
75th Meeting

**WESTERN
SOCIETY
OF
WEED SCIENCE**

March 7-10, 2022

**Hyatt Regency
Newport Beach, California**



**WESTERN SOCIETY OF WEED SCIENCE
OFFICERS AND BOARD OF DIRECTORS
2021-2022**

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Sheridan, WY	Cushing, OK 74023
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JCrose@uwyo.edu	GFlusche@okstate.edu



Welcome to Newport Beach, California!

Welcome to the 75th annual WSWS meeting in Newport Beach, California. The Program Committee, Local Arrangements Committee, and the staff of the Hyatt Regency, Newport Beach have worked together to arrange what should be a great meeting. We hope you enjoy the meeting, take the opportunity to catch up with old friends, make some new friends, and come away with renewed energy and new ideas. The Program and Local Arrangements Committees wish everyone a successful and productive meeting.

**LOCAL ARRANGEMENTS COMMITTEE
MEMBERS**

**Sonia Rios, Chair
George Newberry/Albert Adjesiwor
Eric Westra**

PROGRAM COMMITTEE MEMBERS

**Joel Felix, Chair
Judith Barroso
Carl Coburn**



Contest

WSWS 2022 PROGRAM AT A GLANCE


Tuesday, March 8, 2022


 **Poster Session 7:15 – 9:00 am**
Authors of Odd Numbered Posters Present Plaza Arbor

General Session 9:15 – 12:00 pm Plaza I & II


Student Luncheon 12:00 – 1:00 pm Garden

Plaza Arbor	Plaza I & II	Plaza III	Patio Room
Poster Room Open 7:00 to 5:00 pm	Weeds of Agronomic Crops 1:15 to 5:00 pm	Weeds of Range, Forest, and Natural Areas 1:15 to 5:00 pm	Symposium: <i>New Technology for Physical Weed Control</i> 1:00 to 5:00 pm

 **BREAK – 3:00 to 3:15 pm Plaza Arbor Foyer**

 **Student Reception 5:00 – 6:30 pm Garden**


Wednesday, March 9, 2022

 **Poster Session 7:15 – 9:00 am**
Authors of Even Numbered Posters Present Plaza Arbor

Plaza Arbor	Plaza I	Plaza II	Plaza III
Poster Room Open 7:00 am to 5:00 pm	Weeds of Agronomic Crops 9:15 to 11:15 am	Basic Biology and Ecology 9:15 – 11:15 am	Weeds of Horticultural Crops 9:15 – 11:15 am

**WSWS Awards Luncheon 11:30 am – 1:30 pm
Amphitheater**

Plaza Arbor	Plaza I	Plaza II	Plaza III
Poster Room Open 7:00 am to 5:00 pm	Weeds of Agronomic Crops 1:45 pm to 3:15 pm	Education and Regulatory 1:45 pm to 3:00 pm	Weeds of Horticultural Crops Papers and Discussion 1:45 pm to 2:15 pm

 **BREAK – 3:15 to 3:30 pm Plaza Arbor Foyer**

<u>Please remove posters by 5:00 pm</u>	Weeds of Agronomic Crops 3:30 pm to 4:30 pm	Basic Biology and Ecology Discussion 3:30 pm to 4:45 pm	Weeds of Horticultural Crops Discussion 3:30 pm to 4:45 pm
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Education & Regulatory Discussion Session 3:30-5:45 PM **Pacific Room**

What's New in Industry 5:00 pm – 6:15 pm Plaza I

Student Night Out 6:30 pm

Thursday, March 10

 **WSWS Business Meeting Breakfast and Student Awards**

6:30 – 9:15 am Amphitheater

Plaza II	Plaza I	Plaza II	Plaza III
<u>Workshop</u> <i>Weeds and Wildfires in the West</i> 1:00 pm to 5:30 pm	Weeds of Agronomic Crops Discussion 9:30 am to 12:00 pm	Weeds of Range, Forests, and Open Areas Papers and Discussion 9:30 am to 12:00 pm	Teaching and Technology Transfer Papers and Discussion 9:30 am to 12:00 pm

**WSWS SPECIAL EVENTS – MONDAY
MARCH 7**

12:00 pm to 5:00 pm	Board of Directors Meeting Palm Room
3:00 pm to 5:00 pm	WERA-77 Meeting Patio Room
4:00 pm to 6:00 pm	Registration Plaza Arbor Foyer
5:00 pm to 11:00 pm	Poster Display Set-Up Plaza Arbor
5:00 pm to 11:00 pm	Sustaining Members Displays Plaza Arbor Foyer
7:00 pm to 11:00 pm	Presentation Practice Room Patio Room
6:00 pm to 9:00 pm	WSWS Members Welcome Reception Amphitheater

