Call For Papers

AMERICAN CHEMICAL SOCIETY
AGRO Division

August 13 - 17, 2023
San Francisco, California USA

Notes from the Program Chair

Aaron D. Gross, adgross@vt.edu

The Agrochemical Division (AGRO) will have a spectacular year in 2023 that includes programming at two national meetings. AGRO will make a stop at the crossroads of America in Indianapolis, Indiana for the ACS Spring meeting to engage in the ***Crossroads of Chemistry.*** And then we get a mulligan of the San Francisco 2020 which was only virtual.

Fall 2023 Meeting, San Francisco, California. AGRO is preparing an exceptional 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***. San Francisco will not only provide a fantastic location to network with your colleagues, but to also present your research in over 30 planned symposia topics. This includes AGRO's participation in achieving *Zero Hunger* through a special symposium organized by Laura McConnell, Coralia Osorio Roa, and Adelina Voutchkova.

At the Fall 2023 meeting, AGRO will celebrate the many accomplishments we have made over the past 50 (er, 53) years! These celebrations will include a special symposium highlighting where AGRO has been and its future opportunities 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) is planned for Thursday of the meeting. A joint virtual special issue of the *J Agric Food Chem* and *ACS Agric Sci Tech* is also being planned.

In San Francisco, we will recognize the significant achievements of our colleagues in agrochemical research. **Thomas Stevenson** of FMC will be awarded the ACS International Award for Research in Agrochemicals. This award is sponsored by Corteva Agriscience and is being organized by Seva Rostovtsev and Robb DeBergh. The 2023 award winner for the AGRO Innovation Award which is sponsored by BASF is **Kevin G. Meyer** of Corteva Agriscience. AGRO will host the Kenneth A. Spencer Award with the sponsorship of the ACS Kansas City Section; this awardee will be announced soon! Additionally, the *Journal of Agricultural and Food Chemistry* Best Paper Award (sponsored by AGFD and AGRO) will be announced in early spring.

AGRO Education Awards for Student Travel will be awarded to undergraduate and graduate students to present their poster at the Fall meeting; this includes a poster competition which is sponsored by Bayer. This award will defray costs associated with attending the meeting up to $1,000 for a limited number of students. Applications are due April 4; see p. 11 for details. Sara Whiting and I are the co-chairs of this award program.

AGRO New Investigator Award (NIA) which is sponsored by Syngenta recognizes scientists who have obtained their doctoral degree in last five years and have produced significant accomplishments conducting research, consulting, or regulatory studies. Thank you to Sasha Kweskin, Nurhayat Tabanca, and Daniel Swale for organizing this award program. Applications are due April 4; see p. 9 for details.

Finally, the ***Early Career Symposia Series*** provides funds for symposia within the AGRO program that are organized by and feature speakers within 10 years of their highest degree earned. In Fall 2023, we are delighted to welcome one Early Career Symposia to our Program: *Harnessing Chemical Ecology to Achieve Food Security,* organized by Gareth Thomas and Nurhayat Tabanca.

Key information for Fall 2023 meeting:

- Abstract submission is open January 9 – April 4, 2023
- Education Award for Student Travel due April 4, 2023
- New Investigator Award due April 4, 2023
- The Fall ACS meeting will continue to be hybrid with the amount of hybrid and virtual tracks being announced later in the spring
- AGRO vice-chair, James Foster, has designed a new and exciting idea generation session for Denver

AGRO Programming Support. Finally, we continue to rely on the expertise of AGRO's Technical Program Administrator, Peney Patton, ppatton@agrodiv.org. Thank you, Peney, for all your help during this 2022 – 2023 planning cycle!

Come join the fun in San Francisco and
Share your science discoveries
At the Fall 2023 ACS Meeting & Expedition!

AGRO 50th and Beyond Celebration

At the ACS Meeting Fall 2023 Hybrid Meeting and Exposition
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!



Tentative Tour Agenda	
Time	*Activity*
6:45 AM	Board Chartered Bus
7:00 AM	Depart San Francisco for Davis, California
8:45 AM	<u>University of California Davis</u> • Welcome by Dean <u>Cooperative Extension Plant Sciences Research Field Crop location</u> • Presentation on pesticide research in support of specialty crops • Robert Mondavi Institute tour of sensory labs, food innovation kitchen, winery, and brewery • Tour of the campus research vineyard. • Tour of the Olive Oil Center with a presentation on olive oil and avocado oil research • IR-4 Research Projects presentation
Noon	Lunch at the Putah Creek Lodge on campus Lunch speaker: Prof. James Seiber (Etox and AGRO History).
1:30 PM	Depart Campus
2 - 4 PM	Additional agriculture stops on return trip. Locations to be finalized.
5 - 6 PM	Return to San Francisco

Participation is limited.

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

AGRO 50th and Beyond Celebration

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

The AGRO Division was founded in 1970.
We will conclude 50th anniversary celebration activities with
several exciting events in San Francisco.

Attend the AGRO 50th Anniversary SPECIAL SYMPOSIUM

Chemistry for and from Agriculture: AGRO Division Legacy and Future Opportunities

This symposium on Wednesday, August 16, will include noteworthy speakers who will review historic contributions of our science and share future perspectives and will feature the recipient of the 2023 IUPAC Award in Crop Protection Chemistry

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

Come Toast the AGRO 50th and Mingle at the GALA RECEPTION

A gala reception on Wednesday evening, August 16 will follow the special symposium and will include food, drink, trivia games, and special displays Invitees will include AGRO members, awardees, and retirees as well as ACS and sister organization VIPs. Attendees will have the opportunity to win prizes, interact with an AGRO history timeline, and toast the AGRO's past and bright future.

Gala table sponsorships are available.

Contact: Andy Newcombe, andy.newcombe@arcadis.com

Join the Adventure of a Post-meeting AGRICULTURAL FIELD TOUR

An all-day agricultural field tour will be offered to AGRO members, guests, and ACS meeting attendees on Thursday, August 17. This tour of agricultural sites in the Sacramento Valley and on the UC-Davis campus will be both scenic and educational and include short research presentations from regional experts as well as a luncheon at the Putah Creek Lodge.

Contact: Andrew Coates, awecoates@gmail.com

AGRO 50th and Beyond
Celebrate our Past, Honor the Present, and Look to the Future!

Watch for further details on the AGRO website
www.agrodiv.org/agro-50th-anniversary-celebration

AGRO Call for Papers by Standing Programming

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

Agrochemical Toxicology, Mode of Action, and Omics

- Innovations in Vector Control: New Tools and Strategies

Air Quality and Agriculture

- Measuring, Modeling, and Mitigating Airborne Transport of Pest Control Products

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

- Biorational Technologies for Control of Invasive Pests in a Changing Climate
- Early Career Symposium: Harnessing Chemical Ecology to Achieve Food Security

Communication

- Advancing Public Engagement in Effective Pesticide ESA Education and Regulation

Discovery and Synthesis of Bioactive Compounds

- ACS International Award – Symposium in Honor of Dr. Thomas M. Stevenson for His Contributions to the Discovery of New Fungicides, Herbicides and Insecticides
- New Companies in Crop Yield Technology
- 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
- Multi-stressor Risk Assessment as a Tool to Prioritize Actions for Ecosystem Restoration

Environmental Fate, Transport, and Modeling of Agriculturally Related Chemicals

- Data-Driven Approaches to Reduce Uncertainties in Water Exposure Assessments
- Environmental Fate, Transport, and Modeling of Agriculturally-related Chemicals
- Environmental Monitoring Data Collection, Utility, and Use in Pesticide Risk Assessment and Registration
- Pesticide Runoff Mitigation: Characterization, Quantification, and Implementation
- Pesticides and Other Organics in Urban Environments

Formulation and Applications Technology

- Enhanced formulations and delivery systems through surfactant and colloid technology
- Functional Polymers in Agrochemical Formulations

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

- *In Vitro* Comparative Animal Metabolism of Agrochemicals

Human Exposure, Health, and Risk Assessment

- Epidemiology: A Growing Field In Agrochemistry and Agrochemical Regulation

Impact of Climate Change on Agriculture and Food Security

- Adapting Agricultural Chemistry and Practices to a Changing Climate
- The Role of Chemistry in Addressing Hunger and Food Security

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

- Food Waste: The Weakest Links and Possible Solutions
- Zero Waste Strategies: Valorizing Undervalued Agricultural Coproducts and Food Waste

Pesticides, Pollinators, and Non-target Arthropods

- Transitioning from the Laboratory to the Landscape: Challenges and Opportunities

Regulations, Harmonization, and MRLs

- Expectations and Deliverables to Ease Trade of Crops Treated with Agricultural Chemicals

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

- Technological Advances for Transformative Agriculture
- Unmanned Aerial Systems (aka Drones): Pesticide Spraying and Other Agricultural Applications

SPECIAL SYMPOSIUM

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

GENERAL SYMPOSIUM

- Protection of Agricultural Productivity, Public Health, and the Environment – General Session

Call for Papers

ACS Meeting & Exposition

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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

Purpose of Symposium

This symposium is being organized in recognition of the scientific achievements of Thomas M. Stevenson of FMC in the fields of herbicide, fungicide, and insecticide discovery on the occasion of his being awarded the International Award for Research in Agrochemicals.

Most oral presentations are invited, but posters are welcome.

Suggested Topics

- Recent progress in the discovery and synthesis of new insecticides, fungicides, herbicides, and nematocides for use in crop protection and animal health
- Organic synthesis, catalysis, and synthetic methodology development in the context of agrochemical research
- Design strategies, biological activity, and structure-activity relationships (SAR) of new agrochemicals
- Isolation, structure determination, and biological characterization of natural products with insecticidal, herbicidal, fungicidal, or nematicidal activity

For further information, contact the organizers

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Seva Rostovtsev, FMC Corporation, 302-318-9411, seva.rostovtsev@fmc.com

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January 6 – April 4, 2023

Call for Papers

ACS Meeting & Exposition

August 13 – 17, 2023

San Francisco, California, USA

Adapting Agricultural Chemistry and Practices to a Changing Climate

Purpose of Symposium

This symposium will focus on the adaptations needed in agriculture to address climate change and feed an increasing population. We will explore the effects of climate change on crop production through changes in temperature, precipitation, extreme weather events, and pest pressure. Altering trade and regulations, the impacts of cultural practices used to sequester carbon in crop production and the development of carbon incentives, farming practices, trends in climatology, and historical evidence will be examined. Modifications to agricultural chemistry and adaptation practices for agronomic and specialty crop production systems will also be investigated.

Regulatory authorities and international agencies such as USEPA, PMRA, EFSA, and FAO are addressing climate change and have begun implementing plans and approaches to guide agriculture towards best practices. This symposium is designed to not only highlight and discuss regulatory advances but also research related to climate change.

Presentations will be organized under the sub-topics of: (a) climate change effects on crop protection, (b) climate change and food safety, (c) climate change and pesticide environmental fate and risk assessment, and (d) climate change and carbon sequestration in crop production.This symposium may be of interest to AGFD, CELL, ENFL, ENVR, and TOXI.

Suggested Topics

- Impacts on crop distribution including historical trends and projections
- Evolution and adaptations of agronomic and specialty crop systems
- Evolution and changes in pest complexes and geographic ranges
- Changes in pest control practices and pesticide use including market response
- Risks to beneficial insects and endangered species from climate change and associated adaptation practices
- Impacts on soil, air, and water quality
- Modifications in agricultural chemistry to adapt to climate change
- Effects on pesticides in the environment, such as, leaching, runoff and erosion, and degradation
- Adapting models for pesticide environmental risk assessments
- Impact of carbon sequestration practices in crop production on pests, pesticide use, and the environment

For further information, contact the organizers

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Pamela Rice, USDA-Agricultural Research Service, 612-624-9210, pamela.rice@usda.gov
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January 6 – April 4, 2023

Call for Symposium Proposals
ACS Meeting & Exposition
August 13 – 17, 2023
San Francisco, California USA

Advancing Public Engagement in Effective Pesticide ESA Education and Regulation

Purpose of Symposium

Over the last year, EPA has implemented its new policy on approaching FIFRA/ESA consultation by proposing and/or implementing *early mitigation* strategies into their registration decisions. Mitigations available or proposed thus far suggest that species protection methods will be presented as a suite of options from which growers may select a combination of restrictions or practices that EPA offers to minimize pesticide risk. Since species, crops, geographical conditions, and practices all vary across one product label and between labels, registrants, pesticide users, and state lead agencies are concerned about the potential for many different mitigation packages to be in effect at any one time, leading to confusing, highly variable labels and enforce challenges.

State Lead Agencies and Pesticide Safety Education Programs, with industry partners, will need to educate applicators how the labels will regulate them. Members of the State FIFRA Issues Research & Evaluation Group (SFIREG), Association of American Pesticide Control Officials (AAPCO), and American Association of Pesticide Safety Educators (AAPSE) are voicing concerns about the complexities, as are registrants and users. This, coupled with the public's increasing skepticism of science, amplified in non-scientific social media channels, makes implementation and education much more difficult.

Pesticide registrants, pesticide users, regulatory and wildlife management agency staff, and conservation-based organizations and ENVR will be interested in the symposium.

Suggested Topics

- Methods for developing practical and effective mitigation in new and revised registrations
- Methods for developing practical, effective, and implementable mitigations in new and revised registrations or in registration review
- How to avoid mitigation complexity that would deter adoption by the user community or confound enforcement
- Thoughts on the additional complexity of services review of registration decisions after label mitigations occur
- Educating and communicating how protections can be optimized to reduce risk to listed species while not overly burdening the user community
- Opportunities, motivations, and incentives for pesticide industry engagement in communication and education

For further information, contact the organizers

Gary Bahr, Washington State Department of Agriculture, 360-349-0522, gbahr@agr.wa.gov
Bernalyn McGaughey, Compliance Services International, 509-307-0948, bmcgaughey@complianceservices.com
Greg Watson, Bayer Crop Science, 314-343-8120, greg.watson@bayer.com

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Biorational Technologies for Control of Invasive Pests in a Changing Climate

Purpose of Symposium

Global food production is threatened by climate change. Climate change has also exacerbated the spread of invasive pest species, further imposing a threat to food insecurity. Innovative-biorational technologies are being developed to protect crops from damage caused by invasive species in a wide range of environments.

Examples of these include use of modelling and big data to predict areas of further spread and establishment as part of early warning and surveillance measures. Additionally, a myriad of non-conventional and conventional approaches is being developed and integrated to tackle insect and invasive plant pests.

The purpose of this symposium is to discuss the latest research results in the broad field of biorational technologies, their development, and applications in pest management across various fields-agriculture, forestry and biodiversity. This symposium will attract a wide range of audience ,including established, early career scientists, students and policy makers, and from other ACS Divisions, such as ANYL, ENVR, ORGN, and AGFD.

Suggested Topics

- Big data solutions
- Climate-smart crops
- Biodegradable matrices
- Semiochemicals
- Botanicals
- Biopesticides
- Early warning systems
- Toxicity

For further information, contact the organizers

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ACS Meeting & Exposition

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Chemistry for and from Agriculture: AGRO Division Legacy and Future Opportunities

Purpose of Symposium

This symposium is being organized as part of the **AGRO 50 and Beyond** celebration of the golden anniversary of the Agrochemicals Division (AGRO) and will immediately be followed by a gala reception for AGRO members and invited guests. The symposium will be comprised of invited presentations, so nominations should be sent in advance.

Since it achieved full ACS Division status in 1970, AGRO has served as the nexus of scientific exchange related to chemistry in the service of sustainable agriculture and public health. Through its technical programs at national meetings, special workshops and symposia, educational initiatives, awards, and publications AGRO has had major impacts on the development of agriculture in the US and worldwide.

Invited symposium speakers, including noteworthy leaders and AGRO alumni from industry, academia, and government agencies, will review historic developments and contributions as well as provide perspectives on what to expect in the future for topics of critical interest to AGRO. By highlighting the rich history, accomplishments, and contributors of more than 50 years of AGRO success we hope to both educate and inspire the next generation regarding Divisional activities and participation. Please plan to come celebrate **AGRO 50 and Beyond** with members, retirees, and friends of the Division during the San Francisco ACS meeting, including this symposium, the gala reception, and the agricultural field tour.

Suggested Topics

- Evolution of agriculture and crop protection in the past 50 years
- Historic contributions of AGRO to worldwide innovation and sustainable agriculture
- The biotech revolution and its impact on agriculture
- The most important challenges and opportunities for AGRO contributions and programs of the future
- Farming and crop protection in the emerging digital age
- Land grant universities and changing models of education
- The role and contribution of USDA and federal research
- Advancements and outlook for regulation of agrochemicals
- Advances in formulation and application technologies
- Agrochemical environmental assessments - from observation to prediction
- Advances in risk assessment-based approaches to crop protection chemistry
- Changing consumer expectations for food safety and information
- Public health and urban pest management trends and directions

For further information, contact the organizers

Jeanette Van Emon, US EPA (retired), 702-300-8141, jmvanemon@gmail.com
Ken Racke, Dow AgroSciences (retired), 317-328-5618, kenracke@gmail.com

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Call for Papers

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August 13 – 17, 2023

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Data-Driven Approaches to Reduce Uncertainties in Water Exposure Assessments

Purpose of Symposium

Regulatory exposure assessments, especially lower-tier assessments, are designed to offer protective estimates based on worst-case scenarios and assumptions. The compounded conservatism often results in exposure estimates that are significantly higher, sometimes 2 to 3 orders of magnitude, compared to the empirical measurements from the real world. Environmental modeling and monitoring both play a critical role in regulatory assessments.

For example, to estimate human dietary exposure from potential residues in food and drinking water, measured residue values in food and feed items are utilized but monitored values of drinking water are seldom used. While scenario-based mechanistic models are useful for many assessments, especially for new active ingredients, there remains a need to develop methods that integrate model estimates and measured real-world exposure data to reduce assessment uncertainty.

This symposium will explore new approaches to integrate modeling and empirical data in water exposure assessments. These approaches may include calibrating existing mechanistic models with monitoring data, as well as novel approaches, such as machine learning, to estimate exposure under various conditions of interest. This symposium will focus on regulatory assessments of drinking water and ecological assessments and highlight regulatory and societal challenges with the acceptance of data-driven models.

Suggested Topics

- New approaches to design and analyze surface water monitoring to satisfy regulatory requirements
- Novel spatial and temporal models to refine field scale exposure estimates
- Methods to Integrate monitoring data with process-based models
- Advances in Groundwater assessments
- Dietary exposure assessments using monitoring and modeling methods
- Machine learning and other emerging approaches to estimate exposure
- Statistical approaches to quantify and reduce exposure uncertainty
- Regulatory acceptability of data-driven models

For further information, contact the organizers

Tharacad Ramanarayanan, Syngenta Crop Protection, 336-632-6070, tharacad.ramanarayanan@syngenta.com
David Dreier, Syngenta Crop Protection, 336-632-5887, david.dreier@syngenta.com
Houbao Li, US Environmental Protection Agency, 202-566-1625, li.houbao@epa.gov
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January 6 – April 4, 2023

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ACS Meeting & Exposition

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Early Career Symposium:
Harnessing chemical ecology to achieve food security

Purpose of Symposium

Sustainable agriculture and improving food security is important in economic and nutritional patterns to good health. Chemical signals, or semiochemicals, are produced by organisms including plants, insects, and microorganisms, enabling them to communicate intra- and inter-specifically. These semiochemicals can be exploited to benefit crop production through mechanisms including induced protection of crops against pests, stimulation of crop growth, and signaling to beneficial predators/parasitoids for the control of pests. Identifying semiochemicals involved in these biological activities, and advancing our understanding of their biological roles, can enable the development of novel, sustainable tools to increase crop productivity, which can help to address the growing need to provide sufficient food for a growing population.

This early career symposium is intended to benefit graduate students, post-doctoral researchers, research technicians, research fellows, and other early career researchers with backgrounds across academia, industry, and government, who have research interests relating to chemical ecology. This symposium can provide a way for them to build international networks, develop research collaborations, and address future challenges facing food security. The symposium welcomes participants from other ACS Divisions, including AGFD, ANYL, BIOT, and ENVR.

Suggested Topics

- Chemically mediated interactions between plants, insects, and microbes, encompassing plant-insect, microbe-insect, plant-microbe, and plant-insect-microbe chemical signaling
- Analytical tools to identify novel semiochemicals, including gas chromatography (GC), coupled GC-mass spectrometry (GC-MS), GC-electroantennography (GC-EAG), and thin-layer chromatography (TLC)
- Novel collection techniques for volatile organic compounds
- Application of semiochemical-based strategies for the management and control of pests, from lab to field, such as attractants, repellents, oviposition deterrents, push-pull systems
- Isolation and synthesis of semiochemicals
- Formulation and commercialization of semiochemicals for crop protection from an industry perspective

For further information, contact the organizers

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Gareth Thomas, Rothamsted Research, UK, gareth.thomas@rothamsted.ac.uk

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Effect of USEPA Endangered Species Enforcement on the Future of Agrochemicals

Purpose of Symposium

The enforcement of the Endangered Species Act (ESA) by USEPA will affect the future of agrochemicals. Mitigation measues in response to ESA have and will continue to significantly reduce pesticide use to areas determined to be vulnerable for endangered species populaions. USPA's efforts to enforce ESA have not been codified and so understanding how registrants can best be prepared becomes a bit of an enigma.

This symposium hopes to share individual experiences to better inform the attendees of how best to deal with this issue as well as to present technological developments that help to mitigate the impact of pesticides to endangered species. Additionally, it is hoped that forward-looking discussions will postulate how ESA will impact pesticides and agrochemical technology in the future.

Other ACS Divisions that may be interested are ANYL and ENVR.

Suggested Topics

- New developments in EPA's enforcement of ESA legislation
- Updates on endangered species mapping and the impact of pesticides on endangered species
- Updates on critical factors used to determine ESA mitigation
- Ways to minimize off-site movement of pesticides and the impact it would have on mitigation
- Mitigation strategies that have been used by registrants
- Technological developments in formulation and application methods (e.g., robotics) and their impact on ESA mitigation
- How to prepare for ESA considerations when submitting a new pesticide registration or what to expect during re-registration
- Future outlook on ESA's lasting impact on agrochemicals

For further information, contact the organizer

Phillip Cassidy, Battelle, 440-479-5123, cassidy@battelle.org

Huajin Chen, Bayer Crop Science, jessica-h.chen@bayer.com

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Enhanced Formulations and Delivery Systems through Surfactant and Colloid Technology

Purpose of Symposium

This symposium covers industry, government, and academic advances on formulations and application technologies through applied surface and colloidal chemistry.

The target audience for this symposium includes scientists applying surfactant and colloid science amenable across industries to develop beneficial and improved formulations and application methods.

Participants in this symposium will have the opportunity to gain insights into the challenges of formulation science of traditional small molecule chemistry (pharma, crop protection, paints, inks, petrochemical) as well as newer microbial and biological solutions for new end-user experiences. This symposium may also be of interest to the AGRO, AGFD and COLL Divisions.

Suggested Topics

- Formulating complex multi-active ingredient products, including biologicals
- Advances in additives and adjuvants to improve performance or mitigate adverse effects of actives, including microbial and biological
- Advances in delivery system technology attributable to individual products (e.g., nanotechnology, encapsulation, controlled release)
- Formulations that enable traditional small molecule and biological mixtures
- Management of undesired effects through physical and chemical properties of formulations
- Formulating to optimize coating treatment processing/performance (e.g., paints, seeds treatment, powder/liquid coatings)
- Precision and customized delivery (e.g., sensor development, real time monitoring of applications, variable rate application, and drone applications)

For further information, contact the organizers

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

Purpose of Symposium

Effective risk assessment and risk characterization of pesticides and other agriculturally-related chemicals requires detailed measurement and prediction of their environmental fate and distribution in target use regions. This symposium will improve knowledge and identify research needs on this critically important topic. Results are expected to improve the accuracy and confidence in pesticide exposure and risk assessments, further increasing their regulatory utility.

Spatial and temporal differences, fate process coupling and interaction, conservation practice implementation, and changing climates may add substantial variability to pesticide fate assessments. Presentations describing original research, case studies, and literature review which address these, and related topics are encouraged. Scientists and regulators engaged in all aspects of pesticide exposure assessment, modeling, and fate evaluation will benefit by active participation.

Other ACS Divisions that may benefit from attending and participating in this symposium are ANYL, ENVR and AGFD.

Suggested Topics

- Relating laboratory and field fate measurements
- Environmental monitoring study conduct and interpretation
- Novel laboratory or field fate study deigns
- Regulatory relevance of modeling, monitoring, and environmental fate measurements
- Policy implications of modeling, monitoring, or environmental fate
- Modeling of exposure mitigation practices
- Measurement or modeling of exposure from precision farming applications (e.g., drones, smart sprayers)
- Characterizing the fate of biopesticides
- Utilization of geospatial techniques for fate evaluations

For further information, contact the organizers

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Scott Jackson, Envu, 919-604-6925, scott.jackson1@envu.com

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

Purpose of Symposium

Evaluation of publicly available environmental monitoring data of pesticides is important to regulators, registrants, and non-government organizations for a wide variety of purposes. Many national, state, regional, tribal, and watershed district authorities include pesticides in their environmental water quality monitoring programs; however, multiple challenges exist to obtain these data, compile into a usable format, and to evaluate and interpret the data.

This symposium seeks to bring together international stakeholders involved in the generation, collection, analysis, and interpretation of pesticide monitoring data. The symposium organizers invite individuals to offer papers and/or posters for consideration under the suggested topics.

Other ACS Divisions that might be interested in participating in this symposium are AGFD, ANYL, and ENVR

Suggested Topics

- Design and conduct of large-scale programs or studies to generate extensive pesticide environmental monitoring data.
- Approaches to optimize and automate monitoring data collection and data processing.
- Presentation and reporting of large datasets of pesticide environmental monitoring data.
- Use of pesticide monitoring data in risk assessments and regulatory decision making, or implementation of environmental stewardship practices or programs.

For further information, contact the organizers

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Epidemiology: A Growing Field in Agrochemistry and Agrochemical Regulation

Purpose of Symposium

Environmental epidemiology and epidemiological studies involving pesticides are becoming increasingly common in the literature. Because of the impact they may have on public health policies and personal decision-making, these often become the focus of media stories (including editorials and op-eds), as well as the trade press, legal entities/trial lawyers, and environmental NGOs, and may be not always be interpreted objectively or accurately. Despite this, many chemists and risk assessors, whose work is the object of this intense scrutiny, are not familiar with epidemiology or how it is developed, interpreted, and used.

The symposium is expected to be of interest to chemists, risk assessors, and government and industry staff involved in or wanting to learn about regulatory science and/or risk communication. It will provide a broad general background of the field, recognizing that most attendees may have limited training or experience in this area but may have an interest in learning more about the intersection of agricultural chemistry, biomonitoring, exposure science, and epidemiology.

This symposium would also be relevant to the work at USDA, EPA, and NIH as well as various ACS Divisions such as AGFD, CHAL, DCHAS, ENVR, or TOXI.

Suggested Topics

- Introductory topics in epidemiology and epidemiological effect size measures
- Current efforts in the area of epidemiology and risk assessment
- National Health and Examination Survey (NHANES) and biomonitoring results for pesticides
- Ongoing agricultural cohort or other studies such at the Agricultural Health Study (AHS), the European AGRIculture and CANcer (AGRICAN) study, Improving Exposure Assessment Methodologies for Epidemiological Studies on Pesticides (IMPRESS), and the UK Prospective Investigation of Pesticide Applicators' Health (PIPAH)
- Case studies illustrating how epidemiological data were employed in robust risk assessments and decision making
- Systematic review and meta-analysis
- Regulatory viewpoints
- Exposure science and exposure characterization
- Correlation versus causation
- Cross-disciplinary efforts among risk assessors, epidemiologists, exposure scientists, and other experts

For further information, contact the organizers
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Expectations and Deliverables to Ease Trade of Crops Treated with Agricultural Chemicals

Purpose of Symposium

Chemical registrants have led the way in discovering new ways for agriculture to become highly efficient while increasing sustainability. Current efforts to bring products to the market that ensure growers have maximum freedom to trade their crops around the world is increasingly complex. This symposium will highlight how the agricultural chemical industry is making it easier for products to target pests and diseases while creating a sustainable world at the benefit of growers, consumers around the world and the earth. We will focus on specific efforts undertaken to lessen barriers to trade and accept the sound science used to register chemical tools around the global markets.

Regulators of pesticides, those involved in representing national trade, and scientists developing risk paradigms for science assessments would want to attend this symposium.

Other organizations, such as USDA FAS, USTR, and USEPA, growers, and ACS Divisions (ANYL, ENVR, ORGN, and AGFD) would be interested in participating in this symposium.

Suggested Topics

- Role of agricultural science in meeting the demand for sustainable agricultural chemistry products.
- Evolution of US export markets over the past 60 years.
- Biggest hurdles for specialty crops growers trading produce around the world.
- Impact of non-scientific restrictions on pesticides on food security and affordability.
- Freedom to trade for food processors in channels of trade (not raw agricultural commodities).
- Uniting testing standards for OECD members.
- Use on compliance residue testing information for trade and consumer confidence.
- Row crop challenges and asks of chemical registrants; what is needed?
- What is Codex's role in feeding the world in the new paradigm?
- Success in Asian markets; how do we make it easier to farm and trade to Taiwan, Japan, and Korea?

For further information, contact the organizers

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Food Waste: The Weakest Links and Possible Solutions

Purpose of Symposium

This symposium attempts to uncover the main sources of food waste in North America and identify possible scientific, regulatory, and policy solutions to reduce contribution from this region within the global context and its impact. Interested parties representing food producers, processors and traders, official agencies for food standards and members of the academia are invited to participate and contribute with oral presentations, posters, and panel discussions during this symposium.

The general public and future generations need inputs from ACS-AGRO in particular, and perhaps by affiliation with other contributing divisions like AGDF, ANYL, BIOT, ENVR, CHAS, CHAL, ENVR. This event can also serve as platform for postdoctoral and early career scientists to present their latest research results and serve as a platform to foster future collaborations on this topic.

Suggested Topics

- Studies and statistics about North-American and global food waste challenges
- Main sources of food waste
- What are the food waste goals from different sectorial views
- Initiatives and best practices to reduce food waste at the sources
- Programs, policies, and collaboration projects that enable solutions for food waste management
- Suggested future opportunities for collaborative work to further enhance positive measures and impact on food-waste
- Specific solutions are encouraged to be presented in poster forms

For further information, contact the organizers

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Functional Polymers in Agrochemical Formulations

Purpose of Symposium

This symposium will focus on the historical, current, and future applications of polymeric additives in agrochemical formulations.Polymeric additives have many uses in agrochemical formualtions. Some classes of polymers include surface-active polymers, rheology-modifying polymers, polymers that aid in deposition and/or efficacy, and bio-active polymers that help nourish the plant or combat a pest. These polymers can be synthetic, partially or fully bio-derived, or a combination of the two.

Polymers in agrochemical formulations are regulated differently depending on where they are used, so regulatory implications (current and future) will also be discussed. The symposiuim will be of interest to both industrial and academic scientists, as well as those involved in the regulatory process. This symposium is part of an international collaboration with the Agricultural Chemistry Division, Chinese Chemical Society.

Suggested Topics

- History of polymers in agrochemical formulations
- Recent IP overview of polymers in agrochemical formulations
- Bio-derived polymers in agrochemical formulations
- Modification of formulation rheology with polymers
- Pesticidal polymers in agrochemical formulations
- Polymeric adjuvants for enhancement of formulation efficacy
- Surface-active polymeric dispersants
- Chemistry an rheology of polymeric additives for spray-drift mitigation
- Regulatory overview of polymer usage in agrochemical formulations in the US, Europe, and elsewhere

For further information, contact the organizers

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In Vitro Comparative Animal Metabolism of Agrochemicals

Purpose of Symposium

In vitro comparative animal metabolism (IVCM) studies are routinely conducted for pharmaceuticals and veterinary care products to understand species differences in metabolism. Following implementation of EU Regulation (EC) No. 1107/2009 concerning placing plant protection products (PPP) in the EU market, IVCM studies are required to be part of submissions for new authorizations as well as renewals.

Currently, there are no established Test Guidelines to conduct IVCM studies for agrochemicals. Also, IVCM studies are not required in other global regulatory frameworks. The purpose of the symposium is to gain enhanced understanding on design and conduct of IVCM studies, as well as their regulatory context and utility in the EU and other global regions.

Suggested Topics

- Design and conduct of IVCM studies with agrochemicals
- Criteria for detection/identification of unique (UHM) and disproportionate (DHM) *in vitro* human metabolites
- Consideration of holistic approaches in assessment of UHM and DHM: rat or mouse *in vivo* pathways, precursor, and downstream metabolites
- How to deal with compounds with little turn over (slow or lack of metabolism) in human *in vitro* systems?
- Hazard and exposure assessment of UHM and DHM
- Regulatory experience in use of IVCM studies in human health risk assessment of agrochemicals

For further information, contact the organizers

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Innovations in Vector Control: New Tools and Strategies

Purpose of Symposium

Vector-borne disease threatens animals and plants alike, and as such, our health and food security. The most effective way to prevent the spread of arthropod-vectored disease is via the application of chemical pesticides. As resistance to these technologies continues to burgeon, it is imperative that new and innovative control tools and strategies are continuously developed.

This ACS-sponsored symposium series will highlight both traditional and non-traditional vector control tools. This will include both chemical and non-chemical technologies, as both strategies will be essential in future pest control regimens. This symposium will focus on the research and development of novel control tools and the field deployment of new and previously utilized strategies in innovative ways.

We also aim to incorporate research regarding spatial modeling of pest populations to understand their impacts on people and the environment better. The purpose of this symposium is to encourage pest control scientists to integrate diverse research from all domains of a successful pest control paradigm.

Suggested Topics

- Tick control
- Mosquito control
- Veterinary/agricultural pest control
- Repurposing insecticides for new pests
- Non-traditional control tools
- Insecticide resistance in vectors
- Insect-host interactions and repellents
- Spatial modeling of populations
- Risk assessment of disease and pesticides

For further information, contact the organizers

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Measuring, Modeling, and Mitigating Airborne Transport of Pest Control Products

Purpose of Symposium

Preventing or minimizing the effects of pest control products on non-target areas has been the subject of research at universities, government agencies, and the crop protection industry. Methods for measuring and modeling the movement and mitigating the impact of these materials has been the subject of research and regulation.

Research has focused on characterizing and quantifying pesticide drift and volatility, and its underlying causes, or on technologies to reduce, eliminate, or mitigate its effects. Injury to non-target crops from herbicide applications has received the most attention, but the environmental impact from other classes of pesticides, while less noticeable, is also important.

The purpose of this symposium is to discuss current research including refinements in understanding the underlying causes, modeling movement, solutions including management and mitigation technologies, environmental impact, directions for future research, and the perspective from regulatory agencies.Other ACS Divisions that may be interested are ANYL, ENVR, and AGFD.

Suggested Topics

- Method and techniques to measure off-site movement of pesticides
- Modeling airborne transport of pesticides
- Development of tools for management and mitigation
- Effect of new application technologies (UAV, see and spray, spot treatment, etc.) on drift and volatility
- Comparison of drift potential from various application systems
- Bystander exposure
- Regulatory agency perspectives
- Role of technology manufacturers in mitigating off-site movement

For further information, contact the organizers

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Multi-Stressor Risk Assessment as a Tool to Prioritize Actions for Ecosystem Restoration

Purpose of Symposium

Ecosystems are subject to a range of stressors that may include climatological events; land use and management decisions and their consequences (e.g., agriculture, urban, forestry, and other anthropogenic activities); disease; and invasive species. The stressors can be of varying duration and frequency, and they can occur separately or simultaneously. The consequences of these stressors can have direct and indirect effects on species reproduction and survival and on predator and prey relationships.

Risk assessments often focus on the effect that an individual stressor may have on sensitive surrogate species. However, multi-stressors may collectively result in complex interactions in the ecosystem, including compromising the ability of individuals of a species to thrive and for and populations to recover from already weakened conditions. Quantifing the impacts that specific stressors contribute to ecosystem declineIt can be challenging and may misleading implicate an individual factor as a primary cause to compromised systems.

In reality, expending resources on the remediation of specific factors may provide the greatest benefit to ecosystem protection or restoration. The purpose of this symposium is to encourage scientists to share case studies and research that may prevent ecosystem decline or lead to cost and time effective solutions to ecosystem recovery.

Suggested Topics

- Characterizing and quantifying ecosystem health
- Analysis of spatial information to identify potentially vulnerable and compromised ecosystems
- Ranking stressors to prioritize focus
- Implications of climate change on ecosystem function and adaptability
- Spatial and temporal co-occurrence of stressors relative to species life stage
- Effect of pulse dose exposures on species recovery
- Impact of invasive species on ecosystems and native species
- Population and ecosystem modeling to compare scenarios of multi-stressor effects at relevant scales of biological organization
- Use of mesocosms in multi-stressor assessments
- Emerging contaminants as a contributing stressor
- Case studies in habitat and ecosystem restoration
- Responsibilities of different stakeholders in ecosystem protection and recovery
- When and if to pull the plug on a losing battle

For further information, contact the organizers

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New Companies in Crop Yield Technology

Purpose of Symposium

This symposium will introduce new, promising agriculturally related companies involved in crop yield enhancement, to a broad audience of chemists, biotechnologists, regulators and policy-makers. The emphasis will be on emerging organizations with investment potential, as opposed to core ongoing research/development activities in large established agricultural companies. This will span crop protection, novel means of improving plant nutrition and novel use of computational, chemical, biological and biotech tools to improve crop yields and sustainability.

The symposium aspires to broaden audience perspectives regarding *what is possible* in competitive agricultural markets using technology and judicious business assessments and will provide options for employment and engagement for a broad career range of personnel. As some of these technologies emerge, new modes of integration with agronomic practices such as traditional pesticide application or use of GMO crop seeds will need to occur. This may imply new regulatory paradigms as well. These emerging organizations could impact both domestic and international agriculture.

Suggested Topics

- Novel pesticidal active ingredients such as peptides, nucleic acids, enzymes, natural products, microbes, etc.
- New approaches to identify actives, such as genome mining
- Integration of new molecular biology technologies to improve crop yields
- Novel technologies to improve plant nutrition beyond traditional fertilizers
- Technologies at the interface of crop yield and carbon sequestration
- Opportunities and challenges in launching startups in crop yield enhancement
- Open innovation efforts in large agricultural companies
- The changing nature of partnerships and collaboration to launch new technical initiatives- private sector, government agencies and funding organizations
- Employment opportunities in this changing world, especially for earlier career people
- How technical innovation meets regulation requirements

For further information, contact the organizers
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New Strategies in Process Research and Development in Crop Protection

Purpose of Symposium

Modern agriculture research must continually innovate and develop new technologies that improve global food production to address challenges associated with rapidly growing populations and increased food supply demands. Process chemists play a critical role in developing green, sustainable, and economical solutions to produce small molecule crop protections at the multi-metric ton scale annually.

This symposium will serve as a platform for crop protection process scientists to share their innovative ideas and solutions to these challenges. We expect to bring to the audience detailed presentations and case studies from crop protection organizations around the world. World class research related to improvements or new synthetic route design, development, and optimization in the crop protection industry will be discussed. It is our goal to ensure this forum would benefit a wide audience in process research across different organizations and industries.

Suggested Topics, but not limited to:

- New green/sustainable strategies applied to the synthesis of crop protection products
- Data science in crop protection development
- Route scoping and selection for the synthesis of crop protection products
- Process development toward crop protection products
- Impurity identification and control in the development of crop protection products
- Application of process analytical technology (PAT) in the process development of crop protection products
- Application of continuous flow technology in the development of crop protection products
- Safety considerations, practices, and safety hazards evaluation and mitigation in process research and development
- Sustainability in process research and development
- Collaboration to drive technology innovation and process development
- Case studies of large-scale production and manufacture of crop protection related products

For further information, contact the organizers

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Pesticide Runoff Mitigation: Characterization, Quantification, and Implementation

Purpose of Symposium

Runoff mitigation measures are practices that farmers can take to reduce the transport of pollutants such as eroded soil, nutrients, and pesticides from treated areas into off-field habitats. Many of these measures, often implemented as clearly-defined Best Management Practices, have been widely adopted by many growers through various conservation programs to conserve soil resources and improve water quality. In recent years, runoff mitigation measures are more often being recommended or required on pesticide product labels during the registration process. However, these measures are not always quantitatively considered in current pesticide risk assessment frameworks including the process of evaluating and protecting species protected under the US Endangered Species Act (ESA).

