Call for Papers

American Chemical Society
AGRO Division
August 17-21, 2025
Washington, DC

Call for Papers

ACS Fall 2025 Meeting

August 17 – 21, 2025

Washington, DC, USA

Accelerating Discovery & Development in the Agricultural and Pharmaceutical Sciences via Innovations in Organic Synthesis

Purpose of Symposium

Despite the seemingly opposite nature of academic and industrial research, they are unified by innovation in synthesis as the vehicle for success. Likewise, the divide between agrochemical and pharmaceutical research is gradually eroding, showing that, at the end of the day, a challenge in synthesis is a problem for the community to tackle. Indeed, an arsenal of new technologies has been brought to bear (high-throughput experimentation, DNA-encoded libraries, artificial intelligence, machine learning, etc.) in both sectors allowing for more complex problems and targets to be pursued successfully. This symposium seeks to highlight how discoveries in organic synthesis transcend the artificial divides that can exist between different sectors of the chemical community. The focus will be on how innovations in small molecular reactivity (via catalysis, informatics, new paradigms etc.) enable increasingly more complicated synthetic challenges to be addressed. This symposium will feature talks from academic groups and early- to mid-career industrial scientists spanning a range of functional areas in both the agroscience and pharmaceutical industries.

This symposium in invitation only

For further information, contact the organizers

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Paramita Deria, paramita.deria@bayer.com

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Advances and Innovations in Formulation Science: Surfactant and Colloid Applications for Enhanced Delivery Systems

Purpose of Symposium

The symposium will focus on advancing formulation science across various industries by addressing current challenges and exploring innovative solutions to enhance product performance, stability, and sustainability. Topics include the design and development of formulations for traditional chemical active ingredients and newer biological solutions, with applications spanning pharmaceuticals, crop protection, personal care, and more.

The symposium will highlight surface and colloid science, application technologies, and the impact of sustainability on delivery systems. It invites participation from industry, academia, and government to share perspectives and insights, particularly in agrochemical solutions adaptable worldwide.

Suggested Topics

- Nanotechnology and Advanced Delivery Systems
- Fundamentals and Trends in Formulation
- Complex Multi-Ingredient Formulations
- Additives and Adjuvants
- Digitalization and Simulation
- Sustainable and Green Formulation Approaches
- Regulatory and Environmental Impact
- Innovative Application Technologies

For further information, contact the organizers

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AGRO International Award for Research in Agrochemicals: Symposium in Honor of Dr. Thomas P. Selby

Purpose of Symposium

This symposium is in honor of Dr. Thomas P. Selby, recipient of the 2025 ACS International Award for Research in Agrochemicals for his exemplary work in the discovery of new insecticides, herbicides, and fungicides. The symposium will highlight recent research in the synthesis and chemistry of agrochemicals. Talks which describe the design, isolation, synthesis, biology and/or structure-activity relationships of new chemistry targeting crop protection or animal health are welcomed.

Suggested Topics

- New chemistry and targets for disease, insect, nematode, and weed control, and crop enhancement – discovery, synthesis, and structure-activity relationships (SAR)
- Natural products as a source of inspiration for disease, insect and weed control
- New modalities in crop protection discovery
- New and sustainable approaches to the discovery, synthesis, and development of agrochemicals
- Novel approaches to tackling the development of resistant pests, and weeds

For further information, contact the organizers

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Agricultural Transformations with AI and ML: Collaboration, Innovation, and Data-Driven Insights

Purpose of Symposium

Machine learning (ML) and artificial intelligence (AI) are transforming the agricultural sector by aiding in either process optimization or risk forecasting. These technologies underpin predictive analytics, which equip farmers with the tools to make informed decisions that maximize yields within the confines of a complex regulatory space. Bringing ML and AI into agriculture requires data of both high-quality and high-volume for model training and validation.

This symposium will focus on the practical applications of ML and AI across the agricultural technology discovery and development pipeline, as well as throughout the agricultural supply chain. One focus topic will be on strategies for collaborative efforts between organizations to create larger datasets that can yield novel insights into industry-wide problems. The other focus topic will be the development and application of computational ML methodologies to the agricultural space. We encourage presentations that share not only successful implementations, but also the challenges faced in these initiatives, transferable techniques and lessons learned.

We invite contributors to share case studies that illustrate how collaborative efforts within the agricultural technology discovery and development pipeline have enhanced decision-making processes.

Please join this symposium to explore the future of agriculture through the lens of ML and AI, and to connect with the academic, industrial and regulatory partners driving application of these technologies to agrochemistry.