*Y Sponsored by Corteva, Valent
U.S.A., and WSWS*

**WSWS SPECIAL EVENTS – TUESDAY
MARCH 8**

7:00 am to 4:00 pm	Registration Plaza Arbor Foyer
7:00 am to 5:00 pm	Poster Displays Plaza Arbor
7:15 am to 5:00 pm	Sustaining Members Displays Plaza Arbor Foyer
7:15 am to 9:00 am	Poster Session – Authors of Odd Numbered Posters Present Plaza Arbor ☛ Sponsored by FMC
8:00 am to 5:00 pm	WSWS New Member Orientation – Eric Gustafson, WSWS- Business Manager Pacific Room
8:00 am to 5:00 pm	Presentation Practice Room Palm Room
9:15 am to 12:00 pm	General Session Plaza I & II
12:00 pm to 1:00 pm	Student Luncheon Garden Sponsored by Bayer
1:00 pm to 5:00 pm	Symposium: New Technology for Physical Weed Control Patio Room
3:00 pm to 3:15 pm	☛ Break - Sponsored by GOWAN
5:00 pm to 6:30 pm	☛ Student Reception Garden Sponsored by Syngenta

**WSWS SPECIAL EVENTS –
WEDNESDAY MARCH 9**

7:00 am to 4:00 pm	Registration Plaza Arbor
7:00 am to 5:00 pm	Presentation Practice Room Palm Room
7:15 am to 5:00 pm	Poster Displays Remove Posters by 5:00 pm Plaza Arbor
7:15 am to 5:00 pm	Sustaining Members Displays Remove Between 5 and 7 pm Plaza Arbor Foyer
7:15 am to 9:00 am	Poster Session – Authors of Even Numbered Posters Present Plaza Arbor
9:00 am to 9:15 am	☛ <i>Sponsored by WinField United</i>
9:00 am to 9:30 am	WSWS New Officer Orientation – Eric Gustafson, WSWS-Business Manager Lido Room

**All Members are Invited to
Learn About Duties and Responsibilities**

11:30 am to 1:15 pm	☉ Awards Luncheon Amphitheater
3:15 pm to 3:30 pm	☛ Break – <i>Sponsored by UPL-Ltd</i>
5:00 am to 6:15 pm	What's New in Industry Plaza I
6:30 pm	Student Night Out

**WSWS SPECIAL EVENTS –
THURSDAY MARCH 10**

6:30 am to 9:15 am	WSWS Business Breakfast Amphitheater ● <i>Sponsored by BASF, Campbell Scientific, and WSWS</i>
8:00 am to 10:00 am	Registration Plaza Arbor Foyer
11:45 am to 3:00 pm	Board of Directors Wrap-Up Meeting and Summer Meeting Planning Palm Room
	Out-Going and Incoming Officers and Committee Chairs Requested to Attend
1:00 pm to 5:30 pm	Workshop: Weeds and Wildfires in the West Plaza I

PROGRAM

TUESDAY MORNING MARCH 8

LOCATION: Plaza Arbor
TIME: 7:30 AM - 5:00 PM

WSWS Committee Informational Posters

Necrology: WSWS Member Remembrance 2022. Ryan Rapp*, Bayer, Chair

WSWS History Poster. Vanelle Peterson*, Past President 2011-2012, Chair

Diversity and Inclusion Committee. Elizabeth G. Mosqueda*, Madera Community College, Chair

Public Relations Committee. Breanne Tidemann*, Agriculture and Agri-Food Canada, Chair

Revised Herbicide Mode of Action Classification. Caio Brunharo, Tom Barber, Jason Bond, Jim Brosnan, Joan Campbell, Charles Geddes, Neha Rana, Daniel Stephenson, Nithya Subramanian, Muthu Bagavathiannan; Weed Science Society of America Herbicide Resistant Plants Committee

Posters - Weeds of Agronomic Crops

*PRESENTER † STUDENT POSTER CONTEST

Burndown Herbicide Options for Dormant Alfalfa. Earl Creech*, Corey V. Ransom; Utah State University, Logan, UT (1)

†**Control of Acetolactate Synthase (ALS)-resistant Palmer Amaranth with Sequential PRE/POST Applications of dimethenamid-P in Dry Bean.** Joshua W.A. Miranda*¹, Amit J. Jhala², Jeff Bradshaw³, Nevin Lawrence³; ¹Oregon State University, Corvallis, OR, ²University of Nebraska-Lincoln, Lincoln, NE, ³University of Nebraska-Lincoln, Scottsbluff, NE (2)

Blackeye Bean Selectivity to Broadleaf POST-applied Herbicides in CA. Jose Luiz Carvalho de Souza Dias*¹, Rachel Long²; ¹University of Arizona, Maricopa, AZ, ²University of California Cooperