through the modification of a natural product and further developed the fully synthetic fungicide florylpicoxamid. The award will be presented at the ACS Meeting in August 2023 in San Francisco. We thank BASF for their sponsorship.

Keith R. Solomon will receive the 2023 IUPAC International Award for Advances in Harmonized Approaches to Crop Protection Chemistry, which is sponsored by Corteva Agriscience. Joel Coats is the recipient of the 2023 Kenneth A. Spencer Award, which is sponsored by the Kansas City Section. He will present his lectureship Tuesday morning in AGRO which is co-sponsored by AGFD. Gary List is the winner of the 2023 USDA-ARS Sterling Hendricks Memorial Lectureship Award, which this year was presented virtually in May.

The Journal of Agricultural and Food Chemistry (JAFC) and the AGRO and AGFD Divisions sponsor two lectureships for outstanding papers published in JAFC the previous year. The 2023 winners for the AGRO paper Chongxi Liu, Lu Bai, Peng Cao, **Shanshan Li**, Wende Liu, Xiangjing Wang, and Wensheng Xiang, while the winners for the AGFD paper are **Shari Dhaene**, Amar Van Laar, Marc De Doncker, Emma De Beul, Koen Beerens, Charlotte Grootaert, Jurgen Caroen, Johan Van Der Eycken, John Van Camp, and Tom Desmet. Both presentations will be on Tuesday morning. Please consult the program for time and place.

FELLOWS. This year we congratulate Mingming Ma and Daniel R. Swale as our newly elected AGRO Fellows. We also congratulate Qing X. Li and Leah S. Riter as AGRO's newest ACS Fellows. Many thanks to all who nominated our outstanding AGRO members who have worked to make ACS and AGRO supportive places for sharing scientific knowledge and creating imaginative ways to share science with our global community.

<u>NEW SCIENTIST AWARDS.</u> The 2023 finalists for the AGRO New Investigator Award are Rui Chen, Sanghyeon Kim, and Zhilin Li, all of University of Florida. Each will present in a symposium of their choice (p. 33). The winner will be announced at the AGRO Gala on Wednesday at 5:00 – 8:00 PM. We thank Syngenta for its sponsorship.

The **2023 AGRO Education Award for Student Travel** serves to promote an understanding of the role of chemistry in agriculture. The 17 students who will receive this award (p. 35) will present posters at the AGRO Poster Session on Tuesday at 12:00 noon – 2:00 PM and will compete for 1st, 2nd, and 3rd place. Winners will be announced at the AGRO Gala on Wednesday evening at 5:00 PM – 8:00 PM. Please attend their sessions and support our newest AGRO scientists. We thank Bayer for its sponsorship of our students.

NOMINATIONS ARE BEING SOUGHT. The AGRO Awards Committee is accepting nominations for the 2025 International Award for Research in Agrochemicals and the 2024 AGRO Award for Innovation in Chemistry of Agriculture. Nomination criteria can be found on pages 23 and 25, respectively. The nomination deadline is December 31. Nominations for the 2024 Sterling Hendricks Memorial Lectureship and Kenneth A. Spencer Awards are also being accepted (pp. 27 and 29, respectively).

The AGRO Awards Committee is accepting nominations for the **AGRO 2024 Division Fellow Award** (p. 9). Also consider nominating AGRO members for the **ACS 2024 Fellow Award**. Please note that ACS Fellow nominations must be submitted through the Division Chair. The deadlines each year are March 31 for the AGRO Fellow Award and April 1 for the ACS Fellow Award.

The Journal of Agricultural and Food Chemistry (JAFC) and the AGFD and AGRO Divisions are seeking nominations for the **JAFC 2024 Research Article of the Year Award Lectureship**. Two papers will receive awards, one from each division interest, for an outstanding article published in 2023 (either in an issue of JAFC or as soon as publishable) that demonstrate creativity and impact on agricultural and food chemistry as a whole. The call for nominations of papers published in 2023 will be solicited through the JAFC website beginning in late Fall 2023 (p. 31).

2024 New Investigator Award applications are being accepted; requirements can be found on page 39. This award is presented to scientists who have obtained a doctoral degree within the past five years and are actively conducting academic, industrial, consulting, or regulatory studies of interest to AGRO.

AGRO is very excited and pleased to have received an increase of \$2K to a total of \$6K in sponsorship from Syngenta for the New Investigator Award! AGRO strives to serve its newer members with opportunities to attend ACS meetings and this increased funding will allow AGRO to support early career scientist further.

The application process for the **AGRO Student Travel Awards for 2024** can be found on page 41. AGRO has established an endowment fund for students in collaboration with Bayer US LLC, Crop Science Division to promote an understanding of the role of chemistry in agriculture.

AGRO has many outstanding scientists and volunteers. Please consider nominating a deserving colleague for the AGRO Division and external awards.

Celebrate AGRO Award Winners at the

AGRO 50 and Beyond Gala



ACS Fellow Award Qing X. Li, Leah S. Riter AGRO Fellow Award Mingming Ma, Daniel R. Swale

2023 IUPAC International Award for Advances in Harmonized Approaches to Crop Protection Chemistry Keith R. Solomon

ACS International Award for Research in Agrochemicals Thomas M. Stevenson

AGRO Award for Innovation in Chemistry of Agriculture Kevín G. Meyer

USDA-ARS Sterling Hendricks Lecturer

Gary List

ACS Kansas City Division Spencer Award

AGRO Division *JAFC* Article of the Year Shanshan Lí

AGRO New Investigator Award Finalists Ruí Chen, Sanghyeon Kím, Zhílín Lí

AGRO Education Travel Award Winners

Moscone Center, Exhibit Hall, West Bldg. Wednesday, August 16, 5:00 to 8:00 pm

RSVP required. THIS IS A TICKETED EVENT! See p. 7



AGRO 50 and Beyond Anniversary Gala

Moscone Center, Exhibit Hall, West Bldg. Wednesday, August 16, 5:00 to 8:00 pm

- Festivities will include food, drink, and games/activities.
- AGRO award recipients, past Divisional leaders, and long-time members will be recognized and honored.
- ACS and AGRO Division leaders will greet attendees and toast AGRO's rich history as well as its exciting future.

Gala Activities

- Food and Drink with Special Toasts
- Games and Prizes
- AGRO 50th Logo Keepsake
- Recognition of AGRO Legends and Awardees
- Interactive Divisional Historical Timeline
- Sponsored Agrochemical Table Displays

RSVP required. THIS IS A TICKETED EVENT!

- The gala is free of charge for AGRO Division Members and Presenters (and plus one) and for Special Invited Guests
- Attendance is limited to 200 people, but attendees must register via the AGRO Division website by August 11.
- Register at www.agrodiv.org/agro-50th-anniversary-celebration/

Gala Schedule

5:00 PM	<u>Arrivals and Mingling/Networking</u> Enjoy snacks, drinks, games, and displays
5:30 PM	<u>AGRO Legend Recognitions</u> Join ACS and AGRO leaders in toasting AGRO heritage Special tribute to Jim Seiber
6:00 PM	<u>Appetizers, Drinks, and Activities</u> Feast on assorted foods Enjoy games, activities, and displays
7:00 PM	<u>AGRO Award Recognitions</u> Celebrate AGRO, ACS, and IUPAC awardees Announcement of Early Career and Student Awards
7:20 PM	<u>Anniversary Cake Ceremony</u> Indulge in the sweet taste of AGRO success Receive an AGRO 50th logo keepsake
8:00 PM	<u>Conclusion of Gala</u> Cherish your memories of our 50 th celebration

Questions, please contact:

Ken Racke, kenracke@gmail.com Jeanette Van Emon, jmvanemon@gmail.com



1971	Louis Lykken		Richard C. Honeycutt	2013	Stephen O. Duke
	Tom H. (Bucky) Harris	1986	Gunter (Jack) Zweig		Cathleen J. Hapeman
	Herman Beckman	1987	Willa Garner		Kenneth D. Racke
	(Posthumous)	1988	Jan Chambers		Teresa A. Wehner
1972	Wendell F. (Bud) Phillips		James Seiber	2014	Aldos C. Barefoot
	Don G. Crosby	1990	Joseph Fenyes		Jeanette M. Van Emon
	Elvins Y. Spencer	1991	Nancy N. Ragsdale	2016	Kevin J. Armbrust
1973	Mr. Roger C. Blinn	1992	Don Baker		Del A. Koch
	Philip C. Kearney		Joel Coats		Sharon K. Papiernik
	Julius J. Menn		Guy Paulson		Pamela J. Rice
1974	Morton Beroza	1993	Larry Ballantine	2017	Diana Aga
	James P. Minyard, Jr.	1994	James Heitz		Jay Gan
	Joe C. Street		Ralph Mumma		Marja Koivunen
1975	Hank F. Enos		Willis Wheeler		Steven J. Lehotay
	Maurice B. Green	1996	John Bourke		Thomas M. Stevenson
	Charles H. Van Middelem	1998	Hank Cutler	2018	John J. Beck
1976	Marguerite L. Leng		Paul Giesler		Julie E. Eble
	Jack R. Plimmer	2000	Barry Cross	2019	Leah S. Riter
	Gerald G. Still	2001	Robert Hoagland	2020	Cheryl B. Cleveland
1977	Gustave K. (Bob) Kohn	2003	Judd O. Nelson		Aaron D. Gross
1978	S. Kris Bandal	2005	Rodney Bennett		Heidi B. Irrig
	Paul Hedin	2006	Terry D. Spittler	2021	Michael E. Krolski
1979	Rodney D. Moss	2007	John M. Clark		Qing X. Li
1980	G. Wayne Ivie		Ann T. Lemley		Kalumbu Malekani
	John B. Siddall (Posthumous)		R. Donald Wauchope		Carmen Tiu
1981	Robert M. Hollingworth	2008	Allan S. Felsot	2022	Yelena Sapozhnikova
	Gino J. Marco	2011	Laura L. McConnell	2023	Mingming Ma
1983	John Harvey, Jr.	2012	Jeffrey J. Jenkins		Daniel Swale
1985	Henry Dishburger		John J. Johnston		

CALL FOR NOMINATIONS AGRO DIVISION FELLOW AWARD

The AGRO Division has established the *Division Fellow Award* to recognize its members whose dedicated and enthusiastic service has kept the Division moving forward. Criteria shall be –

Continued and substantial contributions of time, talents, and service to the Division of Agrochemicals, ACS, and to agrochemical science over a period of at least six years. Nominations include a letter, noting the contributions to the Division, and a current *curriculum vitae*. The deadline for submitting nominations is March 31 of each year. Contact the Awards Committee for further information.

Submit nominations electronically to: Qing X. Li AGRO Awards Committee Chair 808-956-2011 qingl@hawaii.edu



AGRO DIVISION FELLOW AWARD

For continued and substantial contributions of time, talents, and service to the AGRO Division and agrochemical science

Presented to Mingming Ma and Daniel Swale



Mingming Ma is the leader of the Analytical R&D group at Corteva Agriscience in Indianapolis, Indiana. She holds a B.S. and M.S. in Pharmacy from Zhejiang University, China and earned her Ph.D. in Pharmaceutical Sciences from the University of Wisconsin - Madison. Mingming began her career at the Dow AgroSciences in 2008, where she established herself as

an expert in the fields of metabolism, environmental fate, and safety assessment for discovery and development of novel crop

protection actives, aligning with the company's sustainability objectives. In 2021, Mingming assumed the leadership role of the Analytical R&D group at Corteva Agriscience. In this capacity, she leads a team dedicated to delivering end-to-end analytical solutions that support Discovery through Manufacturing projects.

Mingming has been an active member of American Chemical Society (ACS) and the Agrochemicals Division for more than eight years. She is passionate with engaging experts in the field and providing technical learning and development opportunities for the early career scientists. She has organized and chaired numerous technical symposia and Early Career Scientist Symposia at ACS and PacifiChem to foster collaboration, idea exchange and knowledge sharing among experts in the field. Mingming has served as a member on the AGRO Executive Committee and currently serves as the Chair of the Development Committee. In these roles, she actively advocates for the mission and vision of the AGRO Division to drive the advancement of the agriculture science.



Daniel R. Swale is an associate professor **Emerging Pathogens** Institute in the Department of Entomology and Nematology at University of Florida (UF), Gainesville. Daniel received his B.S. in **Biological Sciences at** Christopher Newport University, M.S. degree in Life Sciences from Virginia Tech, and Ph.D. degree in Insect Toxicology from

University of Florida. After serving a postdoctoral fellowship in neuropharmacology at Vanderbilt University, he served on the faculty at Louisiana State University for 7 years before transferring to UF as an Associate Professor in the Department of Entomology and Nematology. Daniel's current research program lies at the interface of physiology, toxicology, and molecular genetics to provide knowledge on the modes of action, discovery and development, and resistance of various drugs and insecticides. He has been the major advisor of 11 graduate students and four postdoctoral fellows that have all been actively involved in the student and early career scientist opportunities in the AGRO Division program at the ACS meetings.

Daniel has been involved in the AGRO Division since 2009 as a graduate student and continues to be involved with the Division as a faculty member. He has co-written several Innovation program Grants (IPG) for Division Enhancement awards that were aimed to increase opportunities for early career scientists within the Division. The Early Career Symposium has become an established symposium at ACS meetings. Daniel was elected to the Executive Committee, has co-organized 9 symposia at the ACS Meetings, and serves a member of multiple committees within the AGRO Division.

Outside of work, Daniel spends all of his free time fishing (fresh and salt water), hunting (feathers or fur), and running

Congratulations Mingming and Daniel! Thank you for all you do for AGRO!

Meet with Smithers

Smithers Chemistry and Environmental Fate & Metabolism scientists are chairing a symposium and presenting at the ACS National Meeting. Attend a session below or contact us at infoERS@smithers.com to meet with our team.

Smithers Chaired Symposium:

Uses of HPLC-Mass Spectrometry in Support of Agricultural Research and Development -Trends and Best Practices Tuesday, August 15, 8:00 AM - 12:00 PM Room: 3024, West Bldg - Moscone Center

Smithers Presentations:

Platform: Utilizing the QuEChERS sample preparation approach for targeted analysis of pesticides in complex ecotoxicology matrices ID: 3918391 Sunday, August 13, 10:40 AM - 11:05 AM Room: 3018, West Bldg - Moscone Center

Poster: *In vitro* comparative metabolism of chemicals that are nominally a gas ID: 3926052 Tuesday, August 15, 12:00 PM - 2:00 PM Room: Hall F, South Bldg - Moscone Center

Poster: Soil column leaching of [¹⁴C]-Atrazine in similar soils representing three continents ID: 3924419 Monday, August 14, 8:00 PM - 10:00 PM Room: Hall F, South Bldg - Moscone Center





Dr. Jim Ferguson

Rory Mumford



Andrea McGuinness



Rory Mumford



Dr. Kalumbu Malekani



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International Award for Advances in Harmonized Approaches to Crop Protection Chemistry

Sponsored by the International Union for Pure and Applied Chemistry Financially sponsored by Corteva Agriscience

Brief history of risk assessment for agrochemicals



Keith R. Solomon was named as the receipt of the 2023 IUPAC International Award for Advances in Harmonized Approaches to Crop Protection Chemistry earlier this spring. He is recognized for his creative and internationally influential force for science-based and harmonized approaches to crop protection chemistry. Keith is a professor at

the School of Environmental Sciences, University of Guelph in Guelph, Canada. His contributions are rooted in his role as a leading investigator and scholar concerning chemical behavior and significance in the environment. His well-known research, much of which has been focused on risk assessment of important crop protection chemicals, has been leveraged to advance harmonized approaches to chemical assessment through expert collaborations as well as educational and global outreach efforts.

Keith has made substantial and original contributions through his research on chemical behavior and significance of exposures for environmental guality and human health. These efforts originated from the active research laboratory he developed and led at the University of Guelph (UG), Canada, for more than 40 years. His work has often been directed towards addressing concerns around some of the most important and widely used crop protection chemicals. He has developed novel approaches for quantifying their behavior in the environment, and helped standardize approaches involving microcosms, mesocosms, and species effect probability distributions. His research has not stopped at merely the observation and quantification of chemical residues in environmental compartments but has helped elucidate potential biological impacts through the employment of quantitative risk assessment methodologies. The standardized risk assessment approaches that he developed and popularized have provided practical examples for how chemistry can best be employed to elucidate

the nature of potential chemical exposure concerns and support informed management of crop protection chemicals. His research has provided a pioneering template for other chemists to follow in bringing their science to the practical benefit of society.

Keith has made unique contributions to the practical application of chemistry for support of harmonized risk assessment practices through his expert collaborations with other scientists on a national and international basis. He has not worked as an isolated researcher pursuing a solitary pathway of investigation, but instead has operated in a highly collaborative fashion with experts from academia, government agencies, and industry to advance critical research initiatives, elaborate standardized methodologies, and provide recommendations for risk managers and policy-makers. In these efforts, Keith has functioned as a leader and contributing member of governmental and scientific society expert panels and working groups sponsored by IUPAC (e.g., Water Chemistry Commission), United Nations Environmental Program, International Life Sciences Institute, U.S. Environmental Protection Agency, Agriculture Canada, Canadian National Research Council, and Society of Environmental Toxicology and Chemistry (SETAC).

Keith has made lasting contributions to the development of his peers as well as the next generation of chemistry contributors through his educational and global outreach efforts. He has been highly active in mentoring, teaching, training, and lecturing to broaden awareness of sound approaches to crop protection chemistry and infect others with his wisdom and passion for excellence. He has mentored or co-supervised nearly 75 M.S. and Ph.D. students and served as a committee member for many others. His has developed of several influential classes at UG focused on chemical assessment principles and lectured many short courses around the world teaching these principles. Over the years he has authored or co-authored more than 300 publications in the peer-reviewed literature. Perhaps his most noteworthy textbook is Pesticides and the Environment and was published in four languages. The second addition (2021) is now available as in electronic and hard-copy versions was published.

Keith's longstanding contributions to the science of crop protection chemistry have helped firmly establish harmonized approaches for the science of risk assessment as a critical underpinning for management of crop protection chemistry.

--- Excerpts with permission from iupac.org

AGRO congratulates Keith for his leadership and for being an inspiration to all!

Dr. Keith Solomon will receive his award and present his award lecture as part of the AGRO 50 and Beyond Celebration on Wednesday, August 16, at 2 PM.



INNOVATING RELENTLESSLY FOR FARMERS.

TOGETHER WE GROW

Cara, Senior Biologist United States

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ACS INTERNATIONAL AWARD FOR RESEARCH IN AGROCHEMICALS

Sponsored by Corteva Agriscience

Pyridazinones in crop protection research



Thomas M. Stevenson Murphysboro, Illinois and was educated in the public-school systems in Muncie, Indiana and Granite City, Illinois. He graduated magna cum laude with a B.S. in chemistry from Saint Louis University in 1979 where he carried out undergraduate research on the Heck Reaction with Harold A. Dieck funded by a Monsanto Summer Fellowship. In 1979, he received a

Ph.D. in organic chemistry from the University of Illinois under the supervision of Nelson J. Leonard.

After his postdoctoral research at the University of Geneva in Switzerland with Wolfgang Oppolzer, Tom joined DuPont Crop Protection in 1985 as a research chemist, rising in ranks to DuPont Fellow. Upon his retirement in 2017, he joined FMC Agricultural Solutions as an FMC Fellow.

Tom has been an enthusiastic member of the American Chemical Society and its AGRO Division. In addition to giving more than 80 presentations in AGRO symposia and poster sessions, he has also served on the AGRO Executive committee. He has coorganized more than a dozen symposia at ACS meetings and was the topic organizer for the Synthesis Topic Area for the 13th IUPAC International Congress of Pesticide Chemistry which was co-sponsored by the AGRO Division at the ACS Fall 2014 meeting. He has also co-edited two ACS publication books based on these symposia. For these contributions, he was named an AGRO Division Fellow and an ACS Fellow.

During his career Tom has proven to be a prolific inventor in the field of agricultural chemistry across insecticides, fungicides and herbicides. He holds over 70 issued United States patents and has presented over 120 lectures and posters at scientific meetings. His contributions to the invention of several successful commercial agricultural products, most notably the blockbuster insecticides Ryanxypyr and Cyazypyr, have led to numerous scientific awards including the Kenneth A. Spencer Award, AGRO Award for Innovation in Chemistry of Agriculture, ACS Heroes of Chemistry, ACS Award for Team Innovation, and the IPO Educational Foundation National Inventor of the Year.

Dr. Thomas Stevenson will present his award lecture in at the International Award Symposium on Monday, August 14, at 8:00 AM in Room 3014, West Bldg.

sustained support of the International Award.



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AGRO AWARD FOR INNOVATION IN

CHEMISTRY OF AGRICULTURE

Sponsored by BASF Corporation

Creating a new class of fungicides



Kevin G. Meyer began his career in agriculture on the family farm in northwest Missouri. Following that bit of education, he attended **Truman State University** in Kirksville, Missouri, receiving his B.S. in Chemistry in 1994. He then went to Indiana University in Bloomington, IN and receives his Ph.D. in Organic Chemistry under the guidance of Professor David

Williams. His research focused on the first total synthesis of the macrolide, Amphidinolide K, a synthesis that also established the stereochemistry of the natural product.

Kevin's professional career with Corteva Agriscience (legacy Dow AgroSciences) began in 1999 where he has been primarily interested in the discovery and development of new fungicides for crop disease management. His first project involved a collaboration with Meiji Seika Pharma Co. to utilize the natural product UK-2A to make novel fungicides. This resulted in the discovery of fenpicoxamid, whose mode of action to control wheat leaf blotch is the first new entry into the European cereals market in two decades.

To expand the utility of this new class of chemistry, Kevin led a cross-functional team of scientists to use UK-2A as inspiration for new, synthetically accessible analogs that exploited the potential of the UK-2A target site. Employing a modular approach to scope the structural elements of UK-2A's macrocyclic ring, the team discovered the functional pharmacophore responsible for exceptional in planta activity, and using this new knowledge, they invented florylpicoxamid, a fungicide with multi-pathogen, multi-crop utility. This effort also resulted in the discovery of metarylpicoxamid, a third generation picolinamide whose primary use is in the control of Asian soybean rust.

Now a Laureate in Small Molecules Discovery & Development at Corteva Agrisciences, Kevin has won company awards for his research, including the R&D Excellence in Science Award and the team based Corteva Agriscience Worldwide Research Award for Breakthrough Innovation. He is a co-inventor on 48 granted patents and has authored or co-authored over 52 manuscripts, book chapters, external posters and presentations..

Dr. Kevin Meyer will present his award lecture in the New Strategies in Process Research and Development in Crop Protection symposium on Tuesday, August 15, at 5:05 PM, in Room 3016, West Bldg

The AGRO Division is grateful for the sustained support of the AGRO Innovation Award.



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STERLING B. HENDRICKS MEMORIAL LECTURESHIP AWARD

Sponsored by USDA-Agricultural Research Service Co-Sponsored by AGFD and AGRO Divisions

Brief history of improving the healthiness, stability, and functionality of edible oils



Gary List is a veteran of the U.S. Army (1960-1963) where he worked as a technican at the U.S. Army Medical Laboratory at Edgewood Arsenal in Maryland. He was the coauthor of two publications in the Journal of the American Chemical Society and the Archives of Biochemistry and Biophysics. His contributions were further recognized by a

commendation from the U.S. Secretary of Defense and a promotion to E-5.

Gary began his career in the USDA-Agricultural Research Service at the Northern Regional Research Laboratory in Peoria, Illinois in 1963 as a physical science aid and was quickly promoted to GS-9. In 1971, he completed an AD with 30 hours of chemistry, and in 1975, he was promoted to GS-11 Chemist. He retired in 2007 as a GS-15.

Gary was awarded a D.Sc.(Honoris Causa) by the University of Illinois in 2011 in recognition of his reseach on soybean oil. His

research has encompased virtually every phase of oilseed processing and edible fats and oils. He is the author of 490 publications, including 45 book chapters and editor of 8 books. He has contributed to four revisions of the standard fats and oils textbook *Baileys Industrial Oil And Fat Products* publinshed in 1985, 1996, 2005, and 2020.

Gary has received the top awards in lipids, food, and agricutural chemistry from the American Oil Chemists Society (AOCS), Institute of Food Technologists (IFT), American Chemical Society (ACS), and European Federation Lipid Technology. He has been active in AOCS, IFT, and ACS and is a fellow in each. Service awards from AOCS include the Award of Merit and the Baldwin Distinguished Service Award. He was selected as the IFT Chicago Section Fred W.Tanner Lecturer and was only the second bench chemist to give it in its 50 year history. The IFT Minnesota Section presented him with the Harold Macy Award for technology transfer activities between government, industry, and academia. Just two other USDA scientists have received the Macy Award since 1981. In 2006, the United Soybean Board honored him with a Distinguished Service Award in recognition of his contributions to the soybean industry. He has given invited plenary lectures in Canada, Austria, China, Turkey, and Taiwan.

Gary and his wife have 4 children and 7 grandchildren. His hobbies include military history and the history of the fats and oils industry. They are both active in their local church and inner city ministry. From 1989 to 2002, they were foster and adoptive parents to 20 children.

Dr. Gary List presented a brief overview of his research in a USDA-Agricultural Research Service internal webinar in May 2023.

Gary's summary can be viewed at https://www.ars.usda.gov/research/lectures/index/

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Mike Winchell 802.249.2816 mwinchell@stone-env.com

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Terpenoids and phenylpropanoids serve as ideal sustainable, green insecticides, synergists, and repellents



Joel R. Coats is the Charles F. Curtiss Distinguished Professor Emeritus in the Department of Entomology at Iowa State University. He grew up on a farm in Ohio and received his B.S. in Zoology (Chemistry minor) from Arizona State University. His received his M.S. and Ph.D. in Entomology (Chemistry minor) graduate training was

at the University of Illinois at Urbana-Champaign where he specialized in insecticide toxicology and environmental toxicology. He was a Visiting Professor for two years in the Department of Environmental Biology at the University of Guelph in Ontario, Canada, teaching in Pesticides in the Environment and Biological Activity of Pesticides.

At lowa State, Joel was the primary organizer of the Interdepartmental Toxicology Graduate Program and served as the first Chair of that program. He also served as Chair of the Department of Entomology for seven years. He taught all or parts of four courses: Insecticide Toxicology, Pesticides in the Environment, Principles of Toxicology, and Special Topics in Insect Toxicology. He has served as major professor for 52 graduate students who graduated from his lab and has served as adviser for 14 postdocs. His research program includes two main areas, 1) insect toxicology and 2) environmental toxicology and chemistry of agrochemicals. His scientific publications include 15 books, 9 review articles, 51 book chapters, and 172 peer-reviewed journal articles.

For the past 35 years, Joel has been innovative in investigating natural products as insecticides and insect repellents. He has worked on identifying active components in the materials, their spectrum of activity, mechanisms of action, metabolism, and environmental fate. His research has primarily addressed terpenes and terpenoids, but it has also included studies on naturally-occurring glucosinolates, cyanohydrins, isoflavones, and fatty acids. His laboratory has synthesized hundreds of biorational analogs of terpenoids and used quantitative structure-activity relationships to assist in understanding modes of action and in prediction of better compounds. Importantly, his research has helped pave the way for companies to move forward in research and development of new products in the field of natural pesticides and repellents. He holds 13 patents on insecticides and insect repellents (7 have been licensed), and he currently has 6 pending (all licensed).

Joel is a Fellow of the American Chemical Society, the American Association for the Advancement of Science, the Entomological Society of America, and the Agrochemicals Division of the ACS. He received the ACS Award for Innovation in Chemistry of Agriculture (2022), the ACS International Award for Research in Agrochemicals (2006), the Alumni Achievement Award (2013) from the University of Illinois College of Liberal Arts and Sciences, the Margaret Ellen White Award for Mentoring Graduate Students from the Graduate College at Iowa State University (2015), the John Doull Toxicology Award, from the Society of Toxicology's Central States Chapter (2017), and the C.V. Riley Award from the North Central Branch of the Entomological Society of America (2018).

Dr. Joel Coats will present his award lecture in the Innovations in Vector Control: New Tools and Strategies symposium on Tuesday, August 22, at 8:30 AM, in Room 3016, West Bldg.

Risk Assessment

- Ecological and human health risk assessment
- Registration, re-registration, and stewardship of agrochemicals
- Endangered species risk assessment (national and lawsuit driven)
- Pollinator environmental risk assessment
- Regulatory and legal support services
- Public consultation and communication
- Refined exposure modeling
- Litigation Support

Environmental Fate and Exposure Modeling

- Surface water exposure (PWC, AGRO, TOXSWA)
- Spray drift (AgDrift, AGDISP, REGDISP)
- Volatilization and atmospheric transport (AERMOD)
- Watershed analysis (SWAT, APEX)
- Urban modeling (SWMM)
- Vegetative filter strips (VFSMOD)
- Groundwater exposure (PRZM, LEACHP, RZWQM)
- Higher tier probabilistic exposure assessments
- Agronomic best management practices
- Uncertainty analysis
- Custom model development and modification
- Climate change impact analysis

Quality Assurance (RQAP-GLP)

GLP and NELAC audits and training

Field Studies

- Study design and directorship
- Field volatility studies
- Drift reduction technology assessments
- Pollinator field studies
- Simulated rainfall runoff
- Ecological monitoring studies
- Surface water monitoring
- Terrestrial and aquatic field dissipation
- Residue trial management
- Prospective groundwater studies
- Regional groundwater monitoring
- Community drinking water monitoring
- Emerging crop protection technologies research – Unmanned Aircraft Systems (UAS) applications

Spatial Analysis

- Endangered species assessments (proximity and co-occurrence)
- Watershed characterization
- High resolution national assessments
- Spatial uncertainty analysis
- GIS tool development for environmental risk assessment
- Web-based GIS solutions

State Regulatory Support

 Experience working with state regulators on a variety of agricultural related projects.

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Mike Winchell 802.249.2816 mwinchell@stone-env.com

AGRICULTURAL AND FOOD CHEMISTRY

RESEARCH ARTICLE OF THE YEAR LECTURESHIP AWARDS *Co-sponsored by AGFD & AGRO Divisions*

AGRO AWARD

Co-sponsored by AGFD

Novel Plant Growth Regulator Guvermectin from Plant Growth-Promoting Rhizobacteria Boosts Biomass and Grain Yield in Rice. Chongxi Liu, Lu Bai, Peng Cao, Shanshan Li, Sheng-Xiong Huang, Jidong Wang, Lei Li, Ji Zhang, Junwei Zhao, Jia Song, Peng Sun, Yanyan Zhang, Hui Zhang, Xiaowei Guo, Xilang Yang, Xinqiu Tan, Wende Liu*, Xiangjing Wang*, and Wensheng Xiang.* *J. Agric. Food Chem.* **2022**, *70*, 16229–16240. DOI: 10.1021/acs.jafc.2c07072T.

Plant growth regulators (PGRs) play an essential role in improving crop yield and quality. This exceptional research article reports a new PGR, guvermectin (GV), isolated from plant growth-promoting rhizobacteria, which can promote root and coleoptile growth, tillering, and early maturing in rice. A four-year field trial involving 28 rice varieties showed that seed-soaking treatment with GV increased yields by 6.2 to 19.6%, outperforming other PGRs



Shanshan Li is a professor at the Institute of Plant Protection, Chinese Academy of Agricultural Sciences (IPPCAAS), China. Her research interests are focused on agricultural natural product discovery from Streptomyces and strain engineering for production enhancement of valuable chemicals, including isolation and screening of useful strains in the agricultural field, elucidation of general metabolic and

regulatory mechanisms of biosynthesis of target natural chemicals, and development of useful approaches to construct high-yield cell factories of target natural products.

Wensheng Xiang is a professor at IPPCAAS and Northeast Agricultural University, China. His research interests are agricultural natural product discovery and industrialization. He has implanted industrialization of four biopesticides including milbemycins as well as the novel plant growth regulator guvermectin. He has received four National and Provincial Science and Technology Awards.



AGRO TUESDAY 11:00 AM. Room 3014, West Bldg. Novel plant growth regulator guvermectin from plant growth promoting rhizobacteria boosts biomass and grain yield in rice. C. Liu, L. Bai, P. Cao, S. Li, W. Liu, X. Wang, W. Xiang

AGFD AWARD

Co-sponsored by AGRO

Sweet Biotechnology: Enzymatic Production and Digestibility Screening of Novel Kojibiose and Nigerose Analogues. Shari Dhaene, Amar Van Laar, Marc De Doncker, Emma De Beul, Koen Beerens, Charlotte Grootaert, Jurgen Caroen, Johan Van der Eycken, John Van Camp*, and Tom Desmet*. J. Agric. Food Chem. 2022, 70, 3502–3511. DOI: 10.1021/acs.jafc.1c07709

Excessive sugar intake is a global problem linked to the global obesity pandemic and related metabolic diseases. In this outstanding research article, the authors report the enzymatic production and in vitro digestibility of three novel glycosides. These new sugars showed a reduced digestibility and a limited impact on energy metabolism, indicating their promise as potential future sweeteners with healthier properties.

Shari Dhaene is a

postdoctoral researcher at the Centre for Synthetic Biology (Glycodirect) at the Faculty of Bioscience Engineering, Ghent University, Belgium where she currently fulfils the role as industrial liaison with the focus on rare sugar production. After finishing her higher education at Ghent University in 2017 as Master of Science in Bioscience Engineering in



Chemistry and Bioprocess technology, she started as a Ph.D. researcher at the Centre for Synthetic Biology sponsored by the Flemish government with a "Strategic Basic Research" (SBO) grant funded by FWO Flanders (Glycoprofit). During this period, she was a member of the Glycodirect group where she focused on the production and evaluation of rare (and novel) disaccharides.

AGFD TUESDAY 8:00 AM. Room 3010, West Bldg.
Sweet biotechnology: enzymatic production and digestibility screening of novel kojibiose and nigerose analogues, S. Dhaene, A. Van Laar, M. De Doncker, E. De Beul, K. Beerens, C. Grootaert, J. Caroen, J. Van Der Eycken, J, Van Camp, T. Desmet

Congratulations to all these creative scientists!

PAST AWARDEES OF THE ACS INTERNATIONAL AWARD FOR RESEARCH IN AGROCHEMICALS

- 1969 John E. Casida, University of California, Berkley
- 1970 Richard D. O'Brien, Cornell University, Ithaca, New York
- 1971 Robert L. Metcalf, University of Illinois, Champaign-Urbana
- 1972 Ralph L. Wain, Wye College, University of London, England
- 1973 Hubert Martin, British Crop Protection Council, London, England
- 1974 T. Roy Fukuto, University of California-Riverside
- 1975 Michael Elliot, Rothamsted Experimental Station, Harpenden, England
- 1976 Morton Beroza, USDA-ARS, Beltsville, Maryland, retired
- 1977 Francis A. Gunther, University of California-Riverside
- 1978 Julius J. Menn, Stauffer Chemical Co., Mountain View, California
- 1979 Milton S. Schechter, USDA-ARS, Beltsville, Maryland, retired
- 1980 Minoru Nakajima, Kyoto University, Kyoto, Japan
- 1981 Philip C. Kearney, USDA-ARS, Beltsville, Maryland
- 1982 Jack R. Plimmer, USDA-ARS, Beltsville, Maryland
- 1983 Karl Heinz Buechel, Bayer AG, Leverkusen, Germany
- 1984 Jacques Jean Martel, Roussel Uclaf, Paris, France
- 1985 Junshi Miyamoto, Sumitomo Chemical Co., Japan
- 1986 James Tumlinson, USDA-ARS, Gainesville, Florida
- 1987 Fumio Matsumura, Michigan State University, East Lansing
- 1988 Ernest Hodgson, North Carolina State University
- 1989 Toshio Narahashi, Northwestern University, Evanston, Illinois
- 1990 David Schooley, University of Nevada, Reno
- 1991 Stuart Frear, USDA-ARS, Fargo, North Dakota
- 1992 Bruce Hammock, University of California-Davis
- 1993 Morifusa Eto, Kyushu University, Fukoka, Japan
- 1994 Toshio Fujita, Kyoto University, Japan
- 1995 Mohyee Eldefrawi, University of Maryland, Baltimore Koji Nakanishi, Columbia University, New York, New York
- 1996 Günther Voss, Ciba, Basel, Switzerland Klaus Naumann, Bayer AG, Leverkusen, Germany
- 1997 Fritz Führ, Institute of Chemistry and Dynamic, Jülich, Germany
- Izuru Yamamoto, University of Tokyo, Japan 1998 George Levitt, DuPont, Wilmington, Delaware
- Leslie Crombie, University of Nottingham, England
- 1999 Don Baker, Zeneca, Richmond, California James Seiber, University of Nevada, Reno

- 2000 George P. Georghiou, University of California, Riverside Herbert B. Scher, Zeneca, Richmond, California
- 2001 Donald Crosby, University of California, Davis Ralph Mumma, Pennsylvania State University, University Park
- 2002 Keith Solomon, University of Guelph, Canada Marinus Los, American Cyanamid, Princeton, New Jersey
- 2003 Bob Hollingsworth, Michigan State University, East Lansing Hideo Ohkawa, Kobe University, Kobe, Japan
- 2004 Stephen O. Duke, USDA-ARS, Oxford, Mississippi John M. Clark, University of Massachusetts, Amherst
- 2005 Robert Krieger, University of California, Riverside Janice E. Chambers, Mississippi State University, Starkville
- 2006 Joel Coats, Iowa State University, Ames Isamu Yamaguchi, Agricultural Chemicals Inspection Station, Tokyo, Japan
- 2007 Gerald T. Brooks, University of Sussex, Brighton, United Kingdom, retired

Fredrick J. Perlak, Monsanto, St. Louis, Missouri

- 2008 David M. Soderlund, Cornell University, Ithaca, New York
- 2009 R. Donald Wauchope, USDA-ARS, Tifton, Georgia, retired
- 2010 Shinzo Kagabu, Gifu University, Gifu, Japan
- 2011 George P. Lahm, DuPont Crop Science, Newark, Delaware
- 2012 Thomas C. Sparks, Dow AgroSciences, Indianapolis, Indiana
- 2013 René Feyereisen, National Institute of Agronomic Research (INRA), France
- 2014 Ralf Nauen, Bayer CropScience, Monheim, Germany
- 2015 Keith D. Wing, formerly of Rohm and Haas and DuPont Crop Protection, Wilmington, Delaware
- 2016 Yoshihisa Ozoe, Shimane University, Japan
- 2017 Jeffrey Bloomquist, University of Florida, Gainesville
- 2018 Stephen Powles, University of Western Australia
- 2019 Vincent L. Salgado, BASF, Research Triangle Park, North Carolina
- 2020 Qing X. Li, University of Hawai'i, Mānoa, Hawai'i
- 2021 David B. Sattelle, University College, London, England
- 2022 Jeffery G. Scott, Cornell University, Ithaca, New York
- 2023 Thomas M. Stevenson, FMC, Newark, Delaware
- 2024 John M. Clough, Syngenta

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ACS Fall 2025 in Washington, DC USA

The ACS International Award for Research in Agrochemicals is given to a scientist who has made outstanding contributions to the field of agrochemicals at the international level. Their vision and sustained contributions will have opened new horizons for other investigators in their field and beyond.

- The nomination letter will include the following statement: "I hereby nominate [insert first, middle, last name] as a candidate for the ACS International Award for Research in Agrochemicals." It will also include the nominee's birthplace, date of birth, citizenship, business address, and a description (200 1000 words) of the reasons why the nominee should receive this award, stressing the individual's major accomplishments.
- Include a *curriculum vitae* of the candidate that includes: places and nature of employment, professional affiliations, honors and awards received, and a list of publications and patents.
- Nominations often include one or two letters of *support*, although this is optional.

Electronic nominations (as a single pdf file) containing all the listed items should be emailed to:

Qing X. Li AGRO Awards Committee Chair 808-956-2011 qingl@hawaii.edu

Deadline: Nominations should be received by the committee chair by **December 31** of each year. Balloting will be conducted beginning in January, and results will be announced the following spring.

The **nominating official(s)** should be prepared to assist in organizing a symposium at the ACS Fall 2025 Meeting in honor of the awardee.

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Eurofins Agroscience Services congratulates AGRO on 50 years of scientific innovation and outreach

At Eurofins Agroscience Services, we value continued scientific advancement, pioneering new solutions, and engaging the next generation. That's why, for more than 30 years our organization has partnered with AGRO in its mission to bring together a worldwide community of scientists and stakeholders to advance knowledge and promote innovative solutions for the protection of agricultural productivity, public health and environment.

Thank you to the many members and friends who have supported this organization over the years, and here's to the next 50 years of scientific education and inspiration.



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ACS Fall 2024 Meeting in Denver, Colorado, USA

The ACS Award for Innovation in Chemistry of Agriculture is given to an active researcher working in North America for a chemical innovation that significantly enhances agricultural or veterinary pest management and productivity. The awardee will be asked to give an award address at the ACS Fall 2024 meeting.

The Nomination email will include the following:

- 1. A formal letter of nomination that includes:
 - Name, business address, phone, and email address of the nominator
 - Name, business address, phone, and email address of the nominee
 - A nomination statement (200 1000 words) giving reasons why the nominee should receive this award, stressing the chemical innovation and how it has enhanced agricultural or veterinary pest management and productivity
- 2. The nominee's current curriculum vitae
- 3. One or two letters of support
- 4. Reference or e-mail link to 1 or 2 published manuscripts that report on the work which supports the award nomination

Electronic nominations (as a single pdf file) containing all the listed items should be emailed to:

Qing X. Li AGRO Awards Committee Chair 808-956-2011 qingl@hawaii.edu

Deadline: Nominations should be received by the committee chair by **December 31** of each year. Balloting will be conducted beginning in January, and results will be announced the following spring.

The Awardee will be given the opportunity to present his/her work in a special lecture at the ACS Fall 2024 Meeting in August in Denver, Colorado.

PAST AWARDEES OF THE AGRO AWARD FOR INNOVATION IN CHEMISTRY OF AGRICULTURE

- 2012 Steven J. Lehotay, USDA-Agricultural Research Service, Wyndmoor, Pennsylvania
- 2013 Jeanette M. Van Emon, US Environmental Protection Agency, Las Vegas, Nevada
- 2014 Scott R. Yates, USDA-Agricultural Research Service, Riverside, California
- 2015 Thomas C. Sparks, Dow AgroSciences, Indianapolis, Indiana
- 2016 Thomas M. Stevenson, DuPont Crop Protection, Newark, Delaware
- 2017 Qing X. Li, University of Hawai'i, Mānoa, Hawai'i

SPECIAL THANKS TO OUR SPONSOR FOR THEIR GENEROUS CONTRIBUTION!

- 2018 Vincent L. Salgado, BASF, Research Triangle Park, North Carolina
- 2019 Pamela G. Marrone, Marrone Bio Innovations, Davis, California
- 2020 Ke Dong, Michigan State University, East Lansing, Michigan
- 2021 Jeffrey Bloomquist, University of Florida
- 2022 Joel R. Coats, Iowa State University
- 2023 Kevin G. Meyer, Corteva Agriscience, Indianapolis, Indiana



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CALL FOR NOMINATIONS 2024 STERLING B. HENDRICKS MEMORIAL LECTURESHIP Sponsored by USDA-Agricultural Research Service Co-Sponsored by AGFD and AGRO Divisions

The Agricultural Research Service (ARS), USDA's principal inhouse scientific agency, is seeking nominations for the 2024 Sterling B. Hendricks Memorial Lectureship Award. This award is also co-sponsored by the American Chemical Society (ACS).

Established in 1981, the Hendricks Memorial Lectureship honors the memory of Sterling B. Hendricks (1902-1981) by recognizing scientists who have made outstanding contributions to the chemical science of agriculture. Hendricks contributed to many diverse scientific disciplines, including soil science, mineralogy, agronomy, plant physiology, geology, and chemistry. He is most frequently remembered for discovering phytochrome, the lightactivated molecule that regulates many plant processes. The lecture should address a scientific topic, trend, or policy issue related to agriculture.

The lecture is a forum for a presentation on a scientific topic, trend, or policy issue related to the chemical science of agriculture. Selected nominees will receive a \$5,000 honorarium, a personalized plaque with a medal, and recognition from the ARS Administrator. Awardees will be asked to virtually present on a topic within their expertise to the public via ARS online webcast, and/or in an ARS Podcast interview, and in a roundtable to ARS staff. The 2024 Awardee will also be given the opportunity to present their lecture at ACS Fall 2024 Meeting in Denver, Colorado. The Divisions of Agrochemicals (AGRO) and Agricultural and Food Chemistry (AGFD) co-sponsor the lecture.

Nominees may be outstanding senior scientists in industry, university, consulting, or government positions. *Current ARS employees are not eligible*. Retired ARS scientists must be retired for at least 2 years prior to nomination.

The Nomination Package includes:

- A letter explaining the nominee's contributions to chemistry and agriculture
- A current curriculum vitae

Please visit the USDA-ARS website for more information

The deadline for nominations is December 31, 2023.

PAST STERLING B. HENDRICKS MEMORIAL LECTURESHIP AWARD WINNERS

- 1981 Norman E. Borlaug, Nobel Laureate, International Maize and Wheat Improvement Center, Mexico City, Mexico
- 1982 Warren L. Butler, University of California, San Diego
- 1983 Melvin Calvin, University of California, Berkeley
- 1984 Frederick Ausubel, Harvard Medical School, Boston
- 1985 Alan Putnam, Michigan State University, East Lansing
- 1986 Ralph Hardy, Cornell University and BioTechnica International, Ithaca
- 1987 Mary-Dell Chilton, Ciba-Geigy Corporation, Research Triangle Park
- 1988 Bruce N. Ames, University of California, Berkeley
- 1989 Sanford A. Miller, University of Texas Health Science Center at San Antonio
- 1990 Roy L. Whistle, Purdue University, West Lafayette
- 1991 Peter S. Eagleson, Massachusetts Institute of Technology, Cambridge
- 1992 John E. Casida, University of California, Berkeley
- 1993 Philip H. Abelson, Deputy Editor, *Science*, and Scientific Advisor to AAAS, Washington, DC
- 1994 Wendell L. Roelofs, Cornell University, Ithaca
- 1995 Winslow R. Briggs, Carnegie Institution of Washington, Stanford, California
- 1996 Hugh D. Sisler, University of Maryland, College Park
- 1997 Ernest Hodgson, North Carolina State University, Raleigh
- 1998 Morton Beroza, USDA-ARS, Beltsville, retired
- 1999 Bruce D. Hammock, University of California, Davis
- 2000 William S. Bowers, University of Arizona, Tucson
- 2001 Malcolm Thompson, USDA-ARS, Beltsville, MD, retired
- 2002 Irvin E. Liener, University of Minnesota, St. Paul

- 2003 Kriton Kleanthis Hatzios, Virginia Polytechnic Institute and State University, Blacksburg
- 2004 Robert L. Buchanan, Food and Drug Administration, College Park
- 2005 Donald L. Sparks, University of Delaware
- 2006 Stanley B. Prusiner, Nobel Laureate, University of California, San Francisco
- 2007 Bruce E. Dale, Michigan State University, East Lansing
- 2008 Fergus M. Clydesdale, University of Massachusetts-Amherst
- 2009 Charles J. Arntzen, Arizona State University, Tempe
- 2010 Chris Somerville, Director of the Energy Biosciences Institute, Berkeley
- 2011 Deborah P. Delmer, University of California, Davis
- 2012 Eric Block, University at Albany, State University of New York
- 2013 Keith R. Solomon, University of Guelph, Canada
- 2014 Robert T. Fraley, Monsanto, Company, St. Louis
- 2015 James H. Tumlinson, Penn State, University Park
- 2016 May R. Berenbaum, University of Illinois, Urbana-Champaign
- 2017 John A. Pickett, Rothamsted Research, United Kingdom
- 2018 James N. Seiber, University of California, Davis
- 2019 John W. Finley, Louisiana State University, Baton Rouge
- 2020 Thomas C. Sparks, Corteva Agriscience, Indianapolis, retired
- 2021 Fereidoon Shahidi, Memorial University of Newfoundland
- 2022 Stephen O. Duke, USDA-ARS, Oxford, retired
- 2023 Gary List, USDA-ARS, Peoria, Illinois, retired

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CALL FOR NOMINATIONS 2024 KENNETH A. SPENCER AWARD Sponsored by ACS KANSAS CITY SECTION

The Kansas City Section of the American Chemical Society is soliciting nominations for the 2024 Kenneth A. Spencer Award. The award recognizes meritorious contributions to the field of agricultural and food chemistry. The Kansas City Section presents this award in the hope that it will give added stimulus in research, education, and industry to further progress in agricultural and food chemistry. The award has been awarded annually in Kansas City since 1955 and carries an honorarium of \$6,000. At this meeting the recipient will deliver an address, preferably upon the subject of the work for which they have been recognized. Subsequently, that address will be published, if possible, in an appropriate journal. The Kansas City Section will reimburse the recipient and spouse for round-trip travel expenses to Kansas City for the presentation.

To be eligible for the award, a candidate must be a citizen of the United States and must have done the work for which he or she qualifies as a candidate within the United States. The candidate need not be a member of the American Chemical Society. A candidate's work, whether it be done in education, industry, or research, should have meritoriously contributed to the advancement of agricultural and food chemistry. The nomination shall include a biographical sketch of the nominee containing minimum vital statistics, parents' names, education, and professional experience; a list of published papers and patents; a specific identifying statement of the work on which the nomination is based; and an evaluation and appraisal of the nominee's accomplishments with special emphasis on the work to be recognized by the award.

The nomination form can be found here: https://acs-kc.com/spencer-application

Submit nominations to Gary Clapp, geclapp424@yahoo.com Sarah Leibowitz, sleibowitzacs@gmail.com

- or –

Via USPS: Gary Clapp 2903 Wilshire Court St. Joseph, MO 64506

PAST KENNETH A. SPENCER AWARD WINNERS SINCE 1960

- C.H. Bailey, University of Minnesota 1960 1961 H.L. Haller, USDA-ARS 1993 1962 A.K. Balls, USDA-ARS 1994 1995 1963 C.C. King, Rockefeller Foundation 1996 1964 Daniel Swern, Temple University 1965 Aaron M. Altschul, USDA-ARS 1997 1966 Robert L. Metcalf University of California, Riverside 1998 1967 Melville L. Wolfrom, The Ohio State University 1999 1968 Herbert E. Carter, University of Illinois 2000 1969 Edwin T. Mertz, Purdue University 2001 1970 Lyle D. Goodhue, Phillips Petroleum Company 2002 1971 2003 William J. Darby, Vanderbilt University 1972 Emil M. Mrak, University of California, Davis 2004 1973 Esmond E. Snell, University of California, Berkeley 2005 1974 Roy L. Whistler, Purdue University 2006 1975 Thomas H. Jukes, University of California, Berkeley 2007 1976 E. Irvine Liener, University of Minnesota 2008 1977 N. Edward Tolbert, Michigan State University 2009 1978 John E. Casida, University of California, Berkley 2010 1979 2011 Charles W. Gehrke, University of Missouri, Columbia 1980 George K. Davis, University of Florida, Gainesville 2012 1981 John Speziale, Monsanto Agricultural Products Co. 2013 1982 Howard Bachrach, USDA-ARS 2014 1983 2015 Peter Albersheim, University of Colorado 1984 Richard H. Hageman, University of Illinois 2016 2017 1985 Bruce N. Ames, University of California, Berkelev 1986 John M. Bremner, Iowa State University 2018 1987 Hector F. DeLuca, University of Wisconsin, Madison 2019 1988 Boyd L. O'Dell, University of Missouri, Columbia 2020 1989 Robert H. Burris, University of Wisconsin 2021 2022 1990 John E. Kinsella, University of California, Davis 1991 George Levitt, DuPont Experimental Station 2023
- 1992 Clarence A. Ryan, Jr., Washington State University Bruce Hammock, University of California, Davis William S. Bowers, University of Arizona Robert T. Fraley, Ceregen, A Unit of Monsanto Co. James N. BeMiller, Purdue University William M. Doane, USDA-ARS Mendel Friedman USDA-ARS James A. Sikorski, Monsanto Co. Wendell L. Roelofs, Cornell University James Tumlinson, USDA-ARS Daniel W. Armstrong, Iowa State University Eric Block, University at Albany, State Univ. New York Steven D. Aust, Utah State University Don R. Baker, Berkeley Discovery Inc. Russell Molyneux, USDA-ARS David A. Schooley, University of Nevada, Reno Ron G. Buttery, USDA-ARS George P. Lahm, DuPont Crop Protection Clive A. Henrick, Trece, Inc. Michael W. Pariza, University of Wisconsin, Madison James N. Seiber, University of California, Davis Attila Pavlath, USDA-ARS, retired Ronald Horst, USDA-ARS, retired Thomas Selby, DuPont Crop Protection Agnes Rimando, USDA-Agricultural Research Service Bruce German, University of California, Davis Thomas M. Stevenson, FMC Thomas C. Sparks, Corteva Agriscience, retired Jerry W. King, University of Arkansas, retired Takayuki Shibamoto, University of California, Davis H.N. Cheng, USDA-ARS Joel R. Coats, Iowa State University

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Authors: Cheng Zhang, Leah S. Riter, Ed Faden, Geoff Faden

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AGRICULTURAL AND FOOD CHEMISTRY

CALL FOR NOMINATIONS

2024 RESEARCH ARTICLE OF THE YEAR AWARD LECTURESHIP AWARDS

Sponsored by the Journal of Agricultural and Food Chemistry Co-sponsored by AGFD & AGRO Divisions

The Journal of Agricultural and Food Chemistry (JAFC) and the ACS Divisions of Agricultural and Food Chemistry (AGFD) and Agrochemicals (AGRO) are seeking nominations for the Research Article of the Year Award Lectureship.

Two papers will be awarded, one from each category, for an outstanding article published in 2023 (either in an issue of *JAFC* or ASAP) that demonstrates creativity and impact on agricultural and food chemistry as a whole.

Each winner will receive:

- An award plaque
- \$1000 USD
- Travel expenses up to \$1250 USD to attend the ACS Fall 2024 Meeting in August in Denver, Colorado

Nominations should include:

- Name, affiliation, and e-mail address of the nominator
- Nominee's article title and DOI (hyperlinked to the article if possible)
- Name, affiliation, and e-mail address of the corresponding author (no self-nominations)
- A statement of why the article is outstanding (less than 500 words)
- Suggestion of a category AGFD or AGRO
- The words "JAFC nomination" in the subject of the email

Nominees will be divided into two categories:

- Agrochemicals (pesticides, biofuels and biobased products, and related)
- Agricultural and food chemistry (food, health, and related)

This will be subject to the discretion of the Editor-in-Chief.