Suggested Topics

- Strategies and challenges regarding inter-organization efforts to create larger datasets.
- Methods to mitigate risks associated with sharing sensitive data, aggregating disparate datasets, and associated analyses.
- Adoption or development of technologies aimed at collecting high-quality, high-volume standardized data.
- Case studies illustrating the application of ML and AI computational methodologies in informing decision-making processes, agrochemical R&D, and field-based solutions developed by growers.
- ML and AI strategies and technologies in the discovery and development of agricultural products, such as new formulation methodologies, safety assessments, and the discovery of new active ingredients and chemical entities.
- Regulatory, policy, and guidance considerations for the use of ML and AI, including the utilization of data from peer-reviewed literature and data aggregation practices.
- Presentations that emphasize lessons learned, transferable techniques, and challenges encountered, particularly regarding joint data exploration.
- Method- or technique-oriented presentations focused on data collection, validation, AI or ML tools and refinement of AI/ML platforms.
- Effective communication of the advantages and potential risks associated with ML and AI, along with strategies for risk mitigation
- Effective uses of ML and generated field data that can be used by regulatory agencies for mitigation measures and pesticide labeling requirements

For further information, contact the organizers

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Suggested Topics

- New chemistry and targets for disease, insect, nematode, and weed control, and crop enhancement – discovery, synthesis, and structure-activity relationships (SAR)
- Natural products as a source of inspiration for disease, insect and weed control
- New modalities in crop protection discovery
- New and sustainable approaches to the discovery, synthesis, and development of agrochemicals
- Novel approaches to tackling the development of resistant pests, and weeds

For further information, contact the organizers

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Agrochemical Innovations and Impact: Federal Science and Stakeholder Engagement

Purpose of Symposium

Join us for an engaging symposium that will showcase leading federal agencies, including the USDA Agricultural Research Service (ARS), USDA National Institute of Food and Agriculture (NIFA), U.S. Environmental Protection Agency (EPA), and U.S. Geological Survey (USGS), highlighting recent advances these agencies are making in understanding and managing agrochemical impacts on agriculture, human beings, and the environment. We will highlight presentations from federal researchers, program leaders, and policy makers to illuminate the critical advancements these agencies are making. This symposium will provide valuable insight and an open forum for stakeholders to learn from and interact with federal experts working at the forefront of agrochemical science and policy.

Suggested Topics

- Federal science
- USDA-ARS
- USDA-NIFA
- US EPA
- USGS
- Stakeholder engagement
- Environmental Impacts
- National Program Overviews
- New technologies for Pest Control
- Environmental fate and effects

For further information, contact the organizers.

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Agrochemicals Residue Analytical and Radiolabeled Metabolism Studies: From Regulation to Execution

Purpose of Symposium

Regulatory requirements for the registration of agrochemicals are rapidly changing globally in the area of both consumer and environmental safety. Consequently, conducting regulatory studies (e.g., the nature and magnitude of the residue, environmental fate studies with radiolabeled test items, and analytical methods for residue analysis) is becoming more complex and challenging. This symposium aims to foster communication among industry, academia, and government sectors to share insights, approaches, and solutions to the technical and regulatory challenges that arise in our industry. Individuals working on various agrochemical residue and metabolism studies are invited to share their contributions.

The symposium will provide a forum for discussing both theoretical considerations and practical applications, recent trends and explore new strategies for overcoming challenges. Other ACS divisions which may benefit from this symposium are analytical, environmental, and AGFD.

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Suggested Topics

- Application of innovative tools such as artificial intelligence and advanced instrumentation in metabolism and residue sample analysis
- Utilization of new technology (i.e., computational modeling, SelexION (ion mobility), HRMS, Flow injection method; SFC)
- Studies with isomeric separation techniques (i.e., use of chiral column, SFC, normal phase HPLC, 2-D HPLC, etc.) in both radiolabeled metabolism and residue analytical method studies
- Methodologies for Post Extracted Solids (PES)/bound residues (e.g. enzymatic extractions, mild and harsh acid/base extraction, chelation, ASE, Soxhlet) for metabolism studies
- Challenges in the identification of small, polar transformation products, i.e. poor chromatography / co-eluting peaks, poor ionization in mass spectrometer, loss of isotopic fingerprint
- Challenges for structure elucidation due to the presence of low radioactivity in the test sample(s)
- Identification, and quantitation of bioconjugates
- Developing multiplexed methods: more analytes, more matrices (Multi-Residue Methods (e.g., AOAC, EN QuEChERS, and S19)
- Streamlining method development (crop grouping approaches, application of new technologies) using global guidelines
- Conducting freezer storage stability to meet global requirements
- Extraction efficiency testing using radiolabeled and cold reference substances
- Challenging residues analytical methods in unusual matrices (e.g. hops, coffee, beer, honey, etc.) or analytes with unique molecular properties

For further information, contact the organizers

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Characterizing Non-extractable Residues of Pesticides in Soil and Sediment: Challenges, Approaches, and Regulation

Purpose of Symposium

Characterizing the non-extractable residues (NERs) of pesticides in soil and sediment is challenging because of the difficulty to distinguish between unextracted and non-extractable residues through chemical extraction and the inability to identify bound compounds in NERs. NERs have thus become one of the major uncertainties in pesticide risk assessment and persistence evaluation under the regulatory context in Europe and North America.

The purpose of this symposium is to provide a forum to present research on the approaches for identifying bound compounds in non-extractable residues (NERs) of pesticides in soil and sediment, determining the binding mechanisms, and evaluating the ecotoxicity of bound chemical species. The goal is to explore the feasibility in characterizing the NERs and evaluating soil-health and environmental risk at a molecular level.

Researchers from academia, industries, and regulatory are welcome to submit their research and share insights to build a scientific foundation for the options to address NERs in pesticide risk assessment.

Suggested Topics

- Chemical extraction approach to characterize the NERs of pesticides in soil and sediment.
- Kinetic approaches to determine the source of NERs (parent vs. metabolites) or to identify bound compounds.
- NMR or other spectroscopic approaches to identify bound species and to determine binding mechanisms of pesticides or other emerging organic contaminants in soil and sediment.
- Laboratory and field studies to evaluate the release or leaching potential of bound species from NERs.
- Experimental approaches to evaluate ecotoxicity of NERs or bound species on soil organisms.
- Regulatory perspectives to address NERs in pesticide risk assessment and persistence evaluation.

For further information, contact the organizers

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Data Interpretation and Regulatory Acceptance of Terrestrial Field Dissipation Studies Conducted under OECD Guidance

Purpose of Symposium

Global regulatory guidance for the conduct of terrestrial field dissipation (TFD) studies has evolved within the last 15 years. The need to generate fit-for-purpose studies has increased. This symposium will focus on TFD studies conducted in accordance with the Organization for Economic Co-operation and Development (OECD) international guidance.

This symposium seeks to bring together international stakeholders involved in the conduct and/or evaluation of TFD studies. Novel study designs, optimized application and sampling approaches, result observations, data interpretation and regulatory acceptance of TFD studies conducted under the harmonized OECD guidance will be presented. 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

- Novel study designs e.g., radiolabeled studies or studies conducted outside of North America and Europe
- Approaches to optimize test substance application and recovery of analyte(s) from soil
- Observations and trends in bare-soil and cropped plot studies
- Hydrology assessments or other approaches to evaluate water balance
- Approaches to site selection and tools to define and compare ecoregions/site conditions in North America, Europe, and beyond
- Kinetics assessments performed on TFD study data
- Use of TFD data in groundwater modeling, environmental exposure, and/or risk characterization
- Regulatory acceptance of TFD studies

For further information, contact the organizers

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In Response to Call for Papers

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Endangered Species Pesticide Risk Modifiers: Effects, Exposure, and Species-Specific Considerations

Purpose of Symposium

Under Section 7 of the Endangered Species Act, federal agencies must consult with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (FWS) (collectively the Services) on any action that may affect species listed as endangered or threatened to ensure they do not jeopardize the species' continued existence. EPA's registration actions for pesticides are included in this requirement, however pesticide assessments pose significant challenges due to their scale and scope. EPA's standard ecological risk assessment forms the basis of the endangered species assessment and determining if risk to a species is possible. As risk, or "effect predictions," are applied to each species, EPA includes species attributes as risk modifiers when the species life history or habitat likely precludes exposure at the individual and/or population level.

As the Services consult on these determinations, additional risk modifier conditions may be applied to further inform the final species determinations and potential mitigation requirements. Understanding the suite of risk modifiers relevant for ESA pesticide consultations will help bring efficiency to the process and collaboration across Agencies and Stakeholder groups will further improve the assessment.

Pesticide registrants, users, regulatory and wildlife management agencies, and NGOs attending AGRO and ENVR sessions will have an interest in the program.

Suggested Topics

- Risk Modifier Categories: components of a risk modifier and how it can be applied to the consultation
- Effects Risk Modifiers: species sensitivity comparisons, surrogate species or physiological considerations
- Exposure Risk Modifiers: exposure assumption refinements for wide-ranging species, on/off-field designations
- Agronomic Risk Modifiers: crop specific conditions or management practices that affect non-target species and listed species interactions
- Species Risk Modifiers: additional species attributes that modify risk assumptions

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 distribution and fate in the environment. Spatial and temporal differences, fate process coupling and interaction, cultural practice implementation and changing climates add substantial variability to pesticide fate assessments. This symposium will improve knowledge and identify research needs to address this critically important topic. Results are expected to improve the accuracy and confidence in pesticide exposure and risk assessments, further enhancing their regulatory utility.

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.

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Suggested Topics

- Relating laboratory and field fate measurements
- Environmental monitoring study conduct and interpretation
- Novel laboratory or field fate study designs
- Bioavailability and bound residues investigation
- Novel kinetic descriptions of degradation pathways
- Regulatory relevance of modeling, monitoring, and environmental fate measurements
- Policy implications of modeling, monitoring, or environmental fate study results
- Measurement and modeling of exposure mitigation practice efficacy
- Environmental exposure assessment of precision agriculture technologies
- Utilization of geospatial techniques for fate evaluations

For further information, contact the organizers
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Growing Quality in Research through GLP Compliance

Purpose of Symposium

Good Laboratory Practice Standards (GLPS) set requirements for how studies supporting pesticide research and marketing permits are planned, conducted, reported, and archived. These requirements help assure regulatory agencies that the data submitted are a true reflection of the results obtained during the study and can therefore be relied upon when making risk or safety assessments.

The purpose of this symposium is to enhance research quality through effective implementation of Good Laboratory Practice Standards. Considering a proactive approach to quality, a cultural shift and commitment from all levels of an organization, viewing evolving technology as an ally, and continuous training are a few examples of growing quality captured in this symposium which is relevant to the typical audience at ACS (Study Directors, Principal Investigators, Study Personnel, and Quality Assurance auditors).

This symposium will be held in conjunction with the EPA-GLP Specialty Section of the Society of Quality Assurance (SQA)**.**

Suggested Topics

- Organization and Organizational Commitment
- Documentation
- Data Management
- GLP Training
- Archives
- Equipment Maintenance & Record Keeping
- SOPs
- Final Reports
- Evolving Technology

For further information, contact the organizers
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Identification of Environmental Metabolites - New Trends and Best Practices

Purpose of Symposium

Identification of major metabolites is a requirement for global agrochemical registration. This effort often requires identification of trace level metabolites in numerous guideline studies from complex environmental matrices. To address this challenge, the industry is developing and utilizing additional approaches to generate environmental metabolites. These techniques are typically employed early in the Discovery process to support the discovery and development of sustainable agricultural products. The alternative metabolite generation techniques typically include biotransformation by microbial collections, specific exogenously expressed enzyme systems, S9 cells, CYPs, plant cell suspensions, as well as forced degradation assays such as photolysis, hydrolysis, and electrochemistry.

The newest mass spectrometry instrumentation, data processing tools, and utilizing in-silico metabolite prediction models have provided better analyte selectivity, improved sensitivity, and higher throughput. Instruments incorporating accurate mass and high mass resolution capabilities significantly impact how these studies are performed. The purpose of this symposium is to create a forum for scientists from the industry, academia, and government agencies to share their latest research, strategies, and innovations for use of NAMs and advanced mass spectrometry based applications to identify metabolites of ag products.

Suggested Topics

- Use of high-resolution accurate mass (HRAM) instrumentation for metabolite identification
- In-silico tools and software applications for metabolite identification and structural elucidation
- Use of *New Approach Methodologies (NAMs)* to generate and identify environmental metabolites
- Early detection and identification of potentially persistent/toxic metabolites using NAMs
- High-throughput applications utilizing HRAM instrumentation
- Agricultural research and development applications of ion mobility mass spectrometry
- The use of Isotopic labeling of agrochemicals to assist in metabolite identification
- Analytical challenges and solutions including sample integrity, sample preparation, qualitative and quantitative analysis
- Targeted and non-targeted pesticide analyses
- Applications of MS-imaging in agricultural research and development

For further information, contact the organizers

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Increasing Importance of the USDA APHIS Permit to Set Up Research and Commercialization of Microbes in the US

Purpose of Symposium

A challenge for companies and academics interested in testing and commercializing microbial pesticides, plant nutritional products, and biostimulants, is the USDA APHIS permit. These are required for importation of microbial samples and commercial materials into the USA. As with any interface with a US government agency, there are technical requirements to substantiate safety and minimize risks of adverse release of foreign microbes.

We invite personnel from applicants, logistics experts, researchers, or reviewers to consider contributing to a topic that encompasses many technical areas that may not be familiar with our colleagues in the AGRO Division.

Suggested Topics

- How USDA assesses risk in the APHIS permitting process.
- What APHIS applicants need to have in hand to apply for a permit.
- Other procedures to consider when importing microbes into the USA.
- How field trials must be conducted and prepared.
- What researchers must provide to comply with an APHIS permit.

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Legacy and Leadership: Honoring Transformative Work in Insecticide Science & Environmental Chemistry

Purpose of Symposium

Agrochemicals play a crucial role in agricultural productivity, addressing the need to feed a growing global population while mitigating public health and veterinary diseases transmitted by arthropods. This special symposium will highlight recent advancements in insecticide toxicology, environmental chemistry, and the fate and effects of agrochemicals. The event honors Distinguished Professor Joel Coats, celebrating both his significant contributions to the field and his recent retirement from Iowa State University of Science and Technology. Colleagues, former lab members, and friends of Joel Coats will highlight and share insights in the areas of biopesticides, the environmental fate and remediation of agrochemicals, and insecticide mechanisms of action.

Suggested Topics

- Insecticide Toxicology
- Biopesticides
- Environmental chemistry
- Essential oils
- Mode of action
- Insecticide resistance
- Spatial repellents
- Agrochemical remediation
- New technologies for vector control
- Environmental fate and effects

For further information, contact the organizers

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Leveraging biological interactions for pest and pathogen management

Purpose of Symposium

Agricultural systems play a vital role in providing sufficient, nutritious food for a growing population, whilst minimising environmental impacts. Crops are exposed to a range of biotic stresses, including pests and pathogens, which can reduce both yield and quality. The effective management of pests and pathogens is therefore a critical challenge for global agriculture, and the maintenance of food security. There is a growing interest in sustainable, ecologically-based strategies that leverage biological interactions to manage pest and pathogen pressures. This symposium aims to explore the potential of harnessing natural relationships, such as plant-insect, plant-microbe, insect-microbe, predator-prey, host-pathogen, and plant-microbe interactions, to develop innovative, integrated pest management (IPM) solutions.

The symposium will highlight the research of scientists across academia, industry, and government. The aim of the symposium is to provide a way for researchers to build international networks, and develop research collaborations, to help address future challenges facing food security. The symposium welcomes participants from other ACS divisions, including AGFD, ANYL, BIOT, and ENVR.

Suggested Topics

- Beneficial insects for pest management
- Plant-insect, plant-microbe, plant-nematode, host-pathogen, plant-microbe interactions
- Chemical ecology
- Microbial biological control agents for pathogen management
- Biotic stress management
- Natural products for biological control of crop pests and pathogens in agricultural and forestry ecosystems

For further information, contact the organizers

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Navigating the Maze: Pesticide Registration Challenges in Modern US Agriculture

Purpose of Symposium

This symposium will explore the evolving landscape of pesticide regulation and agricultural innovation in the United States, addressing current challenges and future opportunities. We aim to foster dialogue among diverse stakeholders to develop strategies for a more efficient, sustainable, and innovative regulatory environment. The symposium will cover US regulatory frameworks and the balance between innovation and environmental stewardship. Key topics include the delayed registrations and the impact on US growers, legal challenges in the regulatory arena, economic considerations of regulatory processes, and emerging scientific issues like the need for refined exposure assessments, endangered species, antimicrobial resistance, revised endocrine disrupter screening program (EDSP), and Per- and Polyfluoroalkyl Substances (PFAS).

The symposium will feature expert presentations and panel discussion that brings together regulators, industry representatives, lawyers, researchers, growers, and environmental advocates. We'll explore case studies of various regulatory policy issues, discuss strategies to expedite the registration of pesticide products, and examine the impacts of science policies and delayed registrations confronting US growers. Through this collaborative approach, we aim to catalyze positive changes in the US regulatory landscape while fostering innovation for sustainable agricultural practices**.**

Other ACS Divisions that might be interested in this symposium: AGFD, CHAL, ENVR.

Suggested Topics

1. The Evolving Landscape of Pesticide Regulations in Modern Agriculture
2. Legal Landscape of Pesticide Registration: Challenges and Consequences
3. Regulatory Policy and Impacts on Growers and Other Stakeholders
4. Environmental Considerations in Pesticide Regulation
5. Emerging Scientific Challenges in Pesticide Regulation
6. Strategies for Improvement in Pesticide Regulatory Processes and Effective Advocacy
7. International Regulatory Perspectives and Importance of Risk Based Systems
8. The Role of Technology and Regulatory Innovation in Streamlining Pesticide Regulation
9. Stakeholder Collaboration to Improve Regulatory System
10. Data and information Technology to improve efficiency and transparency in regulatory workflow

For further information, contact the organizers

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Non-Targeted Analysis in Agrochemical and Biocides Research

Purpose of Symposium

This symposium will bring together scientists to discuss emerging trends, applications, and advances in non-targeted analysis (NTA). Special interest is given to presentations on workflow optimization for qualitative and quantitative non-targeted analysis as required for the recently issued ECHA/EFSA drinking water treatment guideline.

Presentations from other non-targeted analysis areas, such as “omics” research, will also be welcomed as there are many cross-discipline synergies. Other ACS divisions that may benefit from this symposium are ANYL, ENVR, and AGFD.

Suggested Topics

- Drinking Water
- Transformation Products
- Metabolomics and “omics” research
- Qualitative and Quantitative NTA
- Advanced software for qualitative and quantitative NTA
- Mass Spectrometry
- Suspect Screening
- High Throughput mass spectrometry
- Workflow Optimization
- *In silico* prediction

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Organic Process Research and Development

Purpose of Symposium

Process chemistry is a broad discipline that affects the development and long-term sustainability of fine chemicals including pharmaceuticals and agrochemicals. In recent years, many factors have impacted the industry such as supply-chain issues, increasing target synthetic complexity, new technologies, and ever-shrinking cost and development cycle targets. This symposium will showcase highlights from across the discipline and will encompass topics such as synthetic route design, methodology development, academic-industrial collaboration, and process optimization. This symposium will appeal to a wide range of chemists, spanning from academic investigators to industrial chemists interested in the synthesis of organic chemicals. This is the second iteration of this popular Symposium, which is intended to be held once per year.

This symposium is invitation only

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Peptides: New Tools in Crop Protection

Purpose of Symposium

Historically, peptides have had a role in inducing plant immune response for indirect antimicrobial and insecticidal protection. Recently, research and commercial activity on non-plant-encoded peptides have emerged with direct antimicrobial, antifungal and insecticidal efficacy. These active ingredients have excellent environmental and toxicological profiles. The symposium will highlight some of the leading examples in this emergent field.

Suggested Topics

- Antibacterial peptides
- Antifungal peptides
- Insecticidal peptides
- Manufacturing of peptides
- Mode of action of peptides

For further information, contact the organizers:

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Pesticide Regulation, Global Trade: US Leadership in Food Security

Session One – Data Focus

Session Two – Policy Focus

Purpose of Symposium

This symposium is a two-part session focused on data and policy for trading standards. The sessions will explore the intersection of pesticide risk assessment regulation, international trade, and food security, bringing together experts from academia, industry, and government agencies.

The morning session will focus on how data can be used to inform human health risks associated with agricultural pesticides and practices. The afternoon session will focus on leveraging existing data resources and regulatory frameworks to address challenges in the global agricultural trade landscape, with particular emphasis on Maximum Residue Limits (MRLs) and their impact on international commerce. By fostering dialogue on harmonizing regulatory approaches, promoting science-based decision-making, and enhancing food security while facilitating international trade, the symposium aims to identify practical solutions to pressing issues in global agriculture and food systems.

Discussions will highlight the importance of efforts between nations in creating robust yet accessible regulations to promote food security and international trade harmonization. Other ACS Divisions that might be interested: ANYL, ENVR, ORGN, or AGFD.

Suggested Topics

Session One – Data Focus

- Findings from major official monitoring programs
- Comparative analysis of human dietary risk assessment methodologies in the USA and globally
- The use of epidemiology or other human data in regulatory decision making and policy decisions
- The use of residue data to support predictive residue behavior
- Machine learning / predictive modeling / generative AI and its potential use in agriculture
- Crop Grouping systems, extrapolation, and enhancements

Session Two – Policy Focus

- CCPR and JMPR: ongoing activities and developments
- U.S. government efforts to facilitate trade of pesticide-treated crops, featuring insights from USDA Foreign Agricultural Service (FAS) and the Office of the U.S. Trade Representative (USTR). EPA and FDA's contributions to international trade standards harmonization
- Updates on Codex, OECD and WTO and the potential impact on food trade
- Utilization of the USDA Pesticide Data Program (PDP) and Global Agricultural Trade System (GATS) data to ease MRL-related trade issues
- Status and trends of EU-MRLs and EFSA's role in shaping pesticide policies.
- FAO's pesticide registration toolkit and minor use programs and the relevance to developing countries, including principles of extrapolation and connections to the Codex classification system.