This symposium will discuss the advances in research and development in approaches to quantify the effectiveness of mitigation measures for pesticide runoff, characterization of mitigation measures that are currently implemented, field studies on the effectiveness of runoff mitigation measures, research on new mitigation practices, and strategies to incorporate mitigations in risk assessments and risk management of pesticides. The symposium welcomes attendance and participation from other ACS Divisions including AGFD and ENVR.

Suggested Topics

- Characterization of runoff mitigation measures that are currently implemented by growers
- Performance and evaluation of field studies on runoff mitigation measures
- Research identifying new technologies for mitigating pesticide runoff
- Incentives and barriers to adoption of runoff reduction practices
- Examination of current and future regulatory considerations of runoff mitigation measures
- Modelling the effectiveness of mitigation measures for pesticide runoff
- Development of innovative approaches for meaningful incorporation of mitigation effectiveness in risk assessments

For further information, contact the organizers

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Pesticides and Other Organics in Urban Environments

Purpose of Symposium

Pesticides are frequently used in urban and suburban areas for outdoor and indoor pest control. Additionally, many other synthetic chemicals, such as pharmaceuticals and personal care products, plastic additives, tire additives/particles, and -perfluoroalkyl and polyfluoroalkyl substances (PFAS) are also found in urban environments. Emissions of these organic contaminants have broad environmental and human health implications.

This symposium will provide a forum for researchers from academia, federal and state agencies, and the private industry to explore concepts, share findings, and discuss future perspectives. Presentations are encouraged from a wide range of disciplines, e.g., environmental and analytical chemistry, environmental and ecotoxicology, human health, and risk mitigation and management. ACS Divisions ENVR and ANYL are potential co-sponsors.

Suggested Topics

- Sources and occurrence of organic contaminants in various urban environmental compartments (e.g., water, suspended sediments, sediments, biota)
- Processes contributing to offsite transport and sustained emissions
- Treated wastewater, biosolids, and stormwater runoff as significant contamination pathways
- Sampling and analytical methods for specific contaminant(s) or multi-residue methods spanning a range of chemical classes
- Conceptual and quantitative modeling
- Lethal and sub-lethal toxicity to non-target organisms and evaluation methods
- Potential human health effects
- Risk mitigation and management practices

For further information, contact the organizers

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

Purpose of Symposium

The AGRO Division currently has programs in a number of topic areas, but not all topics are developed into a technical symposium at every meeting.

The General Session therefore allows our members and other scientists to submit papers even though a specific symposium topic is not offered.

This year, only poster presentations are possible; every attempt will be made to group papers into "mini-symposia" within this session.

Suggested Topics

- Advances in Agrochemical Residue, Analytical and Metabolism Chemistry, and Metabolomics
- Agricultural Biotechnology
- Agriculture in Urban and Peri-urban Environments: Food Production, Structural Protection, Turf and Ornamentals, Water Reuse, and Down-the-Drain Chemistries
- Agrochemical Toxicology and Mode of Action
- Air Quality and Agriculture
- Bioenergy, Bioproducts, and Biochars: Advances in Production and Use
- Biorationale Pesticides, Natural Products, Pheromones, and Chemical Signaling in Agriculture
- Communication
- Developments in Integrated Pest Management and Resistance Management
- Discovery and Synthesis of Bioactive Compounds
- Ecosystem Exposure and Ecological Risk Assessment
- Environmental Fate, Transport, and Modeling of Agriculturally-related Chemicals
- Formulations and Application Technology
- Human and Animal Health Protection: Vector Control, Veterinary Pharmaceutical, Antimicrobial and Worker Protection Products
- Human Exposure, Health, and Risk Assessment
- Non-Food/Feed Production and Uses of Ag Commodities and Byproducts
- Regulations, Harmonization, and MRLs
- Technological Advances and Applications in Agricultural Science (*e.g.*, Nanotechnology, Genetically-modified Organisms, and Biocontrol Agents)

For further information, contact the organizer

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

Purpose of Symposium

The purpose of this symposium is to initiate discussion on analytical methodologies for residue analysis and how global requirements have driven advancement over several decades. Discussion in this symposium will focus on advancements in method development and validation approaches, and novel technologies, which provide increased compound sensitivity and selectivity, cost-effectiveness or high throughput analytical methods for the analysis of agriculturally relevant crop commodities and environmental samples.

The symposium topic should also include the role of global regulatory requirements for analytical methods used inboth consumer safety and environmental fate studies, and the ways they have changed our sector over the last decade. Consequently, development of analytical methods has become more challenging due to evolving regulations such as lower limits of quantitation (i.e., limit of quantitation of 25 ng/L water method), and various complex matrices (i.e., tea, hops, bee matrices (honey and pollen), soil/sediment, surface and ground water, etc.), and increasing focus on lower abundance degradates in the environment, requiring sensitive methods of detection.

Representatives from industry, academia, and government are invited to share their perspectives on the evolution of analytical method development for residue analysis of plant protection products. Other ACS divisions which may benefit from this symposium are analytical, environmental, and AGFD.

Suggested Topics

- Method development and validation (crop grouping approaches, application of new technologies) using global guidelines, i.e., SANTE
- Multi-residue methods, such as, CEN QuEChERS, AOAC, S19, etc., to meet global residue monitoring requirements
- Application of innovative tools and advanced instrumentations in residue sample analysis, i.e., use of robotics for high throughput, high-resolution mass spec, SelexIon, flow injection analysis, SFC, column switching
- Extractability testing using radiolabeled metabolism samples and non-radiolabeled incurred field samples
- Instrument utilization for data generation or enforcement
- Development of analytical methods for challenging and unusual matrices, i.e., hops, honey, clothing, bodily fluids, processed food items, etc.
- Residue methods with isomeric separation techniques, i.e., use of chiral column, normal phase HPLC, etc.

For further information, contact the organizers

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Technological Advances for Transformative Agriculture

Purpose of Symposium

Precision Agriculture is transforming the way farmers work by offering real-time data and predictive modeling for field conditions designed to increase yield. Improved technology and equipment help ensure that crops and soil are operating under optimium health and productivity conditions. This symposium welcomes contributions on equipment, software, analysis or other examples of emerging technology and information management.

Formulators, data scientists, programmers and engineers with a solid understanding of the basics of precision agriculture as well as those who are newer to the concept can benefit from hearing about the utilization of technology in this space.

Suggested Topics

- Disease, pest or weed detection for treatment considerations
- Environmental factors like soil management, water stress or climate change
- Plant health and growth, flower or crop density estimates and yield predictions
- Equipment and computing, including sensors, camera, robotics and machine learning
- Sustainability of Precision Agriculture, such as reduced solvent or pesticide usage or the optimization of fertilizer or biostimulant utilization

For further information, contact the organizers

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The Role of Chemistry in Addressing Hunger and Food Security

Purpose of Symposium

As a global community of researchers, we strive to achieve one of the most critical U.N. Sustainable Development Goals, ***Zero Hunger***. Hunger and undernourishment are problems affecting many millions around the world and the problem is now increasing after decades of progress.