The winners will be announced in early 2024, and the award will be presented at the ACS Fall 2024 Meeting held in August in Denver, Colorado.

Send your nominations to: jafcaward@acs.org Deadline for nominations – January 15, 2024

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AGRO DIVISION New Investigator Award Finalists



Rui Chen is a postdoctoral associate in the Department of Entomology and Nematology at the University of Florida, Gainesville with Daniel Swale. She earned her Ph.D. in Entomology with a minor in zoology in 2022 at Louisiana State University where she characterized the underlying mechanisms of potassium ion flux in the insect nervous system. Her dissertation concerned the

mechanisms of inward rectifying potassium channels and potassium chloride functions in drosophila by electrophysiology, molecular biology, and toxicology.

Rui's postdoc project focuses on assessing the role of potassium chloride cotransporters in arthropod systems through molecular and physiological tools and finalizing molecular genetic analyses of K+ ion channels in arthropod neural cells.

Innovations in Vector Control: New Tools and Strategies

Moscone Center, Room 3014, West Bldg. **TUESDAY 5:30 PM – NEW INVESTIGATOR AWARD FINALIST.** Inward rectifier potassium (Kir) Channels as a proof-of-concept for development of glia directed insecticides. **R. Chen**, D. Swale



Sanghyeon Kim is a postdoctoral researcher at the Emerging Pathogen Institute and Department of Entomology and Nematology at the University of Florida, Gainesville. He earned his PhD in entomology from Seoul National University in 2021, working under the guidance of Si Hyeock Lee. His doctoral thesis concerned the cholinergic system of the honey bee cholinergic system of honey

bees, employing molecular techniques to explore the physiological and toxicological aspects of the system. He also studied insecticide resistance development and functional annotations of acetylcholinesterases in agricultural pests. Sanghyeon is currently focusing on the control of the parasitic mite, *Varroa destructor*, that has contributed to the decline of honey bees and has evolved resistance mechanisms to established chemical control agents

Innovations in Vector Control: New Tools and Strategies

Moscone Center, Room 3020, West Bldg. WEDNESDAY 11:05 AM – NEW INVESTIGATOR AWARD FINALIST. Chronic exposure to fieldrealistic doses of imidacloprid resulted in biphasic negative effects on honey bee physiology. S. Kim, J.M. Clark, S. Lee

Zhilin Li received his bachelor's degree in Agronomy from Northwest A&F University, China, in 2014, where he received from Entomology and Plant Pathology. He joined the Insect Physiology Lab at Department of Entomology (Louisiana State University) to pursue his M.S. in 2016. His thesis was to characterize the role of potassium conductance pathways (primarily inward



rectifier potassium channels) in tick salivary gland function and blood feeding. He continued his Ph.D. program under the mentorship of Daniel Swale after he earned his M.S. in 2018. His dissertation project was to investigate the underpinnings (primarily potassium homeostasis) that contribute to vector competence in mosquitoes and ticks.

Zhilin is currently a postdoctoral research associate under the supervision of Jeffrey Bloomquist and Daniel Swale at University of Florida, Gainesville with the primary project of characterize the mode of action of a natural products that are toxic to medical and urban arthropod pests.

Innovations in Vector Control: New Tools and Strategies

Moscone Center, Room 3020, West Bldg. WEDNESDAY 9:20 AM – NEW INVESTIGATOR AWARD FINALIST. Regulation of the secreted proteome by ATP-sensitive inward rectifier potassium channels in the Lone Star Tick (Amblyomma americanum). Z. Li, D. Swale

The AGRO Division is grateful for our new AGRO New Investigator Award sponsor!





2023 AGRO STUDENT TRAVEL AWARD WINNERS



Bashiru Adams International Centre of Insect Physiology and Ecology, Kenya



Damalka Balasuriya University of Buffalo, New York



Devesh Bhatt GB Pant University of Agriculture and Technology, India



Brandon Bickley Virginia Tech



Emmanuel Chukwuma North Carolina State University



Saumik Dev Virginia Tech



Jessica Griesheimer University of Florida



Lahiruni Halwatura University of Buffalo, New York



John Adam Howe University of Florida



Emmanuel Peter International Centre of Insect Physiology and Ecology, Kenya





Yvonne Wen University of California, Irvine



Flinn O'Hara University of Florida



Mindula Wijayahena University of Buffalo, New York



Kendrick Pham University of California, Irvine


AGRO COMBINED POSTER SESSION

Hall A, South Bldg. (Moscone Center) 12:00 PM – 2:00 PM

Congratulations to our student travel grant winners!

Bashiru Adams, 3919974. Identification of host plant defence volatiles induced by the generalist predator, *Nesidiocoris tenuis*: Implication for IPM. *Baldwyn Torto*, *International Centre of Insect Physiology and Ecology, Kenya*

Damalka Balasuriya, **3928744**. Occurrence of veterinary antimicrobials and other micro-pollutants in surface waters of a watershed dominated by agriculture. *Diana Aga*, *University of Buffalo*

Devesh Bhatt, 3925684. Effects of glomalin-related soil protein (GRSP) on sorption-desorption of boscalid on soils of different physico-chemical properties. *Anjana Srivastava, GB Pant University of Agriculture and Technology, India*

Brandon Bickley, 3927760. Investigating the physiology and pharmacology of the Type-B muscarinic acetylcholine (mAChR-B) in *Drosophila melanogaster* receptor. *Aaron Gross. Virginia Tech*

Emmanuel Chukwuma, **3903395**. Enzymatic degradation of siderophores: Assessing the fate of siderophores after secretion and their potency as iron chelating agents for iron nutrition, increased crop yield, and plant disease resistance. *Oliver Baars, North Carolina State University*

Saumik Dev, 3928767. GABA receptor point mutation (Rdl) modifies acetylcholinesterase activity in *Arabiensis melanogaster* and *Drosophila Anopheles*. *Aaron Gross*, *Virginia Tech*

Jessica Griesheimer, 3911048. Beetle herding: Development of strategies to optimize biological control of *Dioscorea bulbifera* using semiochemicals. *Xavier Martin, University of Florida*. [Due to a technical mix-up with ACS, this will be on oral presentation on Tuesday at 2:30 PM.]

Lahiruni Halwatura, **3926947**. Profiling and assessing the chemical leaching from recycled end-of-life tire wear particles. *Diana Aga. University of Buffalo*

John Adam Howe, 3917365. High-resolution 3D experimental data to study pesticide residue vegetative filter strips from a mesoscale multi-event experimental series. *Rafael Muñoz-Carpena, University of Florida*

Sarah McComic, 3925331. Defining the mechanism of toxicity of leptospermone, a β -triketone herbicide, to Aedes aegypti. Daniel Swale, University of Florida

XiXian Ng, 3927876. Phagostimulant additives improve attract-and-kill composition efficacy for vector mosquitoes. *Troy Anderson, University of Nebraska*

Flinn O'Hara, 3915492. Development of novel *N*-arylamide insecticides to control hemipteran vectored pathogens. *Daniel Swale, University of Florida*

Emmanuel Peter, 3914799. Influence of crop diversity on fall armyworm infestation and natural enemy abundance. *Amanuel Tamiru, International Centre of Insect Physiology and Ecology, Kenya*

Kendrick Pham, 3928754. Selecting the optimal column for liquid chromatography-mass spectrometry detection of glyphosate and other compounds in Roundup. *Shakira Hobbs, University of California, Irvine*

Yvonne Wen, 3927944. Predicting the transport of glyphosate in karst geology: A case study impacts on water quality and public health. *Shakira Hobbs, University of California, Irvine*

Mindula Wijayahena, **3929041**. Rapid biomonitoring strategy for total PFAS in blood samples from populations in agricultural areas. *Diana Aga, University of Buffalo*



The AGRO Division is grateful for support of the AGRO Education Travel Awards

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The AGRO Division is grateful for support of the AGRO Student and Post Doc Luncheon

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CALL FOR APPLICANTS AGRO DIVISION NEW INVESTIGATOR AWARD ACS Fall 2024 in Denver, Colorado, USA Sponsored by Syngenta

The AGRO Division seeks nominations for the New Investigator Award (NIA) to be awarded at the ACS meeting in Denver, Colorado in August 2024. The purpose of the New Investigator Award is to recognize scientists who have obtained a doctoral degree and are actively conducting academic, industrial, consulting, or regulatory studies. Please note there will be no NIA at the Spring meeting in Indianapolis.

The Division is interested in work on all aspects of agrochemicals which are broadly defined to mean pesticides of all kinds (*e.g.*, chemical pesticides, biopesticides, pheromones, chemical attractants, fumigants, plant incorporated protectants, and disinfectants) as well as biotechnology-derived crops (*e.g.*, Bt crops, Roundup Ready crops, etc.). The categorical areas of

The Process:

- To be eligible for the award, the scientist must have obtained his or her doctorate no more than five years before the time of the ACS Fall Meeting. Thus, for 2024, applications will be considered from *scientists who have obtained their doctorates no earlier than the year 2019.*
- A panel consisting of at least three AGRO members will chose up to three finalists based on their extended abstracts, 1-page *curricula vitae*, and letter(s) of recommendation.
- Each finalist will receive up to \$1275 for travel and meeting expenses.
- Each finalist will deliver an oral presentation (which will be judged by the panel) in one of the AGRO Program symposia. The winner, who will receive a plaque, will be chosen after all finalists have presented their papers.

study related to agrochemicals are very broad and encompass environmental chemistry, toxicology, exposure assessment, risk characterization, risk management, and science policy. Studies of veterinary pharmaceuticals and antibiotics are included in the Division's mission. The Division encourages submissions related to public health protection as well as crop, livestock, aquaculture, and wildlife protection.

AGRO is also interested in the environmental chemistry and effects resulting from agricultural production (*e.g.*, soil processes, water/air quality) and in chemical products made from agricultural commodities and byproducts. This includes biofuels and bioproducts and the issues surrounding their production and use.

To Apply for the New Investigator Award:

- Submit a 2500-character abstract to a symposium in the AGRO Division using the ACS Meeting Abstracts Programming System (http://maps.acs.org/).
- Submit an extended abstract (maximum 2 pages) describing the candidate's research/studies to the NIA Coordinator. Include the impact (or potential impact) of the results as it pertains to issues of concern to AGRO.
- 3. Submit a 1-page *curriculum vitae*.
- 4. Submit at least **one letter of recommendation** from a current supervisory scientist (*e.g.*, post-doctoral mentor, a business manager, departmental chair).
- 5. Deliver an oral presentation in an appropriate symposium at the 2024 ACS National Meeting in Denver, Colorado.

Deadline:

The extended abstract, *curriculum vitae*, and letter(s) must be received at **nia@agrodiv.org** no later than **March 15, 2024 (subject to change)**. *Files sent directly to the coordinators will not be accepted.*

For more information, please contact: NIA Co-Coordinators Sasha Kweskin, sasha.kweskin@bayer.com Daniel Swale, dswale@epi.ufl.edu

Nurhayat Tabanca, nurhayat.tabanca@usda.gov

The AGRO Division is grateful for our AGRO New Investigator Award sponsor!





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UNDERGRADUATE and GRADUATE STUDENT RESEARCH

Travel Support for Student Posters

The AGRO Division has established an endowment fund to promote an understanding of the role of chemistry in agriculture. To address this goal, student awards will be made through the Division's Education Committee. Please note there will be no Travel Awards at the Spring meeting in Indianapolis.

Applications are sought for the 2023 Travel Awards. Selected undergraduate and graduate students will be awarded up to \$1,000 each to help defray costs of attendance to give a poster at the ACS Fall National Meeting, which will be held in August 2023 in San Francisco, California. Students should submit their abstracts in the symposium of their choice. First, Second, and Third place winners in the poster competition will receive an additional cash award.

The subject of the presentation should pertain to the chemistry of the AGRO Division. Topics should relate to pest management chemistry including synthesis, metabolism, regulatory, risk assessment, biotechnology, resistance, mode of action, residues, delivery, fate/behavior/transport, and agronomic practices. The AGRO Division is also interested in chemical products made from agricultural commodities and byproducts, including biofuels, and the issues surrounding their production.

PLEASE NOTE: The requirements of the student travel award will change. <u>Only poster presentations will be eligible for the travel award.</u> Senior graduate students who have previously attended scientific meetings and are in their last year of graduate school are encouraged to do an oral presentation. However, the presentation will not be eligible for the travel award. These students should also submit a poster separate from (but can be related to) their oral presentation.

For more information, please contact the co-organizers:

Aaron Gross Virginia Polytechnic Institute and State University Department of Entomology Blacksburg, Virginia tel: 540-232-8448 adgross@vt.edu

To apply, students should submit the following no later than March 13, 2023 (subject to change):

 A 2500-character abstract formatted according to the directions given at the ACS Meeting Abstracts Programming System (*http://maps.acs.org/*). Be sure to include name of the applicant, applicant's address, and applicant's e-mail address.

After completing step #1 above, forward the ACS email indicating the abstract number and stating that abstract was successfully submitted to:

posters@agrodiv.org Only abstracts submitted to symposia organized by the AGRO Division will be eligible for the travel awards.

- A two-page extended abstract giving more detail of the research/presentation. For a sample extended abstract, visit http://www.agrodiv.org/graduate-students/
- 3. A short letter of nomination from the faculty advisor that verifies current enrollment of the student.

SUBMIT items 2 and 3 and a copy of the ACS email as a SINGLE pdf file to our posters email address below with the abstract number in the email subject line. posters@agrodiv.org

Files sent directly to the coordinators will not be accepted.

Sara Whiting Bayer R&D Services LLC 700 Chesterfield PKWY W Chesterfield, MO 63017 tel: 319-512-9385 sara.whiting@bayer.com

Abstracts will be reviewed by the Education Committee Applicants will be notified of their selection status in May 2023

Special thanks to our sponsor for their generous contribution





List of AGRO Symposia by Topic Area ACS Fall 2023 Meeting

August 13 – 17, 2025, San Francisco, USA *Harnessing the Power of Data*

Agrochemical Residues, Analytical and Metabolism Chemistry, and Metabolomics

- Residue Analysis of Plant Protection Products Advancements in Analytical Methodologies Over the Decades
- Uses of HPLC-Mass Spectrometry in Support of Agricultural Research and Development - Trends and Best Practices

Impact of Climate Change on Agriculture and Food Security

 Adapting Agricultural Chemistry and Practices to a Changing Climate

Biorational Pesticides, Natural Products, Pheromones, and Growth Regulators in Agriculture

Biorational Technologies for Control of Invasive
 Pests in a Changing Climate

Communication

 Advancing Public Engagement in Effective Pesticide ESA Education and Regulation

Discovery and Synthesis of Bioactive Compounds

- AGRO International Award: Symposium in Honor of Dr. Thomas M. Stevenson for His Contributions to the Discovery of New Fungicides, Herbicides and Insecticides.
- New Strategies in Process Research and Development in Crop Protection

Ecosystem Exposure and Ecological Risk Assessment

- Effect of EPA's Endangered Species Enforcement on the Future of Agrochemicals
- Environmental Monitoring Data Collection, Utility, and Use in Pesticide Risk Assessment and Registration

Environmental Fate, Transport, and Modeling of Agriculturally related Chemicals

- Environmental Fate, Transport, and Modeling of Agriculturally-related Chemicals
- Pesticides and Other Organics in Urban
 Environment
- Pesticide Runoff Mitigation: Characterization, Quantification, and Implementation,
- Transitioning from the Laboratory to the Landscape: Challenges and Opportunities

Food Security and Hunger

- The Role of Chemistry in Addressing Hunger and Food Security
- EARLY CAREER SYMPOSIUM Harnessing Chemical Ecology to Achieve Food Security

Formulation and Applications Technology

- Agrochemical Formulations and Application Technology: Challenges and Innovation
- Unmanned Aerial Systems (aka Drones): Pesticide Spraying and Other Agricultural Applications

Human and Animal Health Protection: Vector Control, Veterinary Pharmaceutical, Antimicrobial, and Worker Protection Product

Antimicrobial, and Worker Protection Products

- Innovations in Vector Control: New Tools and Strategies
- In Vitro Comparative Animal Metabolism of Agrochemicals

Human Exposure, Health, and Risk Assessment

• Data-Driven Approaches to Reduce Uncertainties in Water Exposure Assessments

Non-Food/Feed Production and Uses of Ag Commodities and Byproducts

• Zero Waste Strategies: Valorizing Undervalued Agricultural Coproducts and Food Waste

Regulations, Harmonization, and MRLs

- Back to the Basics: GLP Training for Study
 Personnel
- Epidemiology: A Growing Field in Agrochemistry and Agrochemical Regulation
- Technological Solutions to Address Food Insecurity, Trade Challenges, and Food Waste

Technological Advances and Applications in Agriculture (*e.g.*, Nanotechnology, Biocontrol Agents, Endophytes and Microbiomes)

 New Crop Yield Technology Companies Improving Sustainability

Special Symposia

 Chemistry For and From Agriculture: AGRO Division Legacy and Future Opportunities ***Designated ACS Presidential Event



Notes from the Program Chair

Aaron Gross, adgross@vt.edu

The AGRO Division is continuing to emerge from the pandemic starting with an excellent program in Chicago, Illinois, last fall, followed by a stop at the crossroads of America for the ACS Spring 2023 meeting in Indianapolis, Indiana, Here, AGRO participated in the Crossroads of Chemistry highlighting the importance of global agricultural production featuring over 100 abstracts of cutting-edge agrochemical research advances. We also enjoyed ourselves at the AGRO Social which was hosted by Corteva Agriscience at their Indianapolis Global Headquarters and featured a keynote speech by the ACS President Judy Giordan. This rare spring meeting was successfully pulled off by the immense efforts put forth by Ken Racke, along with several Indianapolis AGRO members including John Rohanna, Pat Havens, and Carmen Ti, ujust to name a few, and Corteva Agriscience. [Editor's note: And by the Herculean efforts of our Program Chair. Thank you, Aaron!]

San Francisco. Now that the ACS Spring 2023 meeting is behind us, AGRO is finalizing what will be an exciting Fall 2023 program where we will return to the Golden City of San Francisco to engage in the inspiring theme of *Harnessing the Power of Data*. AGRO's program at the Fall 2023 meeting will feature 26 oral symposia and 27 poster symposia with a combined total of 348 abstracts which is on pace with pre-pandemic numbers.

Zero Hunger. The AGRO program will highlight the role of chemists in achieving zero hunger through a special symposium being organized by Laura McConnell, Coralia Osorio Roa, and Adelina Voutchkova in collaboration with the ACS Campaign for a Sustainable Future Initiative, ACS Committee on Science, and ACS Publications. This symposium is a companion to a joint virtual special issue of all three ACS agriculture and food journals (*Journal of Agriculture and Food Chemistry, ACS Agricultural Science and Technology,* and ACS Food Science and *Technology*) entitled *The Future of Agriculture and Food: Sustainable Approaches to Achieve Zero Hunger.*

AGRO 50 and Beyond (finally!). This fall, AGRO will finally celebrate its many accomplishments that we have made over the past 50 (or 53) years! These celebrations will include a special symposium highlighting where AGRO has been and its future opportunities which was organized by Ken Racke and Jeanette Van Emon, a special AGRO Gala will occur on Wednesday evening of the meeting, and a regional Agriculture Tour open to all ACS members on Thursday. A joint virtual special issue of the *Journal of Agriculture and Food Chemistry* and *ACS Agricultural Science and Technology* is being planned.

Recognizing Scientists' Achievements. In San Francisco we will recognize the significant achievements of our colleagues. Thomas Stevenson (FMC) will be awarded the ACS International Award for Research in Agrochemicals, which is sponsored by Corteva Agriscience. Kevin Meyer (Corteva Agriscience) is the 2023 recipient of the AGRO Award for Innovation in Chemistry of Agriculture, sponsored by BASF. AGRO will host several outside awards lectures by: Keith Solomon (University of Guelph) for the IUPAC International Award for Advances in Harmonized Approaches to Crop Protection Chemistry, sponsored by Corteva Agriscience; **Joel Coats** (Iowa State University) for the Kenneth A. Spencer Award this year, which is sponsored by the ACS Kansas City Section; and **Shanshan Li** for the *Journal of Agricultural and Food Chemistry* AGRO Research Article of the Year Lectureship Award sponsored by the *JAFC* and co-sponsored by AGFD and AGRO.

Students. The Fall 2023 ACS meeting will also feature 16 undergraduate and graduate students that will be receiving the AGRO Education Award for Student Travel, which is sponsored by Bayer. These students will present their posters at SciMix on Monday evening and at the AGRO Poster Session Tuesday afternoon from 12 - 2 PM.

Early Career Scientists. We also feature three New Investigator Award finalists who have recently obtained their doctoral degree and have made significant accomplishments conducting research, consulting, or regulatory studies. This year, the three finalists are **Rui Chen** (University of Florida), **Sanghyeon Kim** (Seoul National University and University of Florida), and **Zhilin Li** (University of Florida). The award is sponsored by Syngenta.

AGRO Early Career Symposia Series provides additional funds for symposia within the AGRO program and features speakers who are within ten years of their highest degree earned. At the ACS Fall 2023 Meeting, Gareth Thomas and Nurhayat Tabanca are organizing a Early Career Symposium entitled *Harnessing Chemical Ecology to Achieve Food Security*.

What you need to know about AGRO at the ACS Fall 2023 Meeting:

- Registration is open where you will be able to sign up for social events (like the Ag Tour). Registration is at https://www.acs.org/meetings/acs-meetings/fall-2023/attend/registration.html
- AGRO technical and non-technical sessions will be held at the Moscone Center, West Building. The poster session will be in the South Building.
- Frequently asked questions on the ACS website is a great resource for assistance with the fall meeting. https://www.acs.org/meetings/acs-meetings/fall-2023/attend/faq.html
- Volunteer opportunities (like the AGRO table) are available. Please do not hesitate to become involved here or with any AGRO committee.

AGRO Programming Support. Finally, this program would not be possible without the many AGRO volunteers who organized symposia, awards, and all the ancillary activities. But, we are all especially grateful to Peney Patton (ppatton@agrodiv.org), AGRO Technical Program Administrator, as we continue to rely on her expertise in working with ACS.

Thank you everyone! And, Thank you Peney for all your help during this planning cycle! Enjoy the Meeting!

AGRO Strategic Programming Committee Standing Programming and Champions

Additional volunteers are always welcome! James Foster, 2023 Committee Chair; james.foster@ejgallo.com

Agrochemical Residues, Analytical and Metabolism Chemistry, and Metabolomics Kevin Armbrust, armbrust@lsu.edu Lisa Buchholz, lisa.buchholz@corteva.com Tao Geng, tao.geng@bayer.com Mingming Ma, mingming.ma@corteva.com Leah Riter, leah.riter@bayer.com Manasi Saha, manasi.saha@basf.com Agricultural Biotechnology Jennifer Anderson, jennifer.anderson@pioneer.com Jeff Hughes, jeffrey.hughes@bayer.com Impact of Climate Change on Agriculture and Food Security Heidi Irrig, heidi.irrig@syngenta.com Pam Rice, pamela.rice@usda.gov Amy Ritter, rittera@waterborne-env.com Agrochemical Toxicology, Mode of Action, and Omics John Clark, jclark@vasci.umass.edu Aaron Gross, adgross@vt.edu Qing Li, qingl@hawaii.edu Ralf Nauen, ralf.nauen@bayer.com Air Quality and Agriculture Rod Bennett, rodbennettdac@gmail.com Cathleen Hapeman, cathleen.hapeman@usda.gov Patrick Havens, pat.havens@corteva.com **Biorational Pesticides, Natural Products, Pheromones, and Growth Regulators in Agriculture** Joel Coats, jcoats@iastate.edu Aaron Gross, adgross@vt.edu Edmund Norris, edmund.norris@usda.gov Communication Jennifer Anderson, jennifer.anderson@pioneer.com Cathleen Hapeman, cathleen.hapeman@usda.gov Leah Riter, leah.riter@bayer.com **Developments in Integrated Pest Management and Resistance Management** Troy Anderson, tanderson44@unl.edu Jeff Bloomqiust, jbquist@epi.ufl.edu Aaron Gross, adgross@vt.edu **Discovery and Synthesis of Bioactive Compounds** Michael David, michael.david@basf.com **Ecosystem Exposure and Ecological Risk Assessment** Patrick Havens, pat.havens@corteva.com Amy Ritter, rittera@waterborne-env.com Environmental Fate, Transport, and Modeling of **Agriculturally Related Chemicals** Jay Gan, jgan@ucr.edu Mingming Ma, mingming.ma@corteva.com Jayanta.Nag, jayanta.nag@upl-ltd.com Pam Rice, pamela.rice@usda.gov

Formulation and Applications Technology Ricardo Acosta Amado, ricardo.acosta-amado@corteva.com Danny Brown, dmbrown@landolakes.com Patrick Havens, patrick.havens@corteva.com Jeff Hughes, jeffrey.hughes@bayer.com Erdal Ozkan, ozkan.2@osu.edu Human and Animal Health Protection: Vector Control, Veterinary Pharmaceutical, Antimicrobial, and Worker **Protection Products** Aaron Gross, adgross@vt.edu Steve Lehotay, steven.lehotay@usda.gov Edmund Norris. edmund.norris@usda.gov Human Exposure, Health, and Risk Assessment Mike Krolski, mike.krolski@bayer.com Claire Terry, claire.terry@corteva.com Amy Ritter, rittera@waterborne-env.com Non-Food/Feed Production and Uses of Ag Commodities and **Byproducts** Tao Geng, tao.geng@bayer.com Cathleen Hapeman, cathleen.hapeman@usda.gov Pesticides, Pollinators, and Non-target Arthropods Allan Felsot, afelsot@wsu.edu John Purdy, johnrpurdy@gmail.com Daniel Schmehl, daniel.schmehl@bayer.com Joe Wisk, joseph.wisk@basf.com **Regulations, Harmonization, and MRLs** Heidi Irrig, heidi.irrig@syngenta.com Ken Racke, kenracke@gmail.com Carmen Tiu, carmen.tiu@corteva.com **Technological Advances and Applications in Agriculture** (e.g., Nanotechnology, Biocontrol Agents, Endophytes and Microbiomes) Danny Brown, dmbrown@landolakes.com Tao Geng, tao.geng@bayer.com Rai Kookana, Rai.Kookana@csiro.au Mingming Ma, mingming.ma@corteva.com

ADDITIONAL SYMPOSIA AT MOST NATIONAL MEETINGS

- Awards and Tributes
- Protection of Agricultural Productivity, Public Health and the Environment – General Session
- Special Topics



Comments from the Vice-Chair James Foster, 2024 Program Chair james.foster@ejgallo.com

AGRO continues to promote innovative solutions for agricultural productivity and to advance knowledge that benefits the public and the environment. Utilizing Topic Champions, we harness the diverse scientific expertise of our many volunteers to generate symposia that interests academia, industry, and government. Please consider submitting symposium topics and actively participating as a symposium chair or co-chair. As 2023 Vice Chair, I look forward to building upon our momentum from the Fall 2023 San Francisco meeting as we "elevate chemistry" in the Fall of 2024 in Denver, Colorado.

Programming Committee. The Strategic Programming Committee, chaired by the Vice-Chair, provides an ongoing forum for discussion of multi-year programming based on standing topics of proven interest. This committee maintains a volunteer list of Topic Champions that supports symposium planning. Topic Champions: a) serve as a general resource and an expert in their given area, b) identify timely symposia topics, and c) support specific symposia through identification and mentoring of coorganizers. If you would like to participate on the Programming Committee, have ideas for symposia, or questions, please email James Foster at james.foster@ejgallo.com. Vendor Interface Program (VIP). The Vendor Interface Program returns in Denver! At the VIP, vendors have the opportunity to market their organization and share promotional materials while networking over a bit of food and drinks. The VIP Program provides vendors with an excellent opportunity to connect with AGRO Division membership.

Going Higher in Denver. The theme for the ACS Fall 2024 Meeting is *Elevating Chemistry*. Brainstorming of symposium programming ideas will occur throughout our meeting in San Francisco (via Menitmeter and/or index cards). Blues and Brews is now Brewing Ideas for AGRO, we no longer have the blues since Johnny Johnston has semi-retired. We will "elevate" the brainstorming of our traditional event from 6:00 – 7:30 PM on Tuesday, August 15, 2023, in Moscone Center West. However, ideas may be shared at any time by emailing me directly at james.foster@ejgallo.com or using Mentimeter throughout the Fall 2023 meeting.

We thank Peney Patton and our many volunteers and sponsors for supporting ACS AGRO and making the Division vibrant and healthy. We look forward to hearing from you, to your participation, and to seeing you in San Francisco and in Denver!

Be a part of the fun and creativity!

AGRO Program Brainstorming and Brewing Ideas for Denver

Tuesday, August 15, 2023 6:00 – 7:30 PM Moscone Center, Exhibit Hall, West Building

ର୍ଷ Planning for the Denver ACS Fall 2024 Meeting ରୁ Denver Meeting Theme: Elevating Chemistry ରୁ Creative brainstorming about future AGRO programming ରୁ Learn more about how easy it is to organize a symposium

Socializing, Free Drinks

THIS WILL BE A LIVE ONLY EVENT BUT YOU CAN SEND JAMES FOSTER YOUR IDEAS! james.foster@ejgallo.com



Programming and Outreach Activities 2023 – 2025

Activity/Event	Leaders/ Champions	Status	Actions Required
ACS Fall 2023 Meeting August 13 – 17, 2023 San Francisco, California Harnessing the Power of Data	Aaron Gross	Come to the meeting!	 Volunteers at the desk NEEDED!! Attend Brewing Ideas for AGRO, August 15, 2023 Send ideas to James
AGRO Lunch and Learn Webinar Series	Solito Sumulong	 Seminars are being scheduled for 2023 – 2024 academic year Submit proposals for webinars 	Watch for eNewsletter announcements and sign- up to participate
59 th North American Chemical Residue Workshop July 14 – 17, 2024, Marriott Harbor Beach Resort Fort Lauderdale, Florida	Kevin Armbrust Steve Lehotay	 Check website for updates and details www.nacrw.org Co-Sponsored by AGRO 	Submit abstracts ✓ Oral presentations typically due in March Poster presentations typically due in May
ACS Fall 2024 Meeting August 18 – 22, 2024 Denver, Colorado <i>Elevating Chemistry</i>	James Foster	Planning underway Symposia proposals (Call for Papers) due November 15, 2023	 Volunteers and champions are always NEEDED!! Attend Blues and Brews San Francisco in 2023 Send ideas to James
ACS Fall 2025 Meeting August 17 – 21, 2024 Washington, DC	Vice Chair 2024	 Planning underway Symposia proposals (Call for Papers) due November 15, 2024 	 Volunteers and champions are always NEEDED!! Attend Blues and Brews San Francisco in 2023 Send ideas to James

Future ACS National Meetings

ACS Spring 2024

March 17 – 21, New Orleans, LA Many Flavors of Chemistry

ACS Fall 2024

August 18-21, 2024, Denver, Colorado *Elevating Chemistry* ACS Spring 2025 March 23 27, 2025, San Diego, CA

ACS Fall 2025

August 17-21, 2025, Washington, DC

Thinking about organizing a symposium for a National Meeting?

AGRO SUPPORTS SYMPOSIUM ORGANIZERS

Assistance with

- developing a symposium summary and Call for Papers
- identifying co-organizers
- brainstorming organization and/or merger with other symposium to provide a more enriched symposium
- Funding to help with travel and/or non-member registrations

7 EASY STEPS FOR ORGANIZING A SYMPOSIUM

- 1. Propose, adopt, or borrow a symposium topic (*e.g.*, Chemistry for and from Agriculture)
- 2. Inform the AGRO Program Chair, who will add to the list and arrange for Program Committee endorsement
- 3. Develop a paragraph summary of the symposium scope and potential lecture topics (template is on the website)
- 4. Identify one or more co-organizers if desired
- 5. Recruit speakers and invite abstracts
 - (Half-day = 5-8 speakers; 1 day = 12-15 speakers)
- 6. Review and accept abstracts, order your speakers/sessions
- 7. Chair the symposium session



Latin America Pesticide Residue Workshop

May 2023 Report, Kevin Armbrust

The 9th biennial meeting of the Latin American Pesticide Residue Workshop (LAPRW) convened in Panama City, Panama on May 21 – 24, 2023. LAPRW has become the main meeting in Latin America for the presentation and discussion of the latest developments in pesticide science and analysis of pesticide residues in food and the environment.

LAPRW meets in alternating years with its counterpart, the European Pesticide Residue Workshop (EPRW). NACRW, the North American Chemical Residue workshop (formally the Florida Pesticide Residue Workshop meets every July typically in south Florida. All three meetings have a strong emphasis on *state of the art* in residue analytical methods for pesticides and other environmental contaminants in the case of NACRW. All three typically attract scientists from industry, government and academia.

The goals of these meetings are directly aligned with AGRO's mission and standing programming for at the ACS Meetings. Many members of AGRO are also regular attendees, and these meetings are increasingly attracting a student presence. AGRO has been providing awards for winners of the best posters, which typically go to graduate students and/or post-doctorate scientists.

This year's winners (pictured with Kevin Armbrust) were **Bruna Samara Rocha Ferraz** from Brasil, Universidade Federal de Minas Gerais and **E. Hernandez-Lopez** from Mexico, Universidad Nacional Autónoma de Mexico.

The next meeting of LAPRW will be in 2025 in Buenos Aires, Argentina.





AGRO Lunch and Learn Webinar Series Co-sponsored by Eurofins Agroscience Services

Recordings of the 2019 – 2023 AGRO Lunch and Learn Webinars and from previous years are freely available on the AGRO website (https://www.agrodiv.org/category/webinars/) and on YouTube.

Planning is underway for the 2023 – 2024 AGRO Lunch and Learn Webinar Series.

SPECIAL THANKS TO OUR SPONSOR FOR THEIR GENEROUS CONTRIBUTION! If you have an idea for a webinar, please contact any of the webinar committee members:

Solito Sumulong, solito.sumulong@agrithority.com Amanda Chen, Laura McConnell, Natalia Peranginangin, Tom Sparks, Daniel Swale



agroscience services

60th North American Chemical Residue Workshop

rium

SAVE THE

DATE!

July 14-17, 2024 Marriott Harbor Beach Resort

Fort Lauderdale, Florida

Bringing Scientists together to develop and validate better methodologies

www.nacrw.org



AGRO Division Officers, Councilors, and Executive Committee

2023 AGRO DIVISION OFFICERS



Division Chair Heidi Irrig 336-632-7243 heidi.irrig@syngenta.com



Program Chair Aaron Gross 540-232-8448 adgross@vt.edu



Vice Chair James Foster 314-277-3440 james.foster@ejgallo.com



Secretary Sharon K. Schneider 605-693-5201 sharon.schneider@usda.gov



Treasurer Del A. Koch 660-248-1911 dkoch@agrodiv.org

COUNCILORS

2021 – 2023

Rodney Bennett, rodbennettdac@gmail.com Jeanette Van Emon, jmvanemon@gmail.com Kevin Armbrust, Alternate, armbrust@lsu.edu Leah Riter, Alternate, leah.riter@bayer.com

EXECUTIVE COMMITTEE MEMBERS

2021 – 2023

Amanda Chen, amanda.chen@bayer.com Andrew Coates, awecoates@gmail.com Amy Ritter, rittera@waterborne-env.com Solito Sumulong, solito.sumulong@gmail.com Spenser Walse, spencer.walse@usda.gov

2022 - 2024

Shanique Grant, shanique.grant@syngenta.com Edmund Norris, edmund.norris@usda.gov Thomas Sparks, tcsparks@agrilucent.com Katoria Tatum-Gibbs, katoria.tatum-gibbs@basf.com Sara Whiting, sara.whiting@bayer.com

2023 - 2025

Dena Barrett, barrett.dena@epa.gov Kalumbu Malekani, kmalekani@smithers.com Natalia Peranginangin, natalia.peranginangin@syngenta.com Daniel Swale, dswale@epi.ufl.edu Ralph Warren, ralph.warren@basf.com

AGRO Division Past Chairs

1969	Donald G. Crosby
1970	Elvins Y. Spencer
1971	Wendell Phillips
1972	Philip C. Kearney
1973	Roger C. Blinn
1974	Charles H. Van Middelem
1975	Henry F. Enos
1976	Julius J. Menn
1977	James P. Minyard
1978	Gerald G. Still
1979	S.K. Bandal
1980	Jack R. Plimmer
1981	Marguerite L. Leng
1982	Gino J. Marco
1983	G. Wayne Ivie
1984	Robert M. Hollingworth
1985	John Harvey, Jr.
1986	Henry J. Dishburger
1987	James N. Seiber

1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004	Paul A. Hedin Gustave K. Kohn Willa Garner Guy Paulson Joel Coats Larry Ballantine Nancy N. Ragsdale Don Baker Barry Cross Willis Wheeler Judd O. Nelson Richard Honeycutt Ann T. Lemley Jeffery J. Jenkins Terry D. Spittler Jeanette Van Emon Rodney Bennett
	Rodney Bennett
2005	Allan Felsot
2006	R. Donald Wauchope

2007	Laura L. McConnell
2008	John J. Johnston
2009	Kevin L. Armbrust
2010	Ellen L. Arthur
2011	Kenneth D. Racke
2012	Aldos C. Barefoot
2013	John M. Clark
2014	Stephen O. Duke
2015	Cathleen J. Hapeman
2016	Pamela J. Rice
2017	Jay Gan
2018	Scott Jackson
2019	Julie E. Eble
2020	Cheryl Cleveland
2021	Leah S. Riter
2022	Qing X. Li

What the AGRO Committees Do More volunteers needed!

AWARDS COMMITTEE

Purpose: This committee administers awards offered by the Division to the extent authorized by the Division Executive Committee. The awards program is an integral part of the Division, its purpose being to recognize and encourage outstanding contributions to our science and our Division. *Composition:* The Awards Committee Chair is appointed. The Committee consists of ten or more members who are senior and mid-career scientists, including past Award winners and ACS and Division Fellows.

BYLAWS COMMITTEE

Purpose: This Committee ensures that the Division's bylaws are maintained in accordance with changes in Division operations and in accordance with any changes requested either by the ACS, by ACS bylaw changes, or by the Division Executive Committee.

Composition: The Bylaws Committee is appointed. Members consist of currently serving Councilors.

COMMUNICATIONS COMMITTEE

Purpose: This Committee coordinates the Division's communication and publication activities. This includes management of the AGRO Division website, publication of the *PICOGRAM*, compilation of the AGRO eNewsletter, advancement of publication efforts through ACS Books, and publicizing of Divisional activities.

Composition: The Communications Committee Chair is appointed. The Committee Chair appoints at least three additional members.

DEVELOPMENT COMMITTEE

Purpose: This Committee interfaces with the patrons of our industry to coordinate support of our Division's scientific activities. *Composition:* The Development Committee Chair is appointed. The Treasurer is a member, and several other members are appointed by the Committee Chair.

EARLY CAREER SCIENTIST COMMITTEE

Purpose: This Committee promotes the interests of students, postdoctoral researchers, and early career scientists and enhances their participation in programs of the AGRO Division. The Committee oversees education and development efforts concerning early career scientists and administers the graduate student travel award program and the New Investigator Award. *Composition:* The Early Career Scientist Committee Chair is appointed. The committee consists of 6 or more members including at least 2 graduate students or recent post-grads, one member of the Membership Committee, and one member of the Communications Committee.

FINANCE COMMITTEE

Purpose: The purpose of the Finance Committee is to monitor the financial activities of the Division.

Composition: The Finance Committee Chair is appointed; incumbent Treasurer is an ex-officio member. The Committee Chair nominates approximately four members who have reasonably strong financial skills.

INTERNATIONAL ACTIVITIES COMMITTEE

Purpose: The International Activities Committee (IAC) seeks to enhance the role of AGRO in the broad international scientific community and to enrich its membership experience by promoting international collaborations and interactions among its members. It exists to facilitate coordination of international activities within AGRO, and to increase the participation of scientists from all countries in AGRO. The committee also acts to provide information and support to scientists outside of the United States who are interested in AGRO.

Composition: The International Activities Committee Chair is appointed. The Committee consists of six or more members.

MEMBERSHIP COMMITTEE

Purpose: The purpose of the Membership Committee is to develop programs and activities for the recruitment of new members to the Division and to the ACS, as well as to develop activities and programs for the retention of existing members. *Composition:* The Membership Committee Chair is appointed; three or more members are appointed with the advice and approval of the Executive Committee.

NOMINATING AND ELECTION COMMITTEE

Purpose: The Nominating Committee develops a slate of qualified candidates for the elected Division offices that need to be filled for the following calendar year.

Composition: The Nominating Committee Chair is the Immediate Past Chair; other members are traditionally the past two Chairs.

PROGRAMMING COMMITTEE

Purpose: The purpose of the Programming Committee is to plan, develop, and implement the Division's technical program. *Composition:* The Programming Committee Chair is the Division Vice-Chair; the Division Program Chair is a committee member. The Committee Chair nominates as many members as necessary to ensure that the Division's programming requirements are met.

STRATEGIC PLANNING COMMITTEE

Purpose: This Committee will assist the Executive Committee in development and implementation of the Division's strategic plan. *Composition:* The Strategic Planning Committee Chair is appointed and confirmed by the Executive Committee. The Committee Chair(s) appoint(s) eight or more members.

AGRO Division Committees

AWARDS COMMITTEE

Qing Li, Chair, 808-956-2011, qingl@hawaii.edu Jeanette Van Emon, Assistant Chair, jmvanemon@gmail.com *MEMBERS*: Janice Chambers, John Clark, Joel Coats, Stephen Duke, Bruce Hammock, Hideo Ohkawa, Sharon Schnieder, David Soderlund, Keith Wing, Izuru Yamamoto

BYLAWS COMMITTEE

Rodney Bennett, rodbennettdac@gmail.com Jeanette Van Emon, jmvanemon@gmail.com

COMMUNICATIONS COMMITTEE

Cathleen Hapeman, Chair, *PICOGRAM* Editor 301-908-8165, cathleen.hapeman@usda.gov Edmund Norris, Website Coordinator 352-374-5825, edmund.norris@usda.gov Sharon Schneider, Awards Coordinator 605-693-5201, sharon.schneider@usda.gov Leah Riter, Social Media Coordinator 636-737-9331, leah.riter@bayer.com Pat Havens, eNewsletter Coordinator 317-337-3465, pat.havens@corteva.com *MEMBERS:* Emily Saad, Katoria Tatum Gibbs, Gareth Thomas, Spencer Walse

DEVELOPMENT COMMITTEE

Mingming Ma, Chair, 317-337-3500, mingming.ma@corteva.com James Foster, jfoster@agrodiv.org Scott Jackson, 919-746-9223, sjackson@vestaron.com Del Koch, Ex Officio/Treasurer, 660-248-1911 dkoch@agrodiv.org Laura McConnell, 636-737-4787, laura.mcconnell@bayer.com Ralph Warren, 919-547-2064, ralph.warren@basf.com

EARLY CAREER SCIENTIST COMMITTEE

Aaron Gross, Co-Chair, 540-232-8448, adgross@vt.edu
Sara Whiting, Co-Chair, 319-512-9385, sara.whiting@bayer.com
New Investigator Award Co-Coordinators, nia@agrodiv.org
Sasha Kweskin, sasha.kweskin@bayer.com
Daniel Swale, dswale@epi.ufl.edu
Nurhayat Tabanca, nurhayat.tabanca@usda.gov
Student Travel Award Co-Coordinators, posters@agrodiv.org
Aaron Gross, adgross@vt.edu
Sara Whiting, sara.whiting@bayer.com
Early Career Scientist Symposium Mentor
Kalumbu Malekani, kmalekani@smithers.com
MEMBERS: Diana Aga, Troy Anderson, Joel Coats, Cathleen
Hapeman, Steven Lehotay, Edmund Norris, Gareth Thomas

FINANCE COMMITTEE

Joel Coats, Chair, 515-294-4776, jcoats@iastate.edu Del Koch, Ex Officio/Treasurer, 660-248-1911 dkoch@agrodiv.org *MEMBERS:* Kevin Armbrust, Al Barefoot, Barry Cross, Scott Jackson, Bernalyn McGaughey, Ken Racke

INTERNATIONAL ACTIVITIES COMMITTEE

Ken Racke, Co-Chair, kenracke@gmail.com Carmen Tiu, Co-Chair, 317-337-4941, carmen.tiu@corteva.com *MEMBERS:* John Johnston, Steven Lehotay, Chris Peterson, Amy Ritter, Keith Solomon

LIASON COMMITTEE

Kalumbu Malekani, Co-Chair, 508-295-2550, kmalekani@smithers.com Sasha Kweskin, Co-Chair, 636-737-2320, sasha.kweskin@bayer.com Stephen Duke, 662-915-7882, sduke@olemiss.com Paul Reibach, 508-317-0108, phrfect@aol.com Andy Newcombe, 302-584-5999, andy.newcombe@arcadis.com

MEMBERSHIP COMMITTEE

Chris Bianca, Chair, 484-804-6962, chris.bianca@jrfamerica.com *MEMBERS:* Steven Lehotay, Leah Riter, Daniel Swale

NOMINATING AND ELECTION COMMITTEE FOR 2024

Heidi Irrig, Chair, 336-632-7243, heidi.irrid@syngenta.com Qing X. Li, 808-956-2011, qingl@hawaii.edu Leah Riter, 636-737-9331, leah.riter@bayer.com

PROGRAMMING COMMITTEE FOR 2023 (see p. 44)

James Foster, Chair, 314-277-3440, james.foster@ejgallo.com Webinar SubCommittee (see p. 22) Solito Sumulong, 816-841-0935, solito.sumulong@agrithority.com

AGRO 50TH CELEBRATION COMMITTEE

Ken Racke, Co-Chair, kenracke@gmail.com Jeanette Van Emon, Co-Chair, jmvanemon@gmail.com

STRATEGIC PLANNING COMMITTEE

Leah Riter, Lead Co-Chair, 636-737-9331, leah.riter@bayer.com Kevin Armbrust, Co-Chair, 225-578-3030, armbrust@lsu.edu Edmund Norris, Co-Chair, 352-374-5825, edmund.norris@usda.gov

AGRO Division Executive Committee and Committee Chairs Meeting February 21, 2023 (virtual)

2:00-4:00 PM CST

Sharon Schneider, Secretary

ATTENDANCE

- Officers: Heidi Irrig, Chair; Aaron Gross, Program Chair; James Foster, Vice-Chair; Sharon Schneider, Secretary; Qing X. Li, Past-Chair; Rodney Bennett, Jeanette Van Emon, Councilors; Kevin Armbrust, Leah Riter, Alternate Councilors
- Executive Committee Members (EC): Dena Barrett, Andrew
- Coates, Edmund Norris, Natalia Peranginangin, Amy Ritter, Thomas Sparks, Solito Sumulong, Daniel Swale, Katoria Tatum-Gibbs, Ralph Warren
- Committee Chairs and Guests: Ashli Brown, Joel Coats, Cathleen Hapeman, John Johnston, David Miller, Chris Peterson, Ken Racke, Carmen Tui

1. Welcome – Heidi Irrig

- 2. Update on Chicago meeting: budget Del Koch, Aaron Gross
 - Invoice from ACS was \$50K for Chicago meeting. Because AGRO only had \$39K in the bank, Del Koch moved funds from AGRO's JP Morgan fund to cover the costs.
 - Labor costs in Chicago were very high: labor associated with the awards social was 10x higher than in 2019 in San Diego; similar increases were incurred for Grow with AGRO and other events.
 - Aaron Gross and Peney Patton met with ACS to discuss projected costs for San Francisco. Food costs are available ahead of time, but not labor costs; they were told to plan for an increase in labor costs in San Francisco relative to Indianapolis.
 - Jeanette Van Emon recommended that AGRO write to ACS M&E, Board of Directors, and potentially other ACS committees regarding the costs of the Chicago meeting and how to enable Divisions to project meeting costs better.
- 3. Update on Indianapolis meeting Ken Racke, Aaron Gross
 - Ken Racke presented information on the program, which includes 4 symposia with 99 accepted abstracts: 79 oral papers organized into 11 half-day sessions; 20 posters organized into one combined in-person and virtual session. AGRO is also co-organizing symposia with ORG.
 - The AGRO social will be Wednesday evening at Corteva Indianapolis headquarters. Planning 3 AGRO welcome booths located at Crowne Plaza (near AGRO symposia rooms), at SCIMix Division row, and at AGRO social. Organizers are requesting volunteers to staff the AGRO booth.
 - The program will be publicized in the PICOGRAM, which will be available electronically next week. The program is also available on the ACS website.
- 4. Update on San Francisco meeting Aaron Gross
 - Abstract submissions are open now, but are just starting. Sessions will be in-person or hybrid (live format). Speakers

who cannot attend are able to record presentations and arranged to have them played in an in-person room.

- AGRO now has 47 half-day sessions, decreased slightly from Chicago but we may be able to add more.
- The Division is still requesting to have technical programming only Sunday-Wednesday, leaving Thursday open for the ag tour. Aaron Gross requested that all half-day sessions be Sunday-Wednesday, with no decrease in the number of sessions.
- The 50+ anniversary gala will be Wednesday at 5 pm. Ag tour will be a ticketed event open to all of ACS.
- James Foster opened a discussion on Brewing Ideas for AGRO. Given the high costs for room, food, drinks, and labor anticipated in San Francisco, should we consider another approach?
 - For example, instead of doing Brewing Ideas for AGRO in person, could we have a suggestion box at each symposium, incentivize with awards chosen randomly from submissions? The downside is that if the suggestion boxes don't work well, we could lack ideas and volunteer organizers for symposia and it could be difficult to get them after the meeting.
 - Feedback: the synergy of the group discussion at tables, etc. facilitates generation of ideas.
 - Funding for Blues and Brews was through VIP event, so the symposia brainstorming event should be sustainable when the VIP event returns in Denver.
 - Making it easy and fun for people will help foster participation, continue having this right after the last set of talks on Tuesday to capture energy.
 - Consider a hybrid approach: having the Brewing Ideas for AGRO onsite plus a QR code or similar means to gather additional ideas.
 - Concluded that to retain the benefits of Brewing Ideas for AGRO, James Foster will work with ACS on this as a live and in-person event but will be wary of costs.
- 5. Update on 50th anniversary celebration including AGRO timeline Ken Racke
 - The 50+ anniversary symposium will be on Wednesday afternoon immediately preceding the gala.
 - Gala reception will include games, recognition of AGRO legends and achievements, food and drink, AGRO timeline, and recognition of current AGRO awardees. Gala registration will be organized through Survey Monkey (not through ACS).
 - Ag tour on Thursday will be open to all ACS attendees; luncheon will be at UC Davis. The tour is intended to be a self-supporting event through IPG, ticket sales, and sponsorships.
 - Entire 50th anniversary is still budgeted at \$35K but much remains undetermined.
- 6. International Activities Committee Carmen Tiu, Chris Peterson, Ken Racke
 - The IAC is trying to spread the word about AGRO. The committee proposed a travel exchange program with two parts:
 - AGRO Ambassadors Program AGRO members in the U.S. could request funds to attend international events to organize symposia, speak at conferences, etc. and be ambassadors for AGRO. The traveler would be provided a \$2K reimbursement if they submit a report to the Division that includes follow-ups and potential connections.

- 2. **AGRO Journeyers Program** To fund travelers from outside the U.S. and Canada to speak, organize a symposium, etc. at an AGRO meeting.
- The Committee submitted a motion "that the AGRO EC allocate \$10,000 for a pilot of the AGRO Journeyers and AGRO Ambassadors Program to occur during the period 2023 – 2024 (or 2023 – 2025 if we think this could spill over into early 2025). After this initial pilot, the program would be evaluated by the EC for its effectiveness and a decision reached regarding establishment of a continuing program with annual funding."
- Discussion: the Division should pursue an IPG to fund this. Has the committee checked with ACS International Activities and DE&I, SOCED, international chapters, others to provide matching funds? Chris Peterson reported that ACS International Activities offered publicity but maybe not financial assistance. For the selection process, it was proposed that the IAC collect and evaluate the applications and make a recommendation to the AGRO chair, who would give the yes/no decision. To accommodate international travel timelines, decisions would be needed ~9 months before the travel is expected to occur. Travel reimbursements of up to \$2K per traveler per event would be based on submission of receipts for travel and associated expenses.

REVISED MOTION: AGRO EC will allocate up to \$10,000 with the Chair's approval for a pilot of the AGRO Journeyers and AGRO Ambassadors Program to occur during the period 2023 – 2025 with matching funds sought from ACS and other sources. After this initial pilot, the program would be evaluated by the EC for its effectiveness and a decision reached regarding establishment of a continuing program with annual funding. **Motion Passed.** A revised plan will be circulated to the EC for continued refinements.

7. Development Committee – Ralph Warren

- The Committee met in December 2022 with a potential new sponsor, MAC-MOD Analytical, specializing in chromatography; no response yet. Development Committee to follow up.
- There are currently 8 sponsors for fall meeting gala tables; target is 15. Gala sponsorship letter seeking additional table sponsors to be send imminently. Separate fall meeting sponsorship letter is drafted and will be sent out requesting sponsorship for other opportunities outlined on the AGRO website. Spring Picogram advertisements were collected from the sponsors and saved for the Picogram editor.

8. Awards Committee – Qing X. Li

- Thanks to committee members, nominators, sponsors (Corteva for International Award; BASF for Innovation Award). High-quality nominations were received.
- The International Award selectee is John Clough is recognized for the impact of his ground-breaking research on and invention of strobilurin fungicides. Symposium will be organized in the fall of 2024 in Denver.
- The Innovation Award selectee is Kevin Meyer is recognized for his outstanding contributions to the invention of picolinamide fungicides. His talk will be within a symposium at the San Francisco meeting in 2023.
- Please note that AGRO Division Fellow nominations are due March 31.
- Aaron Gross noted that the Spencer Award will be going to AGRO's Joel Coats.

- 9. Early Career Scientist Committee Sara Whiting, Aaron Gross
 - The New Investigator Award Committee consists of Sasha Kweskin (industry), Nur Tabanca (government), and Daniel Swale (academia).
 - Syngenta sponsors the award and they agreed to increase the award by \$2000 to a total of \$6000.
 - Last year, 7 or 8 applications were submitted; the committee is hoping that increased outreach will increase applications.

10. Pacifichem 2025 – John Johnston

- Pacifichem is anticipated to convene in Honolulu in December 2025.
- Organizers are initiating the call for symposium topics in spring of 2023, should be announced soon.
- John Johnston is willing to mentor people in organizing AGRO's contributions.
- The International Activities Committee agreed to develop a plan for AGRO's possible participation in Pacifichem 2025.

11. Strategic Planning – Ed Norris

- There are three co-chairs: Leah Riter (industry), Kevin Armbrust (academia), and Ed Norris (government). The committee is planning the next strategic planning retreat, which will be October 21 22, 2023 in Washington, DC at ACS Headquarters.
- The group has had a few scoping calls with ACS. Next items on the agenda are to reach out to the ACS events team to put together a pre-retreat survey for AGRO members at large focusing on what has and has not worked in AGRO. They will be selecting some AGRO stakeholders to participate in another survey.
- Persons interested and available to participate in the retreat are encouraged to reach out to the co-chairs. They will be selecting participants from each of the sectors, with diversity in many dimensions.

12. Leadership Institute experiences – Solito Sumulong

- Leadership Institute was helpful to understand the structure of ACS.
- Solito met with Judy Giordan, ACS President. She has a small business perspective and is interested in outreach regarding how to take a product to market. Solito wants to reserve an AGRO Lunch and Learn webinar spot to discuss this topic. Solito will reach out to the EC regarding products to be used as examples.
- So far, 5 of 6 webinar topics are determined (Judy would be the sixth).

AGRO Division Executive Committee and Committee Chairs Meeting February 21, 2023 (virtual) 2:00 – 4:00 PM CST

Sharon Schneider, Secretary

ATTENDANCE

Officers: Heidi Irrig, Chair; Aaron Gross, Program Chair; James Foster, Vice-Chair; Sharon Schneider, Secretary; Del Koch, Treasurer; Qing Li, Past-Chair; Rodney Bennett, Jeanette Van Emon, Councilors; Leah Riter, Alternate Councilor

- Executive Committee Members (EC): Dena Barrett, Amanda Chen, Andre Coates, Kalumbu Malekani, Ed Norris, Natalia Peranginangin, Amy Ritter, Tom Sparks, Solito Sumolong, Daniel Swale, Katoria Tatum-Gibbs, Ralph Warren, Sara Whiting
- Committee Chairs and Guests: Ashli Brown, Cathleen Hapeman, Mingming Ma, Laura McConnell, Peney Patton

1. Welcome – Heidi Irrig

- 2. Fall 2023 ACS Meeting update Aaron Gross
 - Scientific program. The Program Chair accepted 348 abstracts which is similar to San Diego in 2019 – prepandemic. There will be 26 oral symposia with 277 abstracts and 27 poster symposia with 71 abstracts, with 7 abstracts requesting an oral presentation were programmed as a poster because there was not a good fit in an oral session. AGRO submitted 34 SciMix Posters. Presenters were notified of the acceptance of their abstract and type of presentation on May 17.

• Award presentations.

- AGRO International Award Monday morning at 8 am (the only talk scheduled at that time), hybrid
- o Innovation Award Tuesday afternoon, hybrid
- Spencer Award, Tuesday morning, hybrid
- JAFC lectureship, Tuesday morning, hybrid;
- New Investigator Awards, Tuesday morning and afternoon (there are 3).
- There will be no in-person Sterling Hendricks Lectureship in 2023.
- Travel Award posters and all AGRO posters will be Tuesday afternoon 12 – 2 pm.
- AGRO programming is likely to be in the Moscone Center.

• AGRO non-technical events.

- Business meeting will not be in-person but will be virtual and after the fall ACS meeting.
- The student and postdoc lunch will be Monday 12 1:30 PM.
- Brewing Ideas for AGRO (formerly Blues and Brews) will be Tuesday 6 – 7:30 PM.
- AGRO 50th and Beyond Gala Reception will be Wednesday 5pm – 8pm. Symposium organizers will be contacted to make sure non-AGRO speakers are invited to the Gala.
- Ag Tour will be Thursday departing in the morning; there are 47 seats at \$100 each.

• Other Details.

- Programming will occur Sunday through Wednesday. Final program will be set on June 12.
- Meeting registration is open now.
- Non-technical events should populate May 29; this is where people will register for the Ag Tour.
- Hotel reservations are open now in the ACS system and will close on July 20.
- Volunteers are being sought for the AGRO hospitality table, the gala reception table, and games.
- Labor costs in San Francisco are projected to be less than Chicago. Estimate that an audio/visual package with set and strike labor around \$6,200. For reference, labor costs are estimated to be about 2 - 2.25x higher than San Diego 2019.

3. Future Meetings – Aaron Gross

 ACS has had several meetings with division leaders to discuss the format of the fall meetings beginning in 2025.

- Goals are to have business decision-makers attend the exposition; to increase industry involvement; and to increase co-sponsored programming (more than one division).
- During the planning process, proposals for changes to fall meetings have changed substantially. Will continue to see how this evolves.
- 4. AGRO 50th Anniversary Jeanette Van Emon
 - The 50th anniversary symposium will be an ACS Presidential Event, and the ACS will contribute \$1000 for the symposium. Ralph Horvath (ACS CEO) indicated that the ACS will donate some swag and offer a discount for ACS items to be used in connection with AGRO's 50th anniversary.
 - The committee requested additional volunteers for the AGRO Gala Welcome Table as well as assistance for game plans and staffing of the AGRO game table. Solito Sumulong and Edmund Norris volunteered.
 - Amy Ritter is looking for volunteers to manage the timeline, ways to add events, predictions, etc. Amy requested that the timeline be printed and delivered to the Convention Center. The timeline is planned to be hung on four 4x8 poster boards.
 - ACS is opening meeting registration before social events. Jeanette wrote a summary of the AGRO tour; she will send it to Cathleen and then to Ed for posting on AGRO website.
 - Caitlin Rering has a photo montage of AGRO members, similar to the slide deck used for the Grow with AGRO in 2022. They are seeking a volunteer to help with expanding the slide deck.

5. Finance Committee

- The 2024 AGRO dues schedule has been submitted to ACS. In the process of reviewing this document, the topic of a free one-year membership for students was brought up. Do we want to do this, and what would/should be the mechanism? Student membership in AGRO is only \$5. They can also be free ACS members as "observers."
- There was discussion of the benefits of offering free AGRO membership to all members for the first year and notifying ACS of such.

MOTION: AGRO shall make free membership available to all prospective AGRO members, regardless of their student status and regardless of their ACS membership.

Motion Passed.

• The current AGRO checking account balance = \$41,305.35. The T. Rowe Price balance of April 30, 2023 = \$198,286.90 (up \$6,460.63 in 2023). The JPMorgan fund balance of April 30, 2023 = \$405,403.67. This reflects an opening 2023 value of \$408,268.23, less \$35,000 withdrawn to help pay the Fall 2022 meeting invoice of \$50,659.05 and less \$1,027.17 in fees, which offset the \$33,162.61 2023 increase in value.

6. Awards Committee - Qing X. Li

- The Division thanks awards committee members, nominators, and sponsors (Corteva for International Award; BASF for Innovation Award, Syngenta for New Investigator Awards, and Bayer Crop Science for Student Travel Awards). High-quality nominations were received.
- The International Award selectee is John Clough, who is recognized for the impact of his ground-breaking research on and invention of strobilurin fungicides. The award symposium will be organized in the fall of 2024 in Denver. The Innovation Award selectee is Kevin Meyer, who is recognized for his outstanding contributions to the invention of picolinamide fungicides. His talk will be within a symposium at the San Francisco meeting in 2023. Joel

Coats is the Spencer awardee. Mingming Ma and Daniel Swale are recognized as AGRO fellows for their continued and substantial contributions of time, talents, and service to the AGRO Division.

 Please submit nominations for the International Award, Innovation Award, Lifetime Achievement Award and AGRO fellowship as well as the other ACS awards. Please see AGRO website and *PICOGRAM* for the calls for nominations. December 31 is the nomination deadline for the ACS International Award for Research in Agrochemicals, AGRO Innovation Award for Chemistry in Agriculture, and AGRO Lifetime Achievement Award. March 30th is the nomination deadline for the AGRO fellowship.

7. Nominating and election committee for 2023 – Qing Li, Leah Riter, Cheryl Cleveland

- We have two candidates running for Vice chair, nine for the Executive Committee, one for Treasurer re-election, one for Secretary re-election, two for Councilor re-election, and two for Alternate Councilor re-election.
- Ballots will be issued in June.

8. Development Committee – Mingming Ma

The committee has confirmed fourteen 50th Anniversary Gala event sponsors – target is 15. Sponsorship invitation emails have been sent out. So far, there are 15 confirmed sponsors, including gala sponsors. The committee is collecting ads for Fall *PICOGRAM* with 2 received so far.

9. Early Career Scientist Committee – Sara Whiting

- The committee received 17 applications for poster presentations and the AGRO travel award, up from 7 last year. This year, applications were from 9 universities with 12 different major professors. All 17 will receive \$1000 for travel expenses. The committee needs student poster judges. Several participants volunteered.
- The graduate student lunch schedule is pending; 25 early career participants signed up. Will have speed networking with representatives from academia, industry, and government.
- There were 7 applications for the New Investigator Award; 3 finalists have been chosen and notifications have been sent.
 Will also need judges for those presentations but will wait to confirm until the schedule is released; judges should view all 3 presentations.

10. Update on Strategic Planning Retreat – Edmund Norris and Leah Riter

- The list of participants is finalized: Three ACS leads/facilitators and 12 AGRO participants.
- The retreat will be Feb. 21 22 in Washington, DC at ACS Headquarters. Waiting for ACS to help reserve block of hotel rooms.
- The group is finalizing a survey for AGRO members to gather input. They will be sent to ACS for formatting and then sent to AGRO members/stakeholders. Please complete this survey when you receive it.
- The group needs to draft formal invitation letters with details such as the amount of travel support that AGRO will be providing. The IPG can provide partial support for that total was \$7500. Estimate of travel costs is \$2500 per person*15 participants.

MOTION: AGRO will cover travel costs up to \$2500 per participant for the strategic planning retreat. **Motion Passed.**

AGRO Councilors' Report From Fall 2023

Jeanette M. Van Emon and Rodney Bennett, Councilors

The ACS Council Meeting was held on March 29, 2023, during the ACS Spring 2023 Meeting as a hybrid meeting in Indianapolis, Indiana. The Board of Directors met on March 24 – 25, 2023. As of March 29, there were 12,623 registrations (10,792 in-person and 1,831 virtual). The following report highlights some of the Issues and Actions taken by Council and the Board.

Actions of the Council

Election Results

- Candidates for President-Elect 2024: Oral statements were heard from three presidential nominees: Mary Engelman, Dorothy J. Philips, and Florian J. Schattenmann. A fourth candidate previously withdrew from the election for personal reasons. Council elected Dorothy J. Phillips and Florian J. Schattenmann as candidates for President-Elect.
- Candidates for District III and District VI: The Committee on Nominations and Elections announced the results of the election held prior to the hybrid Council meeting for election to the Board of Directors for the term 2024-2026. By internet ballot, the Councilors from District III selected Diane Krone and Helen (Bonnie) A. Lawlor as District III candidates. By the same voting process, the Councilors from District VI selected Janet L. Bryant (BMGT Councilor) and Jeanette M. Van Emon (AGRO Councilor) as District VI candidates. Ballots will be distributed to members residing in District III and District VI beginning October 1, 2023, for election of a Director from their District. Congratulations Everyone! Remember to VOTE!
- Candidates for Directors-at-Large: The Committee on Nominations and Elections announced the selection of the following candidates for Directors-at-Large for 2024 – 2026 term: Wayne E. Jones, Jr., Daniel Rabinovich, Carolyn Ribes, and Joseph P. Stoner. The election of two Directorsat-Large from among these four candidates and any candidate selected via petition will be conducted by Council in the Fall. Ballots will be distributed to Council members around October 1, 2023.
- The Council elected **Daniel Rabinovich** for a two-year term (2023-2024) on the Committee on Committees (ConC).
 ther Council Actions

Other Council Actions

- On the recommendation of the Council Policy Committee (CPC), Council approved the Petition to Amend the Duties of the Council Policy Committee to authorize CPC to address matters related to a Councilor or Alternate Councilor's conduct.
- As required by the ACS Governing Documents, CPC has set the divisor for Local Section and Division representation at Council for the period 2024-2027, based on the membership numbers as of December 31, 2022. Notification will be sent by the ACS Secretary to all affected Divisions and Local Sections by May 1, with details on how they will be impacted.
- CPC reviewed the Councilor Expense Program and voted to approve a streamlined process for Fall 2023. The committee also voted to review further streamlining options for the program going forward.

Council also approved:

- Petition to Amend the Duties of the Committee on Environmental Improvement to change the name of the committee to the Committee on Environment and Sustainability.
- Petition to Add Plan B to Council Meetings, which authorizes the postponement of voting at Council in case of technology failures or natural disasters.
- o 2024 Schedule of Membership.

Highlights from Committee Reports and Key Actions

- The **Committee on Local Section Activities (LSAC)** announced the launch of the **ACS Speaker Directory**, a new resource to access a wide range of speakers for inperson, hybrid, and asynchronous events.
- **ConC** announced that the opening of the online preference form to all ACS members begins on **April 3** and will run through **July 3**.
- The Committee on Meetings and Expositions (M&E) is actively engaged in collaborative efforts to re-imagine ACS meetings, by targeting increased value and relevancy. More information on the Future of Meetings Project will be presented in the near future.
- Council Special Discussion on the ongoing review of Society Committees. ACS President Judith Giordan introduced and led the discussion. She sought Councilor input of positive ideas, key issues, and opportunities to improve the structure of committees. Four specific prompts were posed to Councilors for their input and suggestions:
 - Ideally, for ACS to have a committee structure that is forward thinking and able to address opportunities for members, ACS and the chemistry enterprise, we would... (insert input and suggestions here).
 - Current and future key issues impacting ACS, the chemistry enterprise and our committees include... (insert input and suggestions here).
 - I wonder what the positive impact on committees, member involvement, and ACS would be if we were to (insert input and suggestions here).
 - 4. I wish that ACS committees could... (insert input and suggestions here).

Councilors provided their ideas and thoughts, and relevant Society units will receive this input within the next several weeks and distribute back out.

Council Resolutions Passed

- In memory of deceased ACS Presidents Brian M. Rushton and Dr. S. Allen Heininger.
- In memory of deceased Councilors Yorke E. Rhodes and Maurice M. Bursey.
- In sincere appreciation of the Indiana Local Section, host Section for the spring 2023 ACS meeting.

Actions of the Board of Directors

- The Board met several times in Executive Session in Indianapolis, Indiana. The Board's opening session began with a reflection on Diversity, Equity, Inclusion, and Respect (DEIR).
- Chief Executive Officer's Report
 The new CEO, Al Horvath, made an extensive report on
 issues relating to employee engagement, the Skilled
 Technical Workforce Strategic Initiate, C&EN, and upcoming
 events/activities.

Board Committees and Working Groups

The Board received and discussed reports from the Governing Board for Publishing, as well as its committees on Executive Compensation, Professional and Member Relations, and the Working Group on Structure and Representation. Some of these committees requested and obtained Board action on one or more items, as follows:

- The Board received an extensive briefing and approved several recommendations from its Committee on Executive Compensation. The compensation of the Society's executive staff continues to be reviewed regularly by the Board.
- Upon recommendation of the Society Committee on Publications, the Board voted to approve the reappointments of several ACS journal editors. These will be announced after the individuals have been notified and appropriate arrangements for their continued service are completed.
- Upon recommendation of the Editor Search Committee, the Board voted to approve an Editor- in-Chief of the journal ACS ES&T Air. The appointment will be announced after the individual has been notified and appropriate arrangements for their service are made.
- The Board voted to approve the reappointment of a member of the Governing Board for Publishing who falls in the category of being a member of the Society with executive experience from academia, but who is not a member of the Board of Directors.
- The reappointment will be announced after the individual has been notified and appropriate arrangements for their continued service have been made.
- Upon recommendation of the Committee on Professional and Member Relations the Board approved the establishment of the David A. Evans Award for the Advancement and Education of Organic Synthesis, the 2024 Othmer Gold Medal nominee, and the screened lists of five nominees each for the 2024 Award for Volunteer Service to the ACS and the 2024 Priestley Medal.
- Upon recommendation of the Committee on Public Affairs and Public Relations, the Board voted to approve an amendment to Board Regulation VII, Sec. 3 (c) requiring Board approval of the filing of amicus briefs in legal proceedings.
- The Board Working Group on Structure and Representation provided an update on their efforts to add an International District Director to the Board of Directors in the form of the Petition to Add International Representation on the Board of Directors, which was considered by the Council at the spring meeting.
- The Board heard reports from the Presidential Succession on their current and planned activities for 2023 and 2024 and received an update on the status of the search for the new Treasurer and Chief Financial Officer of the Society. The Board initiated discussions on two topics for further discussions. The first focused on raising items of strategic concern from Board members, and the second was dedicated to sharing feedback received from ACS members, elevating their voices to all Board members. The Board also adopted resolutions in memory of ACS Past Board Members and Presidents Brian M. Rushton and S. Allen Heininger.
- Please feel free to contact us with any questions or comments. Rodney Bennett (rodbennett@aol.com) Jeanette Van Emon (jmvanemon@gmail.com)



ACS Fall 2023 Program



PROGRAM AT A GLANCE

AGRO DIVISION ACS Fall 2023 August 13 - 17, 2023 Moscone Center, West Building, San Francisco, California, USA

SYMPOSIUM	ROOM	SUN	MON	TUES	WED
Back to the Basics: GLP Training for Study Personnel	3014	А			
Environmental Fate, Transport, and Modeling of Agriculturally-related Chemicals	3016	A/P			
Residue Analysis of Plant Protection Products – Advancements in Analytical Methodologies Over the Decades	3018	А			
Technological Solutions to Address Food Insecurity, Trade Challenges, and Food Waste	3020 3014	A P			
Data-Driven Approaches to Reduce Uncertainties in Water Exposure Assessments	3022	А			
Biorational Technologies for Control of Invasive Pests in a Changing Climate	3020	Р			
Agrochemical Formulations and Application Technology: Challenges and Innovation	3018	Р			
Epidemiology: A Growing Field in Agrochemistry and Agrochemical Regulation	3022	Р			
AGRO International Award: Symposium in Honor of Dr. Thomas M. Stevenson for His Contributions to the Discovery of New Fungicides, Herbicides and Insecticides. JAFC AGRO Best Paper Award S. Li – TUES AM Environmental Monitoring Data Collection, Utility, and Use in Pesticide Risk	3014 3018 3014 3016		A P 	 A	
Assessment and Registration	0010		~		
In Vitro Comparative Animal Metabolism of Agrochemicals	3018		А		
Zero Waste Strategies: Valorizing Undervalued Agricultural Coproducts and Food Waste	3020		A/P	A/P	
Transitioning from the Laboratory to the Landscape: Challenges and Opportunities	3016		Р		
Pesticide Runoff Mitigation: Characterization, Quantification, and Implementation	3014		Р		
Adapting Agricultural Chemistry and Practices to a Changing Climate	3022		Р		
Uses of HPLC-Mass Spectrometry in Support of Agricultural Research and Development - Trends and Best Practices	3024			A	
Pesticides and Other Organics in Urban Environment	3018			A/P	
The Role of Chemistry in Addressing Hunger and Food Security	3022			A/P	
Innovations in Vector Control: New Tools and Strategies 2023 Kenneth Spencer Award Joel R. Coates – TUES AM	3016 3014 3020			A P 	 A
EARLY CAREER SYMPOSIUM Harnessing Chemical Ecology to Achieve Food Security	3024 3014			Р	 A
New Strategies in Process Research and Development in Crop Protection	3016			Р	
Unmanned Aerial Systems (aka Drones): Pesticide Spraying and Other Agricultural Applications	3016				A
Advancing Public Engagement in Effective Pesticide ESA Education and Regulation	3018				А
Effect of EPA's Endangered Species Enforcement on the Future of Agrochemicals	3016				Р
Chemistry For and From Agriculture: AGRO Division Legacy and Future Opportunities ***Designated ACS Presidential Event 2023 IUPAC International Award for Advances in Harmonized Approaches to Crop Protection Chemistry Keith Solomon	3014				Ρ
AGRO 50 and Beyond Gala – RSVP required, see page 7	Exhibit Hall				5–8 PM
AGRO COMBINED POSTER SESSION	SOUTH BUILD Hall A			12–2 PM	

AGRO Division ACS Fall 2023 August 13 - 17, 2023 (PDT) Moscone Center San Francisco, California, USA Aaron Gross, *Program Chair*; Heidi Irrig, *Division Chair*

PROGRAM

DIVISION BUSINESS, PROGRAM PLANNING, AND SOCIAL ACTIVITIES

2023 CHANGES

AGRO Business Meeting

This meeting will be rescheduled in September; please watch the website and email blasts.

2023 Sterling Hendricks Award Reception The Sterling Hendricks Lectureship was presented online in May. No reception will be held at ACS this year.

AGRO COFFEE BREAKS

Moscone Center, Level 3, Overlook 2, West Bldg. SUNDAY: 9:45 – 10:15 AM; 3:45 – 4:15 PM MONDAY: 9:15 – 10:45 AM; 3:45 – 4:15 PM TUESDAY: 9:45 – 10:15 AM; 3:45 – 4:15 PM WEDNESDAY: 9:45 – 10:15 AM WEDNESDAY: 3:15 – 3:45 PM (Level 3, Overlook 3)

EVENTS

AGRO Graduate Student/Post-Doc Luncheon MONDAY, 12:00 – 1:30 PM

Moscone Center, Level 3, Overlook 1, West Bldg.

- Network with scientists and explore career and AGRO opportunities
- Reservations required, contact Sara Whiting at sara.whiting@bayer.com

AGRO POSTER SESSION

TUESDAY, 12:00 – 2:00 PM Moscone Center, Hall A, South Bldg.

AGRO Program Planning: Brewing Ideas for AGRO TUESDAY, 6:00 – 7:30 PM

Moscone Center, Exhibit Hall, West Bldg.

- Members and others with ideas are welcome
- Free beverages

AGRO '50 and Beyond Gala Reception WEDNESDAY, 5:00 – 8:00 PM

Moscone Center, Exhibit Hall, West Bldg.

- Hors d'oeuvres, cash bar, anniversary cake
- Games, prizes, historical displays, AGRO logo gift
- Recognition of AGRO legends and awardees
- Ticketed event RSVP REQUIRED see page 7

AGRO Agriculture Tour THURSDAY – All Day

- Spend a day tour California farms, vineyards, and UC Davis Ag Extension
- Reservations required
- See flyer on page 4

SUNDAY MORNING

Back to the Basics: GLP Training for Study Personnel Financially sponsored by Society of Quality Assurance J. Cypher, *Organizer*

Oral – Hybrid

Moscone Center, Room 3014, West Bldg.

- 8:00 AM Introductory remarks.
- 8:05 AM SOPs: Beginning, middle, and end. K. Brown
- 8:30 AM Application of GLP and GDP for Physical-Chemistry and Analytical Studies of Agrochemicals. L. Sanghani
- 8:55 AM Principles of good documentation practices, data integrity, and ethics for GLP study personnel. L. Sanghani
- 9:20 AM Test Substance Tracking in GLP Field Trials. V. Erickson
- 9:45 AM Intermission.
- **10:15 AM** Lessons from the field: Common GLP field findings and how to avoid them. **J. Cypher**
- 10:40 AM Responsibilities of study personnel in a GLP study. A. Pandya
- 11:05 AM Data integrity in GLP studies: A study personnel perspective. A. Pandya
- 11:30 AM Comparison between FDA-OECD-EPA GLPS. K. Brown, B. Munch
- 11:55 AM Concluding remarks.

Environmental Fate, Transport, and Modeling of Agriculturally-related Chemicals

Cosponsored by AGFD, ANYL, and ENVR S. Jackson, R. L. Warren, *Organizers, Presiding*

Oral – Hybrid

Moscone Center, Room 3016, West Bldg.

8:00 AM - Introductory Remarks.

- 8:05 AM Efficiently predicting photodegradation products of phenylurea herbicides and broader applications. K.D. Closser
- 8:30 AM Comparison of propylene oxide residues as measured by a novel SPME-based sampling method to predicted values based on modeled off-gassing rates.
 W.A. Hall, S. Walse, M. Rodriguez
- 8:55 AM Soil adsorption/desorption (batch equilibrium) studies: Changing approaches and evolving regulatory requirements. M. Schick
- 9:20 AM Speciation of non-extractable residues of pesticides in soil via 4-pool kinetic analysis. X. Huang, K. Lynn
- 9:45 AM Intermission.

- 10:15 AM Assessing full-scale pyrolysis systems as a tool for addressing per- and polyfluoroalkyl substances (PFAS) in impacted biosolids intended for use in agroecosystems. J.S. Wallace, D. Edirisinghe, D. Durson Balci, M. Abu-Orf, R. Sharp, J. Brown, D.S. Aga
- 10:40 AM Using non-targeted chemical analysis methods to detect emerging contaminants in dairy manure management systems. C.L. Brueck, E. Lopez-Haz, S. Lansing, J. Ogejo, C. Prasse
- 11:05 AM Redox transformation of inorganic nitrogen species impacts on Uranium mobilization in the vadose zone. Y. Ukwishaka, A. Malakar
- 11:30 AM Enhanced herbicide metabolism and altered production of a specific very-long-chain fatty acid in resistant palmer amaranth (*Amaranthus palmeri* S. Wats.) following S-metolachlor treatment. J. Hwang, j. Norsworthy, P. Carvalho-Moore, L. Barber, T. Butts
- 11:55 AM Concluding Remarks.

Residue Analysis of Plant Protection Products – Advancements in Analytical Methodologies Over the Decades

Cosponsored by AGFD

Financially supported by Mac-Mod Analytical, Inc. P. Dubey, S. Perez, M. Saha, *Organizers, Presiding*

Oral – In-person only

Moscone Center, Room 3018, West Bldg.

8:00 AM – Introductory Remarks.

- 8:05 AM Ensuring residue methods meet current and future expectations. S. Brewin, S. Tate
- 8:30 AM Twenty years after QuEChERS and MS/MS: Recent and future developments in multiresidue analysis. J.W. Wong
- 8:55 AM Selective detection and identification of neonicotinoid pesticide residues using precursor ion mass spectrometry. A.J. Borgerding
- 9:20 AM Application of Bioavailability in Understanding Pesticide Degradation in Soil. P. Kaur, J. Gan, W. Chen, D. Wolf, A. Dalencon, J. Rains
- 9:45 AM Intermission.
- 10:15 AM Using cheminformatics approaches to develop a structure searchable database of analytical methods.
 A.J. Williams, G. Janesch, E. Carr, S. Sivasupramaniam, B. Meyer, N. Baker
- 10:40 AM Utilizing the QuEChERS sample preparation approach for targeted analysis of pesticides in complex ecotoxicology matrices. A. McGuinness
- 11:05 AM Agrochemical residue analysis using capillary electrophoresis mass spectrometry (CESI-MS). S.S. Walse, E.L. Rangel Rivera
- 11:30 AM Use of Raman spectroscopy as a novel tool for residue analyses. P. Cassidy
- 11:55 AM Concluding Remarks.

Technological Solutions to Address Food Insecurity, Trade Challenges, and Food Waste

Cosponsored by AGFD, ANYL, BIOT, CHAS, CHAL, ENVR, ORGN and Food Security: Tackling Hunger ACS Convergent Chemistry Community

A. Gore, H. B. Irrig, J. M. Stewart, C. Tiu, Organizers, Presiding

Oral – In-person only

Moscone Center, Room 3020, West Bldg.

- 8:00 AM Introductory Remarks.
- 8:05 AM FAO's efforts to reduce global food waste. J. Brown Hall
- 8:30 AM Codex@60: A look at past, present, and future. J. Chao, M. Maratos-Bhat, H. Selig
- 8:55 AM USDA perspective: Magnitude of domestic and international food loss and waste (FLW). J. Buzby
- 9:20 AM Creative approaches to addressing to MRL trade barriers for specialty crops. A. Gore
- 9:45 AM Intermission.
- **10:15 AM** Is chemistry an obsolete technology in food production? J.R. Cranney
- 10:40 AM Today's challenges of the food industry to deliver a product to the market. Areas of improvement concerning crop protection. P. Perez, F. Schuster
- 11:05 AM Real-world pesticide dissipation for produce marketing. S. Hunt, J. Gottula
- 11:30 AM Use of non-GLP residue testing information for trade and consumer confidence. V. Linden, A. Shulkin, H. Griffiths
- 11:55 AM Concluding Remarks.

Data-Driven Approaches to Reduce Uncertainties in Water Exposure Assessments

Financially sponsored by Stone Environmental D. Dreier, Y. Luo, B. Miguez, T. S. Ramanarayanan,

D. Dreier, Y. Luo, B. Miguez, T. S. Ramanarayanan, Organizers, Presiding

Oral – Hybrid

Moscone Center, Room 3022, West Bldg.

- 8:00 AM Introductory Remarks.
- 8:05 AM Spatial modeling approach for aquatic exposure assessments on pesticides. Y. Luo
- 8:30 AM Development and evaluation of spatial groundwater scenarios for USEPA pesticide exposure assessment. P. Engel, D. Barrett, M. Guevara, S. Lin, M. Liang, C. Koper, J. Fowler, W.P. Eckel, H. Li, D. Young
- 8:55 AM Machine learning to integrate environmental mechanistic modeling and water quality monitoring for pesticides. Y. Wu, D. Dreier, L. Ghebremichael, N. Geitner, A. Jacobson, Z. Stone, W. Chen
- 9:20 AM Probabilistic pesticide usage approach for new uses and it's application in endangered species assessments. H. Rathjens, M. Winchell, P. Whatling
- 9:45 AM Intermission.
- 10:15 AM Evaluating surface water pesticide concentrations through SEAWAVE-QEX modeling for select Washington State agricultural streams. G. Bahr, M. Bischof
- 10:40 AM Improvements to SWAT model channel system pesticide fate and transport processes. M. Winchell, N. Peranginangin, W. Chen

- 11:05 AM R-Shiny applications for surface water estimation and modeling. P. Mosquin, J. Aldworth, Y. Wu, S. Grant, W. Chen
- 11:30 AM Enhanced cumulative dietary exposure assessments using the CARES NG Dietary Model. W. O'Sullivan, J. Doyle, Z. Khan, C. McNamara
- 11:55 AM Concluding Remarks.

AGFD Division

Food Security: The Role of Alternative Protein Sources in Addressing World Hunger Cosponsored by AGRO, ANYL and ENVR

ENVR Division

Wildfires: Chemistry and Environmental Impacts on Air, Water, and Soil Cosponsored by AGFD, AGRO, ANYL, CEI, ENVR and TOXI

Materials Development to Address Environmental and Sustainability Challenges Separation Chemistry

Cosponsored by AGFD, AGRO, ANYL and ENVR

SUNDAY AFTERNOON

Environmental Fate, Transport, and Modeling of Agriculturally-related Chemicals Cosponsored by AGFD, ANYL, and ENVR

S. Jackson, R. L. Warren, Organizers, Presiding

Oral – Hybrid

Moscone Center, Room 3016, West Bldg.

2:00 PM – Introductory Remarks.

- 2:05 PM Novel remote sensing approach for estimating field-scale crop planting and pesticide application timing. N. Guth, A. Jacobson, Z. Stone, R. Brain
- 2:30 PM PWC-PREP Tool: A user-friendly tool to facilitate preparation of label-compliant Pesticide in Water Calculator (PWC) batch input files. L. Insinga, S. Kay, D.A. Desmarteau
- 2:55 PM Spatiotemporally explicit modeling approach for exposure and risk assessment of off-field soil organisms. C.M. Holmes, T. Schad, S. Bub, M. Wang, K. Hammel, Z. Tang, G. Ernst, T.G. Preuss
- 3:20 PM Risk assessment for threatened and endangered bird species in the United States potentially exposed to clothianidin seed treatments. D. Moore, C.D. Priest, J.D. Wisk
- 3:45 PM Intermission.
- **4:15 PM** Mechanistic and empirical approaches used to address spray atomization. **S. Cryer**, J. Raymond
- 4:40 PM Limitations of air quality models to simulate atmospheric dilution for agricultural fumigants. D.A. Sullivan, R. Sullivan, M. Holdsworth, D. Hlinka
- 5:05 PM Measuring and preliminary modeling of drift interception by plant species. J. Dunne, S. Grant, J. Golus, J. Perine, S. Wolf, M. Ledson, M. Winchell, I. Whenham
- 5:30 PM Inverse modelling of a field leaching study to estimate degradation and sorption parameters for a pesticide soil metabolite and its parent. S. Sittig, C. Kley, R. Sur
- 5:55 PM Concluding Remarks.

Biorational Technologies for Control of Invasive Pests in a Changing Climate

Cosponsored by AGFD, ANYL, ENVR, ORGN, and Food Security: Tackling Hunger ACS Convergent Chemistry Community

- Financially sponsored by Corteva AgriScience
- B. Torto, Organizer, Presiding; C. Rering, Presiding

Oral – In-person only

Moscone Center, Room 3020, West Bldg.

- 2:00 PM Introductory Remarks.
- 2:05 PM Using digital advisories to scale out biorational interventions for holistically managing the invasive fall armyworm, striga weed infestation and climate stress in Africa. T. Landmann, B. Mudereri, T. Dubois, H.E. Tonnang
- 2:30 PM Enemy of my enemy is my friend: Odors from a fruit pathogen repel *Drosophila suzukii*. C.C. Rering, A. Quadrel, C. Rodriguez-Saona
- 2:55 PM Alteration of maize phytochemistry and resistance to invasive fall armyworm, *Spodoptera frugiperda* Smith (Lepidoptera: Noctuidae) due to push-pull cropping soil legacies. D.M. Mutyambai, J.M. Mutua, A.A. Jalloh, B.N. Njiru, A. Kessler, T. Dubois, Z.R. Khan, S. Sevgan
- 3:20 PM Discovery and field testing of a new acaricide against the mite *Varroa destructor*, an invasive parasite of honey bees. E. Plettner, S. Dawdani, M. O'Neill, J.E. Macias Samano, X. Feng, C. Castillo, H. Higo, A. Ibrahim, S.F. Pernal
- 3:45 PM Intermission.
- 4:15 PM Recycling plant biomass for crop protection: The future of sustainable agriculture. T. Pirzada, A. AFFOKPON, L. Cortada, D. Guenther, T.L. Sit, L. Pal, D. Coyne, C. Opperman, S.A. Khan
- **4:40 PM** Fungicidal constituents from phytopathogens against some agriculturally important fungi. **K.M. Meepagala**
- 5:05 PM Biorational postharvest treatments for invasive pests. S.S. Walse
- 5:30 PM Semiochemical application to manage the invasive potato cyst nematode in East Africa. B.
 Torto, J.A. Ochola, A.T. Fombong
- 5:55 PM Concluding Remarks.

Agrochemical Formulations and Application Technology: Challenges and Innovation Cosponsored by AGFD and COLL

S. D. Banziger, Organizer; R. Acosta Amado, Organizer, Presiding; M. Meredith, F. Salzman, Presiding

****Oral – In-person only**** Moscone Center, Room 3018, West Bldg.

2:00 PM - Introductory Remarks.

- 2:05 PM PFAS concerns in pesticide formulations. P. Cassidy
- 2:30 PM Characterization and evaluation of sodium alginate/brushite nanocomposite hydrogel beads for stimuli responsive release of phosphorus for sustainable agriculture. H. Mansouri, H. Benyoucef, A. Oukarroum, F. Perreault
- 2:55 PM Nanopesticide delivery system constructed by flash nanoprecipitation based on green carriers. E. Ma, Z. Fu, K. Chen, X. Jiang, Z. Yang, L. Li, X. Guo

- 3:20 PM Assessing the *in planta* biocorona interface of gene-editing nanocarriers. R. Coreas, E. Voke, N. Sridhar, M. Landry
- 3:45 PM Intermission.
- 4:15 PM Dispersants in agricultural formulations. N. Loufakis, D. Vasquez, J. Chrominski, K. Joseph, H. Katepalli
- 4:40 PM DOW[™] Crop Solver. A. Jobe, D. Vasquez, M.P. Tate, N. Loufakis, M. Hiteshaw, L. Rogers
- 5:05 PM Comparing field volatility of dicamba over-thetop of different crops and bare soil. S. Whiting, R.J. Ripperger, W. Griese, Y. Yang, D.G. Dyer, N. Pai, L. Riter
- 5:30 PM Discussion.
- **5:55 PM –** Concluding Remarks.

Technological Solutions to Address Food Insecurity, Trade Challenges, and Food Waste

Cosponsored by AGFD, ANYL, ENVR, and ORGN

H. B. Irrig, *Organizer*; A. Gore, J. M. Stewart, C. Tiu, *Organizers, Presiding*; S. Wolek, *Presiding*

Oral – Hybrid

Moscone Center, Room 3014, West Bldg.

- 2:00 PM Introductory Remarks.
- 2:05 PM Trade in a Complex MRL Environment: An industry perspective. N. Smith
- 2:30 PM Zero residues. C. Tiu
- 2:55 PM Biopesticides solutions for residue mitigation. J. Sandahl
- 3:20 PM Do MRLS reflect inadvertent residues resulting from commercial harvesting processes?. K. Tatum-Gibbs, K.D. Ardiel
- 3:45 PM Intermission.
- 4:15 PM How bad statistics is holding is agrochemical product development in the 1970's. S. Hunt, J. Gottula
- 4:40 PM Alginate hydrogels for smart nutrient release to the plant microbiome. D.U. Mualen, P. Lee, F. Khan, T. Payne, X. Lin, A. Bennett, Z.D. Schultz, J.O. Winter
- 5:05 PM Systematic detection and monitoring of plant virus infection using Raman spectroscopy and principal component analysis. K. Das, F. Novianti, K. Komatsu, T. Ito, K. Misawa
- 5:30 PM Discussion.
- 5:55 PM Concluding Remarks.

Epidemiology: A Growing Field in Agrochemistry and Agrochemical Regulation

Cosponsored by AGFD, CHAL, ENVR, and TOXI D. J. Miller, *Organizer, Presiding*

Oral – Hybrid

Moscone Center, Room 3022, West Bldg.

2:00 PM - Introductory Remarks.

- 2:05 PM Why here and why now? An epidemiological overview of the session. D.J. Miller
- 2:30 PM Tracking chemical exposures to humans: U.S. national biomonitoring survey data in EPA's *Report on the Environment (ROE)*. P. Murphy
- 2:55 PM Agricultural health study cohort: An overview. L. Beane Freeman

- **3:20 PM –** Pesticide exposure assessment in the agricultural health study. **K. Thomas**
- 3:45 PM Intermission.
- 4:15 PM CHAMACOS longitudinal birth cohort study of pesticides and other environmental exposures: Origins, history, and overview of findings. B.
 Eskenazi
- 4:40 PM What's industry got to do with it? C.J. Burns
- 5:05 PM Application of environmental epidemiology in risk assessment and decision-making: Past and ongoing HESI projects. S. Deglin, D.J. Miller, D.N. Boon, I. Burstyn, M.O. Gribble, A.K. Hamade, M.S. Johnson, J. Reed
- 5:30 PM Panel Discussion.
- 5:55 PM Concluding Remarks.

AGFD Division

Food Security: The Role of Alternative Protein Sources in Addressing World Hunger Cosponsored by AGRO, ANYL and ENVR

ENVR Division

Materials Development to Address Environmental and Sustainability Challenges Separation Chemistry/Agrochemistry Cosponsored by AGFD, AGRO, ANYL and ENVR

MONDAY MORNING

2023 ACS International Award for Research in Agrochemicals

Symposium in Honor of Dr. Thomas M. Stevenson for His Contributions to the Discovery of New Fungicides, Herbicides and Insecticides

Cosponsored by AGFD, ANYL, ENVR, ORGN, and Food Security: Tackling Hunger ACS Convergent Chemistry Community Financially supported by CORTEVA Agriscience

R. DeBergh, S. Rostovtsev, Organizers, Presiding

Oral – Hybrid Moscone Center, Room 3014, West Bldg.

8:00 AM – Introductory Remarks.

- 8:05 AM Pyridazinones in crop protection research. T.M. Stevenson
- 8:55 AM Natural product synthesis through the lens of informatics. R.A. Shenvi
- 9:20 AM New strategies for skeletal editing. M.D. Levin
- 9:45 AM Intermission.
- 10:15 AM Stereospecific, nickel-catalyzed crosscouplings. M.P. Watson
- 10:40 AM Strategies for the total synthesis of bioactive natural products of potential relevance to Agrochemistry. R. Sarpong
- 11:05 AM Synthetic studies of complex natural products. T.J. Maimone
- 11:30 AM Concluding Remarks.

Environmental Monitoring Data Collection, Utility, and Use in Pesticide Risk Assessment and Registration Cosponsored by AGFD, ANYL, and ENVR

A. Newcombe, S. Whiting, *Organizers, Presiding*

Oral – Hybrid

Moscone Center, Room 3016, West Bldg.

- 8:00 AM Introductory Remarks.
- 8:05 AM Oregon's pesticide stewardship partnerships: Using water quality data to inform the implementation of voluntary practices to keep pesticides out of streams. D. Gruen
- 8:30 AM Characterizing pesticide irrigation and storm runoff from agricultural fields in the Central Coast of California. P. Lima, X. Deng, A. Main
- 8:55 AM Public monitoring data gathering and compilation: A summary of challenges. V. Houck, A. Newcombe, K. Brutscher
- 9:20 AM Intermission.
- 9:50 AM What is the appropriate sampling frequency necessary for pesticide monitoring programs in flowing surface waters? An analysis using SEAWAVE-QEX. A. Jacobson, Z. Stone, B. Kent, R. Brain
- 10:15 AM Evaluation of SEAWAVE-QEX model performance across different watersheds and pesticide properties. C. Hassinger, H. Chen, B. Carper, P. Mosquin, J. Aldworth, M. Eddy, A. Watson, D. Freedlander, W. Chen
- 10:40 AM Revision of groundwater monitoring data and the statistical methodology to identify pesticides with potential to contaminate groundwater mandated by the California pesticide contamination prevention act (Food and Agricultural Code 13141-13152). M. Clayton
- 11:05 AM Concluding remarks.

In Vitro Comparative Animal Metabolism of Agrochemicals

O. Dautermann, M. Himmelstein, G. C. Nallani, *Organizers, Presiding*

Oral – In-person only

Moscone Center, Room 3018, West Bldg.

8:00 AM - Introductory remarks.

- 8:05 AM Introduction to the *in vitro* comparative animal metabolism of agrochemicals. K. Knowles, G.C. Nallani, O. Dautermann, M. Himmelstein, F. Kluxen, T. Holmes, M. Kubicki, M. Lamshoeft, P. Whalley
- 8:30 AM Supporting comparative *in vitro m*etabolism studies for agrochemicals at Charles River Laboratories, Edinburgh, UK. O. Epemolu, S. Novo, G. Wicksted
- 8:55 AM Comparative *in vitro* liver metabolism of pesticides: A comparison of different approaches. M. Kubicki, M. Lamshoeft, L. Hillebrands, A. Lagojda
- 9:20 AM Intermission.
- **9:50 AM** ¹⁴C-Picoxystrobin: Case study example for comparative multispecies *in vitro* metabolism in hepatocytes. **M. Himmelstein**
- 10:15 AM Investigation of *In Vitro* metabolism of a low turn over test substance [¹⁴C]TS-X in Hurel[®] coculture of hepatocytes. L. Shen, G.C. Nallani, Y. Fan, W. Asghar, A. Chandrasekaran
- **10:40 AM** Simple approach for *in vitro* comparative animal metabolism of agrochemicals. **K. Knowles**

Zero Waste Strategies: Valorizing Undervalued Agricultural Coproducts and Food Waste

- Cosponsored by AGFD, ANYL, BMGT, ENFL, ENVR, TOXI, and Food Security: Tackling Hunger ACS Convergent Chemistry Community
- W. Hart-Cooper, W. J. Orts, G. Paterson, *Organizers*; J. McManus, *Organizer, Presiding*

Oral – In-person only

Moscone Center, Room 3020, West Bldg.

- 9:20 AM Introductory Remarks.
- 9:25 AM Zero Waste Strategy for Cotton Gin Waste: Valorizing as a Nanotemplate. S. Nam, M.W. Easson, J.H. Jordan, Z. He
- **9:50 AM** Zeroing the textile industry: Natural fibers and co-products. **C.D. Delhom**, F. Alege
- 10:15 AM Intermission.
- 10:45 AM Novel valorization of food and agricultural waste through the application of high-pressure steam and temperature in a closed vessel: Compare with other modern methods and their impact. D.
 McSpedon, W.J. Orts, J. McManus, G.D. Patterson
- 11:10 AM Valorization of autoclave treated municipal solid waste streams. J. McManus, W.J. Orts, E. Rossomme, G.D. Patterson, S. Nazneen, D. McSpedon, B. Hughes
- 11:35 AM Concluding Remarks.

AGFD Division

Biotechnology and Synthetic Biology for Sustainable Foods, Food Ingredients, and Flavor Cosponsored by AGRO, ANYL, and ENVR

Forever Chemicals in the Environment, Distribution, and Risk Cosponsored by AGRO and ENVR

ANYL Division

Portable and Compact Separation Technologies Cosponsored by AGFD, AGRO, and ENVR

ENVR Division

Materials Development to Address Environmental and Sustainability Challenges: Sustainability & Recovery Cosponsored by AGFD, AGRO, ANYL, and ENVR

MONDAY AFTERNOON

Transitioning from the Laboratory to the Landscape: Challenges and Opportunities

Cosponsored by AGFD, ANYL, ENVR, and TOXI J. Collins, J. R. Purdy, T. Steeger, K. White, *Organizers*

Oral – Hybrid

Moscone Center, Room 3016, West Bldg.

2:00 PM - Introductory remarks.

2:05 PM - Zooming out: Integrating pesticides into landscape studies of pollinator decline. **M. Douglas**, W. Janousek, P. Baisley, S. Soba, M. Kammerer, E. Lonsdorf, C. Grozinger, T. Graves

- 2:30 PM Origin and pesticide content of pollen collected by honey bees in two ornamental plant nurseries in Connecticut: implications for bee health and risk assessment. D.M. Lehmann, K.P. Hester, K. Stoner, B.D. Eitzer, R. Koethe
- 2:55 PM Estimating the exposure of pesticide residues in nectar and pollen to bee pollinators. T. Fredricks, A.R. Cabrera, M. Feken, D. Schmehl, S. Hinarejos, T. Joseph, B. O'Neill, R. Singh
- **3:20 PM -** Controlled testing of sublethal environmental stress in honey bees, *Apis mellifera*. **A.N. Mortensen**, J.D. Ellis
- 3:45 PM Intermission.
- **4:15 PM -** Bee Toxicogenomics: leveraging molecular approaches to address uncertainties regarding pollinator safety of insecticides. **J. Haas**, R. Nauen
- **4:40 PM -** Predicting colony level effects from laboratory data using BEEHAVE_{ecotox}. **V. Roeben**, M. Miles, T.G. Preuss, A. Olmstead, D. Schmehl
- 5:05 PM Pesticide exposure effects on bees and pollination services at the landscape level. D. Obregon, K. Poveda
- 5:30 PM Concluding Remarks.

Pesticide Runoff Mitigation: Characterization, Quantification, and Implementation

Cosponsored by AGFD and ENVR

P. K. Janney, *Organizer*; H. Chen, P. L. Havens, A. M. Ritter, *Organizers, Presiding*

Oral – Hybrid

Moscone Center, Room 3014, West Bldg.

2:00 PM - Introductory Remarks.

- 2:05 PM How to assess run-off mitigation in exposure modelling. R. Sur, S. Reichenberger, S. Sittig, R. Muñoz-Carpena
- 2:30 PM GeoAPEX-P, a web-based, spatial modeling tool for nutrient and pesticide related environmental assessment. F. Pan, Q. Feng, Y. Haw, D. Ren, Z. Tang, R. Sur, **B.A. Engel**
- 2:55 PM Development of a multi-tiered stewardship assessment tool for evaluating the effectiveness of field-level conservation practices in reducing off-field pesticide transport. J. Stryker, B. Miguez, M. Winchell, L. Ghebremichael, T. Burd
- 3:20 PM Cocrystal engineering strategy for sustained release and leaching reduction of highly water-soluble herbicide. Y. Xiao, K. Chen, C. Wu, L. Zhou, Q. Yin
- 3:45 PM Intermission.
- 4:15 PM Evaluating potential and actual effectiveness of edge-of-field buffers in mitigating pesticide transport: implications for cost effective implementation. T. Veith, H. Preisendanz
- 4:40 PM Inventory and review of existing agricultural best management practices for pesticides in the USA. A. Jacobson, N. Guth, Z. Stone, D.A. Desmarteau, R. Brain
- 5:05 PM How USDA-NRCS works with voluntary land managers to assess and mitigate for potential pesticide losses from agricultural fields. G. Ferruzzi
- 5:30 Concluding Remarks.

AGRO International Award: Symposium in Honor of Dr. Thomas M. Stevenson for His Contributions to the Discovery of New Fungicides, Herbicides, and Insecticides

- Cosponsored by AGFD, ANYL, ENVR, and by Food Security: Tackling Hunger ACS Convergent Chemistry Community
- R. DeBergh, S. Rostovtsev, Organizers, Presiding
- **Oral In-person only**

Moscone Center, Room 3018, West Bldg.

- 2:00 PM Introductory Remarks.
- 2:05 PM Reflecting on the discovery of tetflupyrolimet: First member of HRAC Group 28. T.P. Selby
- 2:30 PM Strategy and tactics in the design of new scaffolds for agrochemical chemistry. G.P. Lahm
- 2:55 PM Novel triazolones as nematicides. J.K. Long, M. Kar, E. Riga, D. Cordova, L. Varanyak
- 3:20 PM Regioselective synthesis of fungicidal 2-aryl-1,2,3-triazoles. S.F. McCann, Y.T. Henry, Y. Chen
- 3:45 PM Intermission.
- 4:15 PM Icafolin-methyl an innovative broad-spectrum herbicide. K. Haaf, O. Peters, L. Lorentz, E. Gatzweiler, G. Bojack, M. Haas
- **4:40 PM -** Natural product-based lead generation for crop protection compounds; origins and role of structure simplification. **T.C. Sparks**, S.O. Duke
- 5:05 PM Concluding Remarks.

Adapting Agricultural Chemistry and Practices to a Changing Climate

- Cosponsored by AGFD, ANYL, CELL, ENFL, ENVR, TOXI, and Food Security: Tackling Hunger ACS Convergent Chemistry Community
- P. Engel, N. E. Ihegwuagu, H. B. Irrig, P. J. Rice, A. Ritter, Organizers; F. Salzman, Organizer, Presiding

Oral – In-person only Moscone Center, Room 3022, West Bldg.

2:00 PM - Introductory Remarks.

- 2:05 PM Validating geochemical models in enhanced weathering: an assessment of model inputs and comparability of modelled- to experimental- data.
 A.L. Lewis, M. Healey, T. Bierowiec, I. Edeh, M. Kelland, M. Murphy, R. Pape, K. Skov, W. Turner, P. Wade, J. Wardman, X. Liu
- 2:30 PM Soil carbon credits in agricultural: Challenges and opportunities in measurement, reporting and verification. J. Heisler White, F. Salzman
- 2:55 PM Multiple benefits from agricultural resiliency strategies in response to drought and a changing climate. **G. Bahr**
- **3:20 PM** Update on EPA efforts related to climate adaptation and chemical regulation. **J. Dawson**
- 3:45 PM Intermission.
- 4:15 PM Weed emergence patterns as affected by soil hydrothermal properties in eroded and rehabilitated landscapes. S.K. Schneider, A.K. Sutradhar, F. Kordbacheh, R.H. Gulden
- **4:40 PM -** Delivering sustainable innovations to address the changing climate. **A. Batra**
- **5:05 PM -** Climate change and agriculture: AGRO's role in ensuring sustainable agriculture. **H.B. Irrig**, P.J. Rice, A.M. Ritter
- 5:30 PM Discussion and Concluding Remarks.

Zero Waste Strategies: Valorizing Undervalued Agricultural Coproducts and Food Waste

- Cosponsored by AGFD, ANYL, BMGT, ENFL, ENVR, and Food Security: Tackling Hunger ACS Convergent Chemistry Community
- W. Hart-Cooper, J. McManus, G. Paterson, Organizers; W. J. Orts, Organizer, Presiding
- **Oral In-person only**

Moscone Center, Room 3020, West Bldg.

- 2:00 PM Introductory Remarks.
- 2:05 PM Holistic approaches toward building advanced materials from under-utilized biomass. Y. Hsieh
- 2:30 PM Characterization of cellulose nanofibrils produced from agricultural waste. L.R. Costa, A.A. dos Santos, M.C. Dias, L.E. Silva, D.F. Wood, T.G. Williams, P.R. Hein, G.H. Tonoli
- 2:55 PM Almond shell nanocellulose: characterization and self-assembling into fibers, films, and aerogels. J. Fukuda, Y. Hsieh
- 3:20 PM Nanocellulose production from various low-cost waste feedstocks: A significant stride toward largescale production and commercialization. D. Uchimura Pascoli, A. Dichiara, E. Roumeli, R. Gustafson, R. Bura

3:45 PM - Intermission.

- 4:15 PM Opportunities and challenges in the bioconversion of almond hulls to high value products. T. Jeoh, K. Boundy-Mills, A. Hitomi, I. Sitepu
- 4:40 PM Garbage to nanocellulose: Quantitative isolation and characterization of steam-treated carboxymethyl holocellulose nanofibrils from municipal solid waste. G.D. Patterson
- 5:05 PM Value-add tree nut by-products for carbon sequestration and pathogen/weed control. J.H. Kim, K.L. Chan, W. Hart-Cooper, Z. McCaffrey, L.F. Torres, W.J. Orts
- 5:30 PM Gluten-based foams containing fibers and particulates. B. Chiou, T. Cao, Z. McCaffrey, C. Bilbao-Sainz, G. Glenn, W.J. Orts

5:55 Concluding Remarks.

AGFD Division

Artificial Intelligence (AI) Applications for Food and Agriculture

Cosponsored by AGRO, ANYL, and ENVR

Biotechnology and Synthetic Biology for Sustainable Foods, Food Ingredients, and Flavor Cosponsored by AGRO, ANYL, and ENVR

Food Security: The Role of Alternative Protein Sources in Addressing World Hunger Cosponsored by AGRO, ANYL, and ENVR

ANYL Division

Portable and Compact Separation Technologies Cosponsored by AGFD, AGRO, and ENVR

ENVR Division

Materials Development to Address Environmental and Sustainability Challenges Sustainability & Recovery/Photo- & Electrochemistry Cosponsored by AGFD, AGRO, and ENVR

MONDAY EVENING

Sci-Mix Poster Session 8:00 - 10 PM

In-person

Moscone Center, Hall F, South Bldg.