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Pesticide Use in Non-agricultural Sector - Regulatory Trends and Sustainable Innovations

Purpose of Symposium

Controlling exposure to pests has always been a priority for consumers and workers in the non-agricultural space because of concern about the ability of insects, rodents, weeds, and other disruptive pests to transmit diseases in places such as homes and undeveloped landscapes. Non-agricultural pesticides use many of the same ingredients as agricultural products and the regulations and trends for agriculture have a significant impact on the non-agricultural sector. Growing concern about potential negative effects of pesticide ingredients on the environment and non-target organisms, including humans, as well as an increase in resistance, has created a need to identify alternative solutions that are targeted to a specific pest, do not harm humans, and do not contribute to pesticide resistance. This symposium will seek to showcase innovative solutions such as novel application technologies, packaging formats, ingredients, and systemic approaches to pest management that meet stringent regulatory requirements, lower consumer exposure, and reduce waste. It will also create a dialogue around specific opportunities to address unmet industry needs to drive the creation of products with enhanced human health and environmental performance and future opportunities for collaboration. This symposium will be of interest to ingredient manufacturers, formulators, packagers, and federal and state regulatory agencies.

Suggested Topics

- Environmental fate and exposure assessment (non-agricultural uses)
- Volatile Organic Compound (VOC)/California Air Resources Board (CARB) reformulation, transition to Maximum Incremental Reactivity (MIR)
- Endangered Species Act (ESA) impact on residential uses
- Efficacy and related labeling claims
- Public health protection
- Development of new application technologies
- Sustainable products and green chemistry
- Climate change, carbon footprint
- Microplastics
- Rodenticides

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Precision Application of Agricultural Pesticides

Purpose of Symposium

Precision application of pesticides is gaining broad attention in North America and globally as environmental, societal, and business demands increase the pressure on farming and its potential impacts. Precision application falls under the broader umbrella of Precision Agriculture, a field leveraging location-specific data to enhance agricultural efficiency, leading to improved and tailored productivity, quality, profitability, and sustainability. Precision application includes several methods of application, and many definitions are used to describe these methods, from targeted, spot, patch, or banded applications to the intelligent identification of specific pests and/or crop area and subsequent real-time spraying. The key common characteristic of these applications is a less-than-broadcast treatment approach for herbicides, fungicides, insecticides, and/or other agricultural product applications. This ultimately can result in applications with the right product, at the right time, in the right amount, and in the right place.

Due to the interdisciplinary nature of Precision Application, many stakeholders are separately active in this space, from governmental bodies (regulatory and research sectors), the pesticide industry, academia, equipment manufacturers, and farming associations. This symposium aims to encourage cross pollination of knowledge of the technology and collaboration among various stakeholders.

Suggested Topics

- Current technology overview of precision application devices/systems/approaches
- Key equipment technology cornerstones that determine performance outcomes of precision application systems
- Evaluation of the performance of precision application systems with respect to efficacy, off-target spray drift, operator exposure, etc.
- Considerations for changes in chemistry research & development involving precision application
- Demonstration of data linking to clear societal and environmental benefits of precision application approaches
- Regulatory risk assessment and possibilities for incorporating precision application into risk mitigation strategies, label language, and policies (for example the Sustainable Use Regulation and the Endangered Species Act)
- Regulatory aspects, including permitting, labeling, consideration of drift-reducing technology, and best management practices
- Digital farming approaches including precision application
- Obstacles, opportunities, and approaches for grower adoption and training of precision application approaches

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Protection of Agricultural Productivity, Public Health, and the Environment (General Poster 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 Poster 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
- Biorational 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
- 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)

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Symposium Proposal
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Refined Risk Assessment and Implementation of Pesticide Mitigation Practices for Species Protection

Purpose of Symposium

In recent years, the United States Environmental Protection Agency (USEPA) has released the 'Strategy' documents for assessment of pesticides under the Endangered Species Act (ESA). According to these strategy documents, when EPA identifies potential for population-level impacts to endangered species and their critical habitats, growers are required to adopt mitigation practices to reduce off-site movement of pesticides via spray drift and runoff/erosion. However, identifying the necessary mitigation practices and their locations is challenging. This is due to the massive and evolving environmental, agronomic, and species geospatial data, the complexity of farm-level operations and agro-environmental conditions, and the difficulty in effectively communicating mitigation options and their spatial extent to growers on pesticide labels.