This symposium is designed to highlight the role of chemistry in achieving ***Zero Hunger*** and the need for rapid innovation in food and agricultural research.

Presentations will potentially include contributions from the joint virtual special issue ***The Future of Agriculture and Food: Sustainable Approaches to Achieve Zero Hunger*** from *Journal of Agriculture and Food Chemistry, ACS Agricultural Science and Technology,* and *ACS Food Science and Technology*. It may also include contributions from the 2022 Zero Hunger Summit from the ACS Sustainable Futures Initiative.

This symposium will be jointly organized with AGFD and COMSCI.

Suggested Topics

- Advances in food or agricultural research which contribute to more robust, plentiful, nutritional, palatable and sustainable food systems
- Impacts of agriculture on climate – mitigation of greenhouse gases
- Climate impacts on agriculture – enhancing resilience
- Optimizing crop production – increasing productivity
- Sustainable food packaging – reducing waste

For further information, contact the organizers

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January 6 – April 4, 2023

Call for Papers

ACS Meeting & Exposition

August 13 – 17, 2023

San Francisco, California, USA

Transitioning from the Laboratory to the Landscape: Challenges and Opportunities

Purpose of Symposium

Pollinator research has has uncovered many indications of adverse effects of pesticides, and many research papers in the field refer to population declines, but few refer to standard methods (*e.g.*, OECD acute and chronic Test Guidelines) nor explain how results have been extrapolated from the lab to the landscape. It is widely assumed that pesticides are a major cause of pollinator declines despite the rigorous regulatory risk assessment process that relies on standardized assessment methods and is based on rigorously reviewed data submitted to support regulatory decisions as well as published research.

This symposium will survey efforts to integrate new approach methods with established guidelines, and to facilitate extrapolations across multiple levels of biological organization. It is focused mainly on social and solitary bees, in view of their importance as pollinators. This symposium will be of interest to members of the AGFD, ANYL, ENVR and TOXI Divisions.

Suggested Topics

- Toxicology methods and method validation, including *in vitro* and cell culture methods
- Toxicology assessment of mixtures
- Sublethal and chronic effects including behavioral studies
- Cognitive and learning effects
- Monitoring studies of pesticide exposure
- Life history studies or plant – pollinator interaction studies related to potential exposure
- Ecological effects, pollination efficiency
- Population dynamics
- Measurement of potential exposure
- Landscape and continent-wide modeling
- Data quality criteria
- Pollinator risk assessment processes
- Methods of reducing exposure of pollinators to pesticides

For further information, contact the organizers

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Call for Papers

ACS Meeting & Exposition

August 13 – 17, 2023

San Francisco, California, USA

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

Purpose of Symposium

This symposium is intended to facilitate dialogue among scientists in agriculture-related fields to examine the opportunities and challenges in technical and regulatory areas associated with the use of unmanned aerial systems (UASs, aka drones) in agriculture. Presentations related to pesticide spraying or spreading, pollination, field scouting, and related topics are encouraged.

The symposium will provide a forum for interactions and exchange of latest development among academic, industry, and government experts. It will enhance understanding of UAS spraying and related activities that may have implications for agriculture and related industries, public interest, and the environment, as well as stimulating progress toward developing this new technology on a sustainable path. This symposium may be of interest to other ACS Divisions such as ENVR and ANYL.

Suggested Topics

- Development of UAS technology for use in agriculture, public health, industrial vegetative management including integration of a spraying module into UAS design
- UAS spraying – evaluation of in-field performance, off-target spray drift, operator exposure, etc.
- Scouting and remote sensing facilitated by UASs
- Unconventional uses of UASs in agriculture (e.g., pollination, non-liquid applications, etc.)
- Evaluation of different UAS design factors affecting performance in the field
- Model development for evaluating UAS performance for off-target exposure and risk assessment
- Regulatory aspects, including permitting, labeling, consideration of drift-reducing technology, and best management practices
- Addressing challenges associated with payload/power constraints and ultra-low volume spraying
- Socio-economic factors, including challenges and opportunities (e.g., labor, public support, etc.)

For further information, contact the organizers

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January 6 – April 4, 2023

Call for Papers

ACS Meeting & Exposition

August 13 – 17, 2023

San Francisco, California, USA

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

Purpose of Symposium

Improvements in instrumentation and, more recently in software, have been some of the most important drivers in the way agricultural research and development is done. Newer mass spectrometry instrumentation and data processing tools have provided better analyte selectivity, improved sensitivity, and higher throughput. Instruments incorporating accurate mass and high mass resolution capabilities significantly impact how studies are performed. These improvements have made lower cost instrumentation more available to laboratories in the ag industry, CRO's, and academia. Accurate mass technology is now used routinely in all aspects of ag R&D such as product discovery and development, product registration, and monitoring of food and environmental samples.

While accurate mass instruments have gained ground, many low resolution instruments are still in use especially in residue analyses. Any LC-MS application in support of Ag R&D is of interest in this symposium. Other ACS Divisions that may also benefit from this symposium are ANYL, ENVR, and AGFD.

Suggested Topics

- Use of high resolution, accurate mass (HRAM) instrumentation for metabolite (compound) identification
- Use of role of HRAM instrumentation for quantitative analyses
- HRAM-based quantitative/qualitative workflows for pesticide discovery
- High throughput applications
- Advanced software applications for compound identification and structural elucidation
- Applications of ion mobility mass spectrometry in Agricultural research and development
- Isotopic labeling of agrochemicals to assist in metabolite identification
- Applications using the accurate mass or high resolution capabilities of instrumentation in multi-residue analyses
- Mass spectrometry for confirmation of animal drug residues
- Targeted and non-targeted pesticide residue analysis
- Applications of MS-based imaging in agricultural research and development
- Surprise us!

For further information, contact the organizers

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January 6 – April 4, 2023

Call for Papers

ACS Meeting & Exposition

August 13 – 17, 2023

San Francisco, California, USA

Zero Waste Strategies: Valorizing Undervalued Agricultural Coproducts and Food Waste

Purpose of Symposium

Share research, ideas, and discussion on zero waste strategies for agricultural and food waste in this symposium. Meet with international researchers, leading companies and policy makers to shape the future of managing agricultural and food waste. Emphasis will be on valorizing agricultural residue, coproducts, and food waste from the field to the trash can and reducing methane emissions.

You will want to attend if your work involves dealing with agricultural and food waste in the field, in the lab, in the landfill, or in the policy making forums. ACS Divisions that might be interested include Agriculture and Food Chemistry (AGFD), Business Development and Management (BMGT), and Energy and Fuels (ENFL)

Suggested Topics

- Circular economy strategies for agricultural coproducts
- Undervalued biomass sources, such as food processing co-products
- Landfill reduction strategies for food and agricultural waste
- Methane mitigation from agriculture residues and waste
- Production of biofuels and biochemicals from agricultural waste
- Reduction of food waste from the field to the table
- Regulation of food waste segregation from municipal solid waste
- Technology and processing advances for utilizing food waste
- Waste recycling and energy production

For further information, contact the organizers

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