AGRO participants are noted in the AGRO Poster Session listed beginning on Program p. 11

TUESDAY MORNING

Uses of HPLC-Mass Spectrometry in Support of Agricultural Research and Development - Trends and **Best Practices**

Cosponsored by AGFD, ANYL, and ENVR

J. Ferguson, R. Mumford, Y. Sapozhnikova, Organizers, Presiding

Oral – In-person only

Moscone Center, Room 3024, West Bldg.

8:00 AM - introductory remarks.

- 8:05 AM Modeling the fate of ionizable pharmaceutical and personal care products (iPPCPs) in soil-plant systems: pH and speciation. Y. Yang, A. Shahriar, D. Hanigan, P. Verburg, K. Pagilla
- 8:30 AM Towards the use of SFC as a tool for sample clean-up in support of metabolite structure elucidation. H. Ward
- 8:55 AM Are we counting wrong? Differential mass spectrometry ionization efficiency of pyrethroid isomers and other isomers can affect quantitative analysis by LC-MS/MS. E.A. Schoenau-Graham
- 9:20 AM Automated chiral screening strategy for supercritical fluid SFC-MS/MS and HPLC-MS/MS residue analytical method development. L. Riter, C. Zhang, C. Miara, I. Bruemmer, B. Freudenberg, A. Ulbrich, J. Fronhof
- 9:45 AM Intermission.
- 10:15 AM Assessing per- and polyfluoroalkyl substances (PFAS) and lipidomic alterations in plants grown in contaminated soil. R. Beres, S. Doydora, K. Kirkwood, Y. Li, O. Duckworth, E. Baker
- 10:40 AM Identification and guantitation of total and specific PFAS by LC/MS, CIC, and ¹⁹F-NMR. D.S. Aga
- 11:05 AM Open Specy 1.0: Developing an open science resource for spectral analysis of microplastics and beyond. W. Cowger
- 11:30 AM Multilaboratory collaborative study of a nontarget data acquisition for target analysis (nDATA) workflow for the screening of >1000 pesticides in fruits and vegetables. J.W. Wong, J. Wang, W. Chow, R. Carlson, J. Chang

11:55 AM - Closing remarks.

Zero Waste Strategies: Valorizing Undervalued Agricultural Coproducts and Food Waste

- Cosponsored by AGFD, ANYL, BMGT, ENFL, ENVR, and Food Security: Tackling Hunger ACS Convergent Chemistry Community
- J. McManus, W. J. Orts, G. Paterson, *Organizers*; W. Hart-Cooper, *Organizer, Presiding*

Oral – In-person only

Moscone Center, Room 3020, West Bldg.

- 8:00 AM Introductory Remarks.
- 8:05 AM New Co-Products from Guayule Resin. C.E. Brewer, M. Dehghanizadeh
- 8:30 AM Valorization of lignocellulosic biomass, its components and chemical derivatives for a more economical poly(hydroxyalkanoate) production process. R. Ashby, N. Qureshi, J. Msanne, G. Strahan
- 8:55 AM Guayule commercialization of a new domestic rubber source. J. Reddinger
- 9:20 AM Adding value to almond coproducts: Using "everything but the oink" toward zero waste processing. W.J. Orts, C. McMahan, D.F. Wood, L.F. Torres, Z. McCaffrey, B. Chiou, T. Cao, T.G. Williams, G.D. Patterson, J. McManus
- 9:45 AM Intermission.
- 10:15 AM Thermal evaluation of biocomposites made from poly(lactic acid) and cottonseed byproducts. Z. He, S. Nam, S. Kulkarni, M. BagheriKashani, R. Nagarajan
- 10:40 AM Designing for degradability: Waste-derived bioproducts with reduced hazards and environmental persistence. W. Hart-Cooper, K. Orcutt, L.F. Torres, Z. McCaffrey, J. McManus, W.J. Orts, G.D. Patterson
- 11:05 AM Constructing diploid *Rhodosporidium toruloides* yeast for production of single cell oil. D. Dias Lopes, B.S. Dien, V. Singh, S. Jagtap, C. Rao, R. Hector
- 11:30 AM Chitosan as a green alternative to petroleumbased plastics. K. Orcutt, M. Bredikhin, J. Strow, J. McManus, C. McMahan, W.J. Orts, W. Hart-Cooper
- 11:55 AM Concluding Remarks.

Pesticides and Other Organics in Urban Environments

Cosponsored by ANYL and ENVR

R. Budd, J. Gan, M. L. Hladik, R. A. Sutton, *Organizers, Presiding*

Oral – In-person only

Moscone Center, Room 3018, West Bldg.

8:00 AM – Introductory Remarks.

- 8:05 AM Cosmetics contribute to perfluoroalkyl and polyfluoroalkyl substances (PFASs) at wastewater treatment plants in California's dense urban environments.
 S. Balan, T. Bruton, K. Harris, L. Hayes, C. Leonetti, V. Mathrani, A. Noble
- 8:30 AM Quaternary ammonium compounds (QACs) in wastewater influent, wastewater effluent and biosolids: Removal effectiveness and routes to the environment. A.K. Mahony, Z. Lu, P. McNamara, W.A. Arnold
- 8:55 AM PFAS and PPCP in biosolids from municipal wastewater resource recovery facilities. H. Li, Z. Xu, Q. Dong, Y. Wang, Q. Huang, S. Oza, K. Bell, J. Norton

- **9:20 AM** National reconnaissance of inorganic and organic compounds in biosolids and other land-applied reuse materials. **J. Masoner**, D.W. Kolpin, I.M. Cozzarelli, M.L. Hladik
- **9:45 AM –** Intermission.
- 10:15 AM Using empirical evidence to identify primary pathways contributing to pesticides in urban surface waters. R. Budd, Y. Xie, J. Wheeler, A. Main
- 10:40 AM Occurrence, distribution, and removal of emerging trace organic pollutants in source and drinking water. D. An, Y. Qian
- 11:05 AM Contaminants of emerging concern in urban stormwater in the San Francisco Bay Area. R.A.
 Sutton, A. Gilbreath, D. Lin, C.P. Higgins, A. Patterson, D. Chen, J. Liu, E.P. Kolodziej, K.T. Peter
- 11:30 AM Treatment of stormwater runoff Organics using cost-effective, biochar adsorbent infiltration media. J. Ray
- 11:55 AM Concluding Remarks.

The Role of Chemistry in Addressing Hunger and Food Security

- Cosponsored by AGFD, ANYL, CEI, COMSCI, ENVR, and Food Security: Tackling Hunger ACS Convergent Chemistry Community
- Financially supported by COMSCI ACS Campaign for a Sustainable Future
- L. L. McConnell, C. Osorio Roa, A. Voutchkova-Kostal, Organizers, Presiding

Oral – In-person only

Moscone Center, Room 3022, West Bldg.

8:00 AM - Introductory Remarks.

- 8:05 AM Demonstrating the broader societal benefits of modern agricultural technologies. S. Hovinga, D. Wilcke, Q. Chen, A. Dornan, A. Hood
- 8:30 AM Innovative approaches for sustainable crop agriculture: Using bacteria to promote nutrient acquisition and monitoring. R.E. Alcalde, D.K. Newman
- 8:55 AM Increasing global food supply through regulatory capacity building: The CERSA-USDA FAS collaboration. K.L. Armbrust, D. Seth-Carley, M. Flavin, J. Sandahl
- 9:20 AM Delivering sustainable innovations to address "Zero Hunger" and food security. A. Batra, M. Johnson, J. Rohanna
- 9:45 AM Intermission.
- 10:15 AM Converging science and public understanding to enable sustainable upcycling of agricultural wastes.
 J.L. Goldfarb, M. Karod, M. Pecchi, D. Kriner
- 10:40 AM Role of the USDA's Western Regional Research Center in addressing food security through multidisciplinary breakthroughs in agricultural research.
 W.J. Orts, C. McMahan, P. Pratt, Y. Gu, V. Wu, J. McGarvey, Y. Xu
- 11:05 AM Green strategies for recovery of bioactive phenolic compounds from agro-industrial wastes using natural deep eutectic solvents. A.E. Mitchell, M.R. Bertolo, S. Bogusz
- 11:30 AM Circular food systems: Upcycling food industry waste for micronutrient recovery. K. Krishnaswamy
- 11:55 AM Concluding Remarks.

AGRO International Award: Symposium in Honor of Dr. Thomas M. Stevenson for His Contributions to the Discovery of New Fungicides, Herbicides and Insecticides

Cosponsored by AGFD, ANYL, and ENVR R. DeBergh, S. Rostovtsev, *Organizers, Presiding*

Oral – Hybrid

Moscone Center, Room 3014, West Bldg.

- 8:20 AM Introductory Remarks.
- 8:25 AM Rediscovery of rarely used reagents in crop protection chemistry. C. Lamberth
- 8:50 AM Fused rings as surrogates for benzene in the optimization of biologically active molecules. M. Xu, T.M. Stevenson, J.K. Long, G.P. Lahm, T. Wagerle, T. Briddell
- 9:15 AM Novel bicyclic scaffold for the control of hemipteran pests. A. DeAngelis, G.P. Lahm, Z. Feng, L. Wu, D. Cordova
- 9:40 AM Probing the phytotoxic structure-activity relationships of the antibacterial agent linezolid. K. Breese, K. Sukhoverkov, A.W. Debowski, M.W. Murcha, K.A. Stubbs, J.S. Mylne
- 10:05 AM Intermission.
- **10:35 AM** Dimpropyridaz: A chordotonal organ modulator with a new mode of action. **B. Wedel**, J. Machamer

Journal of Agricultural and Food Chemistry AGRO Best Paper Award

Financially sponsored by JAFC Co-sponsored by AGFD

11:00 AM – JAFC Award Remarks.

- 11:05 AM JAFC AGRO Best Paper. Novel plant growth regulator guvermectin from plant growth promoting rhizobacteria boosts biomass and grain yield in rice.
 C. Liu, L. Bai, P. Cao, S. Li, W. Liu, X. Wang, W. Xiang
- **11:55 AM –** Concluding Remarks.

Innovations in Vector Control: New Tools and Strategies

Cosponsored by MEDI, ORGN, and TOXI D. Swale, W. M. Williams, *Organizers*; A. D. Gross, E. Norris, *Organizers, Presiding*

Oral – Hybrid

Moscone Center, Room 3016, West Bldg.

8:25 AM – Introductory Remarks.

2023 Kenneth Spencer Award

Joel R. Coats

Sponsored by ACS Kansas City Section Co-sponsored by AGFD

- 8:30 AM Terpenoids and phenylpropanoids serve as ideal sustainable, green insecticides, synergists, and repellents. J.R. Coats
- 9:20 AM Bioinsecticidal activity of cajeput terpenes to mosquitoes. T.D. Anderson, E. Johnson, S. McComic, R. Chen, L. Rault, D. Swale

9:45 AM – Intermission.

- 10:15 AM Exploring the repellency of natural products under diverse temperature profiles. E. Norris, G. Allen, J. Kline
- 10:40 AM Toxicological investigations of brevetoxin in two filth fly species. E.R. Burgess, J.R. Bloomquist, S. McComic, C.E. Taylor, D. Swale
- 11:05 AM Repellent activity of natural products to the Lone Star tick, *Amblyomma americanum*. A. Le Mauff, E. Norris, D. Swale
- 11:30 AM Physiological and repellent activity of cajeput oil terpenes to mosquitoes. E. Johnson, T.D. Anderson

11:55 AM – Concluding Remarks.

AGFD Division

Journal of Agricultural and Food Chemistry AGFD Best Paper Award

Financially sponsored by JAFC Co-sponsored by AGRO

Oral – In-person only Moscone Center, Room 3010, West Bldg.

8:00 AM - Introductory Remarks

8:05 AM – JAFC Award Remarks

8:10 AM – JAFC AGFD Best Paper. Sweet biotechnology: enzymatic production and digestibility screening of novel kojibiose and nigerose analogues, S. Dhaene, A. Van Laar, M. De Doncker, E. De Beul, K. Beerens, C. Grootaert, J. Caroen, J. Van Der Eycken, J, Van Camp, T. Desmet

ENVR Division

Materials Development to Address Environmental and Sustainability Challenges: Detection & Remediation Cosponsored by AGFD, AGRO, ANYL and ENVR

Innovative Materials for Environmental Sustainability Sustainability

Cosponsored by AGFD, AGRO, ANYL and ENVR

AGRO COMBINED POSTER SESSION

Hall A, South Bldg. (Moscone Center) 12:00 PM – 2:00 PM

In-person Posters

*** Student Travel Award Winner SM – Sci-Mix Presenter

Chemistry For and From Agriculture: AGRO Division Legacy and Future Opportunities

3925391 – Evolution of an industry: From agrochemicals to crop protection. **T. Sparks**

New Strategies in Process Research and Development in Crop Protection:

 3910048 – Automated sample preparation from discovery to product submission: Innovation that drives efficiency, safety, and quality. C. Zhang, A. Mrutu, L. Riter, B. Phillips, J. Johnson

- **3919558** Alternate chemistry towards key intermediate (1) of X507. **N. Choy**, F. Li
- 3922817 Aloe vera extract gel-biosynthesized selenium nanoparticles enhance disease resistance in lettuce by modulating the metabolite profile and bacterial endophytes composition. H. Shang, C. Ma, C. Li, Z, C., J. White, B. Xing

Adapting Agricultural Chemistry and Practices to a Changing Climate

- 3911471 Optimizing ethyl formate fumigation for sustainable greenhouse pest management in cucurbit crops: Efficacy, phytotoxicity, and residue evaluation.
 K. Kim, C. Kim, H.-J. Jeon, S.-E. Lee
- SM 3923505 Avocado seeds biochar compared to montmorillonite for removing pollutants from wastewater: Efficient adsorbent and sensor for heavy metals and methylene blue. F. Karamshahi, M. Elazazy, A. Elshafie
- 3926208 Preliminary findings from comparison of in-situ measurements of enhanced weathering proxies with model predictions. K. Skov, T. Bierowiec. I. Edeh, M. Healey, M. Kelland; A. Lewis, M. Murphy, R. Pape, W. Turner, P. Wade; J. Wardman; X.-R. Liu

Environmental Fate, Transport, and Modeling of Agriculturally-related Chemicals

- SM 3905647 Metabolic exploration on antagonism between cyhalofop-butyl and malathion in barnyardgrass [*Echinochloa crus-galli* (L.) P. Beauv.]
 J.-I. Hwang, J. Norsworthy, L.T. Barber, T. Butts
- 3911311 Non-extractable residues in soil, an underestimated risk or harmless sink? T. Junge, M. Telscher
- SM 3922488 Characterization of unknown compound[s] in the HPLC solvent front derived from radioactive [¹⁴C] agrochemicals in plant and animal matrices. K. Chang Ahn, A. Bautista, B. Osterman, C. Estrellan
- SM 3924419 Soil column leaching of [¹⁴C]-atrazine in similar soils representing three continents. S. Connor, K. Malekani, S. McLaughlin
- ***, SM 3925684 Effects of glomalin-related soil protein (GRSP) on sorption-desorption of boscalid on soils of different physicochemical properties. D. Bhatt, A. Srivastava; P. Srivastava
- 3927512 Metabolomics and gene transcription analysis reveal the underlying mechanism of the fertilization effect on tomato (*Solanum lycopersicum*) growth. Y. Wang, C. Deng, J. White, W. Elmer, C. Dimkpa, O. Parkash Dhanker, B. Xing, S. Sharma
- ***, SM 3927944 Predicting the transport of glyphosate in karst geology: A case study impacts on water quality and public health. Y. Wen, P.J. Martin; S. Hobbs
- ***, SM 3928744 Occurrence of veterinary antimicrobials and other micro-pollutants in surface waters of a watershed dominated by agriculture. D.
 Balasuriya, M. Wijayahena, L. Alt, L. Long, L.
 Halwatura, J. Wallace, A. Howe, M. Soupir, D. Aga
- ***, SM 3928754 Selecting the optimal column for liquid chromatography-mass spectrometry detection of glyphosate and other compounds in Roundup. K. Pham, P.J. Martin, S. Hobbs
- **3928907** Tobacco pyrolysis: Summary of results from 20 years of laboratory simulated cigarette smoking experiments. **V. Ponte**

Residue Analysis of Plant Protection Products -Advancements in Analytical Methodologies Over the Decades

- **3914555** Customizable QuEChERS; bridging the gap between screening and single-residue methods. T. Moate
- **3916359** Development of analytical method for pesticide residue in imported foods. G.D. Yeong, H.-R. Choi, J.-W. Shin, H. Choi
- 3917700 Effects of drying on indoxacarb residues in Welsh onions. G.D. Yeong, J.-W Shin, H.-R. Choi, H. Choi
- **3920828 -** Overcoming the challenges of "difficult to analyse" compounds and matrices. **S. Brewin**, S. Tate
- **3923090 –** Demonstrating extraction efficiency of residue analysis methods. S. Brewin, S. Tate
- 3924488 Integrating an analytical methods and mass spectral database with cheminformatics capabilities.
 G. Janesch, E. Carr, V. Samano, B. Meyer, A. Williams

3924841 – Withdrawn

- SM 3924936 Direct analysis of quizalofop: a case study for sustainable and efficient residue analytical method development. L. Riter, E. Vogl
- 3925633 Optimization of an analytical method for the determination of residues of Flupyradifurone (BYI 02960), Difluroacetic Acid (DFA) and 6-Chloronicotinic Acid (6-CNA) in/on Plant matrices using LC-MS/MS. Y. Li, P. Karunanithi, H. Henderson, E. Tesfu, F. Duah, D. Netzband
- 3926396 Transforming Separation Science for better resolution in residue analysis using monodisperse fully porous particles (MFPP) columns. C. Zhang, L. Riter; E. Faden, G. Faden

Agrochemical Formulations and Application Technology: Challenges and Innovation:

3926100 - Green and charge-switchable nanopesticide delivery systems construction by flash nanoprecipitation. K. Chen, X. Liang, E. Ma, X. Guo

Environmental Monitoring Data Collection, Utility, and Use in Pesticide Risk Assessment and Registration

- 3912302 Multiresidue extraction of current-use pesticides from complex solid matrices using energized dispersive extraction with analysis by gas and liquid chromatography tandem mass spectroscopy. G.
 Black, E. Woodward, C. Sanders, M.S. Gross, M.L. Hladik
- 3919042 Monitoring groundwater in Italy: Site selection strategy and validation of vulnerability using geo PEARL and GIS overlay methods. C. Hirata, F. Ferrari, C. Hoogeweg, D. Bruzzone

In Vitro Comparative Animal Metabolism of Agrochemicals

- **3926052** In vitro comparative metabolism of chemicals that are nominally a gas. **R. Mumford**, D. Evans
- **3930582** Staggered approach for *in vitro* comparative metabolism studies of agrochemicals. **O. Dautermann**

Unmanned Aerial Systems (aka Drones): Pesticide Spraying and Other Agricultural Applications

3913052 – Deposition of spray applied to a soybean crop using an unmanned aerial vehicle. J.P. Cunha, M.R. Alferes da Silva

Biorational Technologies for Control of Invasive Pests in a Changing Climate

- ***, SM 3914799 Influence of crop diversity on fall armyworm infestation and natural enemy abundance.
 E. Peter, A. Tamiru, S. Sevgan, K. Kruger, A. Yusuf; B. Torto
- ***, SM 3919974 Identification of host plant defence volatiles induced by the generalist predator, Nesidiocoris tenuis: Implication for IPM. B. Adams, A.A. Yusuf, B. Torto, F. Khamis
- 3926978 Hydrogen cyanide fumigation to control brown marmorated stinkbug (*Halyomorpha halys* (Stål) (Hemiptera: *Petatomidae*), spotted lanternfly (*Lycorma delicatula*), and Mexican fruit fly (*Anastrepha ludens*). A. Lourie, S. Walse, S. Corbett

Pesticides and Other Organics in Urban Environments

- SM 3911068 Investigation, identification, and control of disinfection by-product precursors in FBW and SSW during drinking water treatment. Y Qian, D. An
- SM 3921973 Does photodegradation break down polyethylene microplastics? – And can this be a problem in drinking water? Y. Chen, J. Vollertsen
- ***, SM 3926947 Profiling and assessing the chemical leaching from recycled end-of-life tire wear particles.
 L. Halwathura, J. Navarro-Ramos, P Onyeme, J. Lang, D. Aga, J. Atkinson, J. Wallace

The Role of Chemistry in Addressing Hunger and Food Security

- ***, SM 3903395 Enzymatic degradation of siderophores: Assessing the fate of siderophores after secretion and their potency as iron chelating agents for Iron nutrition, increased crop yield, and plant disease resistance. C.E. Chukwuma, O. Baars
- 3922071 Swelling polymers for silicic acid delivery. B. Tuga, A. Ligocki, C. Deng, H. Kang, J. White, C. Haynes
- SM 3925544 Copper oxide nanoparticle surface charge and morphology control the suppression of Fusarium disease in field-grown tomato and watermelon. C.
 Deng, C. Protter, Y. Wang, J. Borgatta, P. Wang, J. Zhou, H. Brown, K. Rodriguez-Otero, C, Dimkpa, R. Hernandez, R. Hamers, J. White, W. Elmer
- 3926115 Can Ca- and Mg-rich quarry fines increase crop yield and soil fertility, and remove CO₂ from the atmosphere in Tanzania? Plans and predictions. A. Lewis, H. Tindwa, E. Marwa, R. Palmer

Protection of Agricultural Productivity, Public Health and the Environment (General Session)

- 3900033 Dissipation and residue pattern of dinotefuran in fresh and processed ginseng using LC/MS-MS. N.E.
 Shik, K.S. Soo, S.H. Seok, H.S. Soo, S.S. Gyeong, L.Y. Jae, K.D. Bi
- **3905993** MicroRNA profiling between diamide-susceptible and -resistant Fall armyworm, Spodoptera frugiperda, and their putative target mRNA regulations. **K.M. Seong**, R. Mahalle, B. Pittendrigh

- 3913447 Discovery and optimization of a novel nematicide candidate thiophene-acylguanidines. H.-S. Yeom, G.J. Choi, Y.H. Choi
- SM 3919898 Application of photopharmacology in agrochemicals. X. Shao
- 3920728 Application of new approach methodologies to support the assessment of agrochemicals for effects on human health. Y. Wu, B. Jackson, L. Minnema, A. Hofstra, C. Schlosser

3925868 – Withdrawn

- SM 3926733 Synthesis and characterization of cationic dialkyldithiophosphates as slow releasing H₂S donors.
 S.R. Wickremasinghage, N. Bowden
- ***, SM 3929041 Rapid biomonitoring strategy for total PFAS in blood samples from populations in agricultural areas M. Wijayahena, J. Wallace, D. Aga
- **3929779** Hydroponic phytoremediation of neonicotinoids by *Festuca arundinacea* and *Schoenoplectus californicus*. **M. Cao**, N. Sy, J. Gan
- SM 3933556 Photo-assisted degradation of alachlor in water using ZnO: Effect of H₂O₂. I. Daramola, M. Ojemaye, A. Okoh, O. Okoh

EARLY CAREER SYMPOSIUM: Harnessing Chemical Ecology to Achieve Food Security

SM 3929083 – Isolation and identification of antibacterial constituents against Flavobacterium columnare in catfish from roots of Poncirus trifoliata. J. Draper, K. Meepagala

Pesticide Runoff Mitigation: Characterization, Quantification, and Implementation

- ***, SM 3917365 High-resolution 3D experimental data to study pesticide residue resuspension in vegetative filter strips from a mesoscale multi-event experimental series. J. Howe, R. Muñoz-Carpena, R. Sur
- SM 3922057 Removal of pyrethroid insecticides from runoff water using biochar. E. Hernandez

Technological Solutions to Address Food Insecurity, Trade Challenges, and Food Waste

3930272 – Precision mechanical pollination for orchards. **G. Sapir**, Z. Rosenstock

Uses of HPLC-Mass Spectrometry in Support of Agricultural Research and Development - Trends and Best Practices

- **3919874** Establishment of analytical methods for suspect allelochemicals of *Eustoma russellianum* by liquid chromatography quadrupole time-of-flight mass spectrometry. **L.-C. Lin**, Y.-W. Kuo, C.-H. Liu, Y.-H. Chuang
- 3927454 Identification and characterization of phenyl degradation products from radioactive ¹⁴C-chemicals having two distinct radiolabeled positions in cigarette smoke using High-Resolution LC/MS. K. Alexander, V. Ponte, M. Schick, T. Hiler, K. Chang Ahn

AGRO International Award: Symposium in Honor of Dr. Thomas M. Stevenson for His Contributions to the Discovery of New Fungicides, Herbicides and Insecticides

3919852 – Synthesis of flavonoid oligomer and their metal complexes and their application as anti-bacterial agents. **X. Yang**, D. Huang

Innovations in Vector Control: New Tools and Strategies

- 3911779 Potential mechanisms attributed to erytritol toxicity in laboratory strains of Aedes aegypti mosquitos. I. Nelson, C. Bibbs, G. White, A. Faraji
- ***, SM 3915492 Development of novel *N*-arylamide insecticides to control hemipteran vectored pathogens. F. O'Hara, J. Davis, J. Bloomquist, D. Swale
- ***, SM 3925331 Defining the mechanism of toxicity of leptospermone, a β-triketone herbicide, to Aedes aegypti. S.E McComic, W. Geldenhuys, D. Swale
- ***, SM 3927760 Investigating the physiology and pharmacology of the Type-B muscarinic acetylcholine receptor (mAChR-B) in *Drosophila melanogaster*. B. Bickley, N. Xie, A. Gross
- ***, SM 3927876 Phagostimulant additives improve attract-and-kill composition efficacy for vector mosquitoes. X. Ng, E. Johnson, L. Rault; C. Oehlschlager, T. Anderson
- ***, SM 3928767 GABA receptor point mutation (Rdl) modifies acetylcholinesterase activity in Drosophila melanogaster and Anopheles arabiensis. S. Dev, N. Xie; A. Gross
- SM 3928941 Biological activities of seed extracts from Apiaceae family. A. Hess, A. Estep; K. Meepagala

Effect of EPA's Endangered Species Enforcement on the Future of Agrochemicals

SM 3921433 - Everything everywhere all at once: The development of a sub-national level co-occurrence database to evaluate likelihood of exposures to Endangered and Threatened (E&T) species in compliance with ESA. R. Wang, Z. Tang

AGRO Poster Session Virtual Only

Adapting Agricultural Chemistry and Practices to a Changing Climate

 SM 3924811 – Eco-structured synergistic adsorptive-Photocatalyticremediation of dyes and heavy metals using biochar of pistachio nutshells: Recyclability, equilibrium and kinetics. M. Abouseada, M. Elazazy, A. Elshafie

Environmental Fate, Transport, and Modeling of Agriculturally-related Chemicals

- 3919950 Evaluation of accumulation and transformation of contaminants of emerging concern in spinach using a modified QuEChERS method coupled to LC-QTOF/MS analysis. S.C. Wong, C.-L. Lu, C.-H. Liu, Y.-M. Tzou, Y.-H. Chuang
- 3921276 Neonicotinoids in Minnesota rivers: Exploring the impacts of treated seed and transport through subsurface drainage tile. K. Hall, S. Matteson, D. Tollefson, M. Ribikawskis, W. Van Ryswyk, T. Leaf, R. Mann

Pesticide Runoff Mitigation: Characterization, Quantification, and Implementation

 3914094 – CalBMP, a web-based modeling tool for evaluating pesticide movement and best management practice scenarios in California agricultural land. J.
 Xue, X. Zhang, Q. Lai, M. Zhang

Data-Driven Approaches to Reduce Uncertainties in Water Exposure Assessments

- 3916951 Data-driven approaches to refine seed treatment risk assessment for cleaners. A. Szarka, R. Avanasi, E. Morrow. A. Killius; M. Pais; T. Ramanarayanan
- 3925159 Develop robust experimental design to generate reliable soil sorption coefficients for extremely low adsorbing compounds. X. Huang, G. Crabtree

TUESDAY AFTERNOON

EARLY CAREER SYMPOSIUM

Harnessing Chemical Ecology to Achieve Food Security Cosponsored by AGFD, ANYL, BIOT, ENVR, and Food

- Security: Tackling Hunger ACS Convergent Chemistry Community
- N. Tabanca, G. Thomas, Organizers, Presiding

Oral – In-person only

Moscone Center, Room 3024, West Bldg.

2:00 PM – Introduction.

- 2:05 PM Simultaneously occurring stress factors and their influence on plant chemical signals. E. Ngumbi, C.M. Ugarte
- 2:30 PM STUDENT TRAVEL AWARD. Beetle herding: Development of strategies to optimize biological control of *Dioscorea bulbifera* using semiochemicals.
 J. Griesheimer, X. Martini, C. Minteer, A. Gaffke, S. Hight
- 2:55 PM Investigating the aphid resistance mechanisms in *Triticum monococcum* L. (Poaceae). **A. Borg**, J. Caulfield, J. Vuts, J. Foulkes, M. Birkett
- 3:20 PM Impacts of drought stress on flower-pollinator interactions in the Styrian oil pumpkin. M. Barman, R. Tenhaken, S. Dötterl
- 3:45 PM Intermission.
- 4:15 PM Elucidation of insect pest olfaction using structural and computational biology. C. Sims
- 4:40 PM Odor based strategies for the management of the oriental fruit fly Bactrocera dorsalis. T.D.
 Biasazin, R.N. Miano, X. Cheseto, S. Ndlela, S.A. Mohamed, T. Dekker
- 5:05 PM Novel phthalimide derivatives and their toxicities against caribbean fruit fly, *Anastrepha suspensa* (Loew). N. Tabanca, F. Tok, B. Kocyigit-Kaymakcioglu, X. Yang
- **5:30 PM –** Concluding Remarks.

Innovations in Vector Control: New Tools and Strategies

Cosponsored by MEDI, ORGN, and TOXI

E. Norris, W. M. Williams, *Organizers;* A. D. Gross, D. Swale, *Organizers, Presiding*

Oral – Hybrid

Moscone Center, Room 3014, West Bldg.

2:00 PM – Introductory Remarks.

- 2:05 PM Roadmap to global recommendation of spatial repellents for public health use. N.L. Achee, S. Moore, J.P. Grieco
- 2:30 PM Passive emanators to control mosquito-borne disease: data synthesis and next generation research priorities. I. Chen
- 2:55 PM Pathosystems research advances agricultural pest and specialty crop disease management in the San Joaquin Valley of California. **A. Perez de Leon**, J. Chen, R. Krugner, R.K. Yokomi, C.M. Wallis
- **3:20 PM** Spoonful of sugar makes the medicine go down. **C.S. Bibbs**, K. Baker, A. Faraji, G. White
- 3:45 PM Intermission.
- 4:15 PM Metabolomic evaluation of soil *Streptomyces* sp. for the discovery of novel biopesticidal constituents.
 S. Kim, A.S. Estep, P. Tamang, C.L. Cantrell
- 4:40 PM Adult mosquito control insecticide risk for imperiled butterflies. T. Bargar, Y. Jiang
- 5:05 PM Implementation of deltamethrin into an integrated mosquito management approach to mosquito control in Lee County, Florida. E.W. Foley
- 5:30 PM NEW INVESTIGATOR AWARD FINALIST. Inward rectifier potassium (Kir) Channels as a proofof-concept for development of glia directed insecticides. **R. Chen**, D. Swale
- 5:55 PM Concluding Remarks.

New Strategies in Process Research and Development in Crop Protection

- Cosponsored by AGFD, ANYL, ENVR, and Food Security: Tackling Hunger ACS Convergent Chemistry Community
- T. Rosenthal, S. Vasquez Cespedes, Organizers

Oral – Hybrid

Moscone Center, Room 3016, West Bldg.

- 2:00 PM Introductory Remarks.
- 2:05 PM Imaging aqueous: Surfactant systems in organic synthesis. S. Blum
- 2:30 PM Withdrawn
- 2:55 PM Stereochemical control in the synthesis of chiral agrochemical candidates. F. Li
- 3:20 PM New strategies for synthetic methods using green solvents. R. Baxter
- 3:45 PM Intermission.
- 4:15 PM Alkene isomerization, hydrosilylation, and remote functionalization catalyzed by N-heterocyclic carbene-nickel complexes. A.K. Cook
- 4:40 PM Process development toward crop protection actives: From "simple" pyridines to strained macrocycles. M. Ondari

2023 AGRO Innovation Award

Kevin G. Meyer Financially sponsored by BASF

5:05 PM – Creating a new class of fungicides. K.G. Meyer5:55 PM – Concluding remarks.

Zero Waste Strategies: Valorizing Undervalued Agricultural Coproducts and Food Waste

- Cosponsored by AGFD, ANYL, BMGT, ENFL, ENVR, and Food Security: Tackling Hunger ACS Convergent Chemistry Community
- W. Hart-Cooper, J. McManus, W. J. Orts, *Organizers*; G. Paterson, *Organizer, Presiding*

Oral – In-person only

Moscone Center, Room 3020, West Bldg.

- 2:00 PM Introductory Remarks.
- 2:05 PM Coprocessing of lignocellulosics and hydrocarbons for production of high-quality pyrolysisoil. C.A. Mullen, C. Ellison, Y. Elkasabi

2:30 PM – Ag-waste utilization via microwave-based thermochemical and thermocatalytic processes. C. Ellison, C.A. Mullen, Y. Elkasabi

- 2:55 PM Case study in utilizing sequestered carbon from organic waste stream. E. Bridges, G. Benisch
- **3:20 PM** Synergistic improvements in energy recovery and bio-oil quality through integrated thermochemical valorization of agro-industrial waste. **M. Karod**, S. Rubin, J.L. Goldfarb
- 3:45 PM Intermission.
- 4:15 PM Pyrolysis of Kraft lignin in single mode microwave cavities: Devolatilization kinetics and multiphysics modeling. D. Boldor, D.B. Nde, P. Muley, C. Sabliov, S. Nokes
- 4:40 PM Amphiphilic lignin-graft-PLGA polymer, a versatile precursor to biomaterial synthesis. C. Sabliov, O. Mendez, C.E. Astete, J. Davis, S. Hermanova, W.J. Orts
- 5:05 PM Toward economically viable lignin valorization processes through reductive catalytic fractionation. J. Jang, G. Beckham
- 5:30 PM Fabrication and property testing of carbon foams using 100% Kraft lignin. Q. Yan, Z. Cai
- **5:55 PM –** Concluding Remarks.

Pesticides and Other Organics in Urban Environments Cosponsored by ANYL and ENVR

R. Budd, J. Gan, M. L. Hladik, R. A. Sutton, *Organizers, Presiding*

Oral – In-person only

Moscone Center, Room 3018, West Bldg.

2:00 PM – Introductory Remarks.

- 2:05 PM Sublethal impacts of pyrethroid pesticides on fish across abiotic conditions and generations. S.
 Brander, S.J. Hutton, S. Siddiqui, S. St Romain, K.L. Armbrust, R. Connon, A. Segarra
- 2:30 PM Characteristics and potential health risk of liquid crystal materials: Field measurements and QSPR modeling. J. Feng, X. Sun, E. Zeng
- 2:55 PM Glyphosate influences on antibiotic resistance in soil bacteria and its potential significance. S.O. Duke, T.B. Moorman, B. Bearson, P. Tranel, C. Douglas
- 3:20 PM Human ADME of dermal permethrin exposure.
 B.A. Buchholz, K. Ahn, H. Huang, S. Gee, T.
 Ognibene, B. Stewart, B.D. Hammock
- 3:45 PM Intermission.
- 4:15 PM Quantifying changing complex exposure mixtures dynamics of organic contaminants in a temperateregion effluent-dominated stream. G.H. LeFevre,

A.L. Mianecki, D.W. Kolpin, J.R. Meyer, E.M. Occhi, H. Zhi, D. Webb, R. Klaper, L. Iwanowicz

- 4:40 PM Microbial connections between pharmaceutical attenuation and biogeochemical cycling in constructed wetlands. J. Sharp, M. Vega, L. Bosworth, R. Scholes, G. Vanzin, R. Daly, A. Narrowe, K. Wrighton, D.L. Sedlak, A. Brady
- 5:05 PM Constructed wetlands for urban-use pesticide removal: Treatment efficacy for pyrethroids, fiproles, and neonicotinoids. N. Sy, M. Cao, Z.M. Cryder, R. Budd, J. Gan
- 5:30 PM Fate of 6PPD-quinone at asphalt concrete-water interface. Y. Yang, S. Lokesh, S. Arunthavabalan, E. Hajj
- 5:55 PM Concluding Remarks.

The Role of Chemistry in Addressing Hunger and Food Security

- Cosponsored by AGFD, ANYL, CEI, COMSCI, ENVR, and Food Security: Tackling Hunger ACS Convergent Chemistry Community
- Financially supported by COMSCI ACS Campaign for a Sustainable Future
- L. L. McConnell, C. Osorio Roa, A. Voutchkova-Kostal, Organizers, Presiding

Oral – In-person only

Moscone Center, Room 3022, West Bldg.

- 2:00 PM Introductory Remarks.
- 2:05 PM Microencapsulation by spray-drying as a tool to preserve the biofunctional and sensory properties of perishable fruits. C. Osorio Roa
- 2:30 PM Chemoprofiling of common and underutilized crops to address food and nutritional insecurity in the face of climate change. B.S. Patil, J. Singh
- 2:55 PM Water reuse and food production? Harnessing bioaccumulation kinetics to improve aquaculture product safety. **B.W. Brooks**
- 3:20 PM Contamination of food packaging materials with chemicals of concern. Y. Sapozhnikova
- 3:45 PM Intermission.
- 4:15 PM Converting agro-industrial by-products into relevant sources of phenolic compounds through the application of ultraviolet radiation. D. Jacobo-Velazquez
- 4:40 PM Enhancing the functional properties of plantbased protein sources through modification to their protein chemistry. Y. Xu, E.N. Sismour, R. Haff
- 5:05 PM Molecularization of the bitter off-taste in peaand canola-protein isolates by means of the SENSOMICS approach. M. Gigl, C. Walser, P. Gläser, T. Hofmann, C. Dawid
- 5:30 PM Effective utilization of 3D printing for food applications- from virtual dimensions to physical dimensions. E. Pulatsu, C. Udenigwe
- 5:55 PM Concluding Remarks.

AGFD Division

Sustainable Agriceuticals

Cosponsored by AGRO, ANYL and ENVR

ENVR Division

Materials Development to Address Environmental and Sustainability Challenges

Cosponsored by AGFD, AGRO, ANYL and ENVR

WEDNESDAY MORNING

Unmanned Aerial Systems (aka Drones): Pesticide Spraying and Other Agricultural Applications

Cosponsored by ANYL and ENVR Financially sponsored by Stone Environmental

R. Breckels, Organizer; S. Grant, Z. Tang, Organizers, Presiding

Oral – Hybrid

Moscone Center, Room 3016, West Bldg.

- 8:00 AM Introductory Remarks.
- 8:05 AM Industry (UAPASTF) response to pesticide regulators "State of the Knowledge" review of Unmanned Aerial Vehicle (UAV) use for pesticide application: Update on the development and field testing of an off-site movement protocol. F. Donaldson, S. Grant, Z. Tang, R. Barbosa, T. Gullen, K. Rahman, C. Read, R.R. Sinha, J. Schleier, J. McDonald, G. Watson
- 8:30 AM Spray drift characterization of a remotely piloted aerial application system. D. Martin, Z. Tang, Y. Yang, M. Latheef (Ab), B. Fritz, G. Kruger, T. Houston
- 8:55 AM Evaluation of a mechanistic model for simulating spray drift from unmanned aerial system. **Z. Tang**, M. Winchell, S. Castro, D. Martin, B. Fritz, Y. Yang
- 9:20 AM Calibration accuracy of drone applications. U. Antuniassi, R.G. Chechetto, A.A. Mota, F.K. Carvalho, A.B. Salatta Junior
- 9:45 AM Intermission.
- 10:15 AM Current best management practices unmanned aerial spray systems (UASS). J. Bonds
- 10:40 AM Industry (UAPASTF) response to pesticide regulators "state of the knowledge" review of unmanned aerial vehicle (UAV) use for pesticide application: update on the development of best practices for safe and effective application of pesticides using unmanned aerial spray systems (UASS). H.E. Portillo, R. Barbosa, M. Beckwith, T. Gullen, R. Haynie, S. Hovinga, B. Kesavaraju, E. Lang, P. Livingston, N. Newton, M. Oostlander, R.R. Sinha, G. Watson
- 11:05 AM Advancing agricultural Uncrewed Aerial Spray Systems (UASS) via engagement on product labeling, operator safety needs, and advocacy for best management practices. S. Hovinga, T. Bui, N. Chowdhury, N. Pai, R. Haynie, K. Stump, S. Flack
- 11:30 AM Discussion.
- 11:55 AM Closing remarks.

EARLY CAREER SYMPOSIUM

Harnessing Chemical Ecology to Achieve Food Security Cosponsored by AGFD, ANYL, BIOT, ENVR, and Food

- Security: Tackling Hunger ACS Convergent Chemistry Community
- N. Tabanca, G. Thomas, Organizers, Presiding

Oral – Hybrid

Moscone Center, Room 3014, West Bldg.

8:00 AM - Introduction.

- 8:05 AM Nonanal, a new fall armyworm sex pheromone component, profoundly increases the efficacy of pheromone lures. A.M. Saveer, E. Hatano, A. Wada-Katsumata, R.L. Meagher, C. Schal
- 8:30 AM Fungal sex hormones as novel antifungal compounds for the control of plant disease. L.M. Humbert, P. Dyer, M. Birkett, D. Withall
- 8:55 AM Bioassay-guided Isolation of alkaloids from Helietta parvifolia stem with antifungal and phytotoxic activity. V.P. Ribeiro, P. Tamang, K.M. Meepagala
- 9:20 AM Sex pheromone of *Nudaurelia spp.* (Saturniidae) in South African pine plantations. L. Scheepers, B. Slippers, M. Bouwer, E.R. Rohwer, J.E. Bello, J.D. Allison
- 9:45 AM Intermission.
- 10:15 AM Using the odour of bacteria to tackle acute oak decline. G. Thomas, S. Denman, J. Caulfield, J. Vuts
- 10:40 AM Flood stress differentially affects interactions between soybeans and virulent and avirulent soybean aphid biotypes. M. Lewis, J. Poelstra, J. Blakeslee, A. Michel
- 11:05 AM Rapidly streamlining chemical ecology analyses using machine learning and data science approaches for a more secure global food supply system with the new R package uafR. W.R. Morrison, C. Stratton, P. Hansen, Y. Thompson, K. Zio, E. Murrell
- 11:30 AM Natural volatile compounds as possible insecticides. A.D. Torres Garcia, F. Victoria, N. Sánchez Cruz, E.A. Plazas, C.A. Sierra
- **11:55 AM** Concluding Remarks.

Innovations in Vector Control: New Tools and Strategies

Cosponsored by MEDI, ORGN, and TOXI

A. D. Gross, D. Swale, *Organizers*; E. Norris, W. M. Williams, *Organizers, Presiding*

Oral – Hybrid

Moscone Center, Room 3020, West Bldg.

8:00 AM – Introductory Remarks.

- 8:05 AM AC-DC electropenetrography to study effects of chemical compounds on details of arthropod vector feeding behaviors. E. Backus, A. Cooper, V. Pickens, R. Kathryn
- 8:30 AM Understanding insecticidal impact on aphid behavior to design better protectants. J. Davis, S. Lee
- 8:55 AM Biological activity and novel mode of action of experimental *N*-aryl amide insecticides. J.R.
 Bloomquist, S. McComic, D. Swale
- 9:20 AM NEW INVESTIGATOR AWARD FINALIST. Regulation of the secreted proteome by ATP-sensitive inward rectifier potassium channels in the Lone Star Tick (*Amblyomma americanum*). Z. Li, D. Swale
- 9:45 AM Intermission.
- 10:15 AM CYP-mediated pyrethroid resistance in *Aedes* aegypti. J.G. Scott
- 10:40 AM Transfluthrin enhances odorant receptormediated spatial repellency in *Aedes aegypti*. F. Andreazza, w. Valbon, K. Dong
- 11:05 AM NEW INVESTIGATOR AWARD FINALIST. Chronic exposure to field-realistic doses of imidacloprid resulted in biphasic negative effects on honey bee physiology. **S. Kim**, J.M. Clark, S. Lee
- **11:30 AM** Chemical modulation of potassium ion channels in *Amblyomma americanum* salivary glands alters

Rickettsia life cycle and transmission dynamics. **D. Swale**

11:55 AM – Concluding Remarks.

Advancing Public Engagement in Effective Pesticide ESA Education and Regulation

Cosponsored by CHAL and TOXI G. Bahr, B. McGaughey, G. Watson, *Organizers*

Oral – In-person only

Moscone Center, Room 3018, West Bldg.

8:00 AM – Introductory Remarks.

- 8:05 AM Implementing conservation measures for threatened and endangered species. I. Huang, K. Bissell, N. Golden
- 8:30 AM Opportunities for pesticide state lead agencies and partners to educate ESA mitigation systems. G. Bahr
- 8:55 AM Will enforcement of the endangered species act make farmers themselves - an endangered species?. J.R. Cranney
- 9:20 AM Developing practical, effective, and implementable mitigations in pesticide registration using a sequential and repeatable approach. L.M. Duzy, A. Clawson, D. Campana, A. Krueger
- 9:45 AM Intermission.
- 10:15 AM Prioritizing the allocation of limited resources to reduce adverse effects of pesticide risk to endangered species. C. Guerrero-Pineda, G. Icona, L.M. Duzy, S. Eikenberry, A. Frank, G. Watson, L. Gerber
- 10:40 AM Geographically unique projects to inform pesticide registrations. A. Frank, L.M. Duzy, T. Burd, S. Darnell
- 11:05 AM Crop protection product regulation intersection with the Endangered Species Act: a regional pilot project approach. G. Watson, T. Hall, A. Frank, L.M. Duzy, T. Burd
- 11:30 AM Discussion.
- **11:55 AM –** Closing remarks.

AGFD Division

Chemical Intervention Technology to Improve Microbial Stability of Food Cosponsored by AGRO, ANYL and ENVR

Sustainable Agriceuticals Cosponsored by AGRO, ANYL and ENVR

ANYL Division

Trace Analysis of Substances of Concern (SoC) for Safer Materials Cosponsored by AGFD, AGRO and ENVR

ENVR Division

Innovative Materials for Environmental Sustainability Cosponsored by AGFD, AGRO, ANYL and ENVR

WEDNESDAY AFTERNOON

Effect of EPA's Endangered Species Enforcement on the Future of Agrochemicals Cosponsored by ANYL and ENVR P. Cassidy, H. Chen, *Organizers, Presiding*

Oral – Hybrid

Moscone Center, Room 3016, West Bldg.

- 2:00 PM Introductory Remarks.
- 2:05 PM Enabling endangered species act (ESA) protection goals and meeting modern grower needs via a connected digital infrastructure. S. Hovinga, G. Watson, K. Singh, D. Wilson, R. Yen, N. Pai
- 2:30 PM On-farm biodiversity: Digital tools and data science can enable additional conservation on agricultural lands. T. Fredricks, P. Bachman, S. Liu, A. Hood, M. Dobbs, G. Watson, T. Hall
- 2:55 PM Targeted application potential utility in achieving species protection goals. R. Haynie, G. Watson, S. Hovinga, J. Overmyer
- 3:20 PM Intermission.
- 3:45 PM Automated probabilistic co-occurrence assessments for federally listed species in aquatic and terrestrial domains. J. Dunne, H. Rathjens, M. Winchell, M. Feken, R. Brain, L. Ghebremichael, T. Burd, C. Savinelli
- 4:10 PM Orienting PWC+ aquatic exposure estimates to inform assessment and mitigation within pesticide use limitation areas. C.M. Holmes, S. Kay, M. Kern, L. Insinga, D. Christian, J. Cowles, K.S. Henry
- 4:35 PM Concluding Remarks.

Chemistry For and From Agriculture: AGRO Division Legacy and Future Opportunities ***Designated ACS Presidential Event

K. D. Racke, J. M. Van Emon, Organizers, Presiding

Oral – Hybrid

Moscone Center, Room 3014, West Bldg.

2:00 PM – Introductory Remarks.

2023 IUPAC International Award for Advances in Harmonized Approaches to Crop Protection Chemistry

Keith R. Solomon

Financially Supported by Corteva Agrosciences

2:05 PM – Brief history of risk assessment for agrochemicals. K. Solomon

- 2:30 PM Agriscience innovation in the age of big data and modern technology: Past challenges and future opportunities. N. Garizi
- 2:55 PM Green modifications of agro-based materials. H.N. Cheng, A. Biswas, R.F. Furtado, C.R. Alves
- 3:20 PM Intermission.
- **3:45 PM** Future of crop protection technology education: A need for appropriate skeptical inquiry. **A.S. Felsot**
- **4:10 PM** Economic, nutritional, and environmental benefits of international cooperation for the establishment of MRLs on specialty crops. **A. Gore**

4:35 PM – Building a career within the Agrochemical division: A perspective of an academic. D. Swale

5:00 PM – Concluding Remarks.

AGFD Division

Chemical Intervention Technology to Improve Microbial Stability of Food Cosponsored by AGRO, ANYL, and ENVR

Food Toxicants: Occurrence, Detection, Formation Mechanism and Mitigation Cosponsored by AGRO, ANYL, and ENVR

Smart Food Safety Cosponsored by AGRO, ANYL, and ENVR

Sustainable Agriceuticals Cosponsored by AGRO, ANYL, and ENVR

ANYL Division

Trace Analysis of Substances of Concern (SoC) for Safer Materials Cosponsored by AGFD, AGRO, and ENVR

ENVR Division

Electrocatalysts and Electrochemical Processes for Water Reuse Cosponsored by AGFD, AGRO, and ANYL

Innovative Materials for Environmental Sustainability Cosponsored by AGFD, AGRO, and ANYL

AGRO 50 and Beyond Gala 5:00 to 8:00 PM

Moscone Center, Exhibit Hall, West Bldg.

Ticketed Event, RSVP required See page 7 for details

THURSDAY MORNING

ENVR Division

Innovative Materials for Environmental Sustainability Sponsored by ENVR, Cosponsored by AGFD, AGRO, ANYL and ENVR

NOTES

EXHIBITION LEVEL 502,000+ square feet (Halls A-F)

MISSION STREET



CROSS SECTION EXHIBITION LEVEL

MOSCONE WEST Loading Dock & Level 1

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MOSCONE WEST

Level 2





SHUTTLE ROUTE LEGEND STOCKTON ST **ROUTE A** ROUTE B POWELL ST MASON ST X Shuttle Boarding Location BUSH ST PINE ST (10 ZNOST SUTTER ST AYLOR 13 12 10 12 GEARY ST 6 POST ST S HOWARDST 16 (12 15 ATHST FOLSOMST O'FARRELL ST X (4 ELLIS ST T MOSCONE CENTER EDDY ST STHST MARKETST 14

MAP NUMBER	HOTEL AND SHUTTLE BOARDING LOCATION	SHUTTLE ROUTE
1	HILTON PARC 55 • (X) Shuttle Boarding — Curbside on Cyril Magnin St. near entrance • Technical Sessions — CHAS, HIST, NUCL, PROF, TOXI, WCC	А
2	HOTEL ABRI • (X) Shuttle Boarding — Use the Hilton Parc 55 stop on Cyril Magnin St.	А
3	HANDLERY UNION STATION HOTEL • (X) Shuttle Boarding — Use the Hilton Parc 55 stop on Cyril Magnin St.	А
4	HILTON SAN FRANCISCO UNION SQUARE • (X) Shuttle Boarding — Curbside on the Taylor Street side of the hotel	A
5	KING GEORGE • (X) Shuttle Boarding — Use the Hilton stop on Taylor Street	A
6	HOTEL NIKKO SAN FRANCISCO • (X) Shuttle Boarding — Use the Hilton stop on Taylor Street • Technical Sessions — CINF	А
7	WESTIN ST. FRANCIS • (X) Shuttle Boarding – Curbside on Post Street	в
8	BEACON GRAND • (X) Shuttle Boarding — Use the Westin St. Francis stop on Post Street	В
9	GRAND HYATT SAN FRANCISCO • (X) Shuttle Boarding – Curbside on Stockton St.	В
10	MARRIOTT UNION SQUARE • (X) Shuttle Boarding — Use the Grand Hyatt stop on Stockton St.	В
11	PALACE HOTEL • (X) Shuttle Boarding – Curbside near entrance on New Montgomery St.	В

SHUTTLE HOURS OF OPERATION

SUNDAY, AUGUST 13	
7:00 AM – 10:00 AM	Every 10 minutes
10:00 AM - 4:00 PM	Every 30 minutes
4:00 PM - 8:00 PM	Every 8 minutes
8:00 PM – 10:00 PM	Every 10 minutes
MONDAY, AUGUST 14	
7:00 AM – 10:00 AM	Every 8 minutes
10:00 AM - 4:00 PM	Every 30 minutes
4:00 PM - 8:00 PM	Every 8 minutes
8:00 PM – 11:00 PM	Every 10 minutes
TUESDAY, AUGUST 15	
7:00 AM – 10:00 AM	Every 8 minutes
10:00 AM - 4:00 PM	Every 30 minutes
4:00 PM - 8:00 PM	Every 8 minutes
8:00 PM – 10:00 PM	Every 10 minutes
EVENING SPECIAL EVENT	
10:00 PM - 12:00 AMServi	ce from Marriott Marquis to
	Rte A, Rte B, Walking Hotels
WEDNESDAY, AUGUST 16	
7:00 AM – 10:00 AM	Every 10 minutes
10:00 AM - 4:00 PM	Every 30 minutes
4:00 PM - 10:00 PM	Every 10 minutes

.00 PM - 10:00 PM
HURSDAY, AUGUST 17
00 AM – 1:00 PM

.Every	10	minute

Every 15 minutes.

.P BER	HOTEL AND TECHNICAL SESSIONS	SHUTTLE ROUTE
2	THE CLANCY HOTEL	WALK
;	HYATT REGENCY SOMA	WALK
	INTERCONTINENTAL SAN FRANCISCO	WALK
;	SAN FRANCISCO MARRIOTT MARQUIS • Technical Sessions – BIOT, POLY, PMSE	WALK
	W SAN FRANCISCO	WALK

MOSCONE CENTER

MAI NUMB

G.C.

• Technical Sessions – AGFD, AGRO, ANYL, BIOL, BMGT, CARB, CATL, CELL, CHAL, CHED, COLL, COMP, COMSCI, CMA, CTA, ENFL, ENVR, FLUO, GEOC, I&EC, INOR, MEDI, MPPG, ORGN, PHYS, PRES, SCC, SCHB, YCC

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and Program



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