This symposium aims to identify enhancements to the risk assessment and mitigation process, suggest refinement approaches, and present options for communication and implementation in real-world agriculture. The latter discussion will highlight digital tools that help growers identify necessary points and meet real-world application requirements. The symposium welcomes attendance and participation from other ACS Divisions including AGFD and ENVR.

Suggested Topics

- Refined exposure modeling for the development of more realistic risk assessments and/or effective risk mitigations relevant to species of concern
- Spray drift field data, modeling and mitigations
- Indirect effects assessment – is there a better way?
- Better utilization of usage data in ESA assessments
- Bulletins Live! Two for communicating ESA compliance information to growers
- Mitigation relief points evaluation at field scale
- Tools for runoff/erosion mitigation practice selection and tracking
- Focus of conservation programs on areas of the country receiving no/little mitigation relief points
- Real-world hurdles for grower compliance with mitigation point system created in the strategy documents, along with suggested solutions

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Surrogates and Extrapolation among Species in Arthropodan Pollinator Exposure and Effects Assessment

Purpose of Symposium

Reliance on surrogates (*e.g.*, species; exposure models) is a necessary practicality of toxicology and regulatory risk assessment; however, extrapolating from the few to the many has uncertainty, particularly regarding the extent to which those estimates are protective. This symposium will include conceptual frameworks and methodologies for ensuring that regulatory tools for assessing the likelihood of adverse effects from exposure to pesticides are suitably protective for non-target arthropods.

Methodologies founded on biological, behavioral and ecological arguments, genomic and other 'omic' approaches and modeling methods for extending the regulatory utility of experimental exposure and/or effects data are of interest for this symposium. We ask: "What tools can be used to make the risk assessment process more inclusive and quantitative?" Other ACS Divisions that might be interested include ANYL and ENVR.

Suggested Topics

- Methods for measuring the potential exposure of arthropod pollinators to pesticides under conditions of use of these products.
- Methods for measuring the potential effects of pesticides on non-target arthropods (*e.g.*, insect pollinators) to pesticides under conditions of use of these products.
- Modeling approaches to estimating exposure and effects.
- Species sensitivity distributions.
- Genomic or other 'omic' approaches to comparing sensitivity among species.
- Ring – test validation of standard methods.
- Interspecies comparisons based on detailed descriptions of life history, behavior and plant-pollinator relationships.
- Establishing quantitative linkages between measurement endpoints and apical assessment endpoints of regulatory interest.
- Evaluations of taxonomic and/or chemical domains.

For further information, contact the organizers

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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 the latest developments 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 Environmental Chemistry (ENVR) and Analytical Chemistry (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, field residue, etc.
- UAS integration with generative AI
- 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.)

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Water Monitoring Study Design and Interpretation for Agrochemical Exposure Assessment

Purpose of Symposium

This symposium will cover the latest advancements in monitoring designs and data collection techniques to improve the quality of exposure assessments and meet regulatory needs. Adaptations of monitoring programs for different types of water bodies will be covered. Designs and assessments addressing human exposure, aquatic organism exposure and ecosystem health are encouraged. A special emphasis will be on strategies to generate monitoring data that improves the reliability of its use for exposure predictions in regulatory contexts. Lessons learned from monitoring that support improvements in chemical fate and transport modeling will also be emphasized. Informing and validating spatial and probabilistic exposure methods with monitoring data will be discussed. Different monitoring needs and objectives in different regulatory contexts across the world will also be presented.

Other ACS divisions that may benefit from this symposium are ENVR, AGFD and TOXI.

Suggested Topics

- Defining the question and the need(s)
- Optimizing monitoring design for reliable data interpretation
- Temporal and spatial sampling strategies for exposure assessment from groundwater and surface waters
- Analytical strategies and dealing with censored data
- Overcoming challenges to probabilistic exposure assessment
- Combining monitoring and modeling results to spatially develop mitigation strategies for groundwater or surface waters
- Learning from monitoring to improve understanding of exposure modeling for (1) human health and (2) ecological effect determinations
- Fulfilling regulatory needs in different jurisdictions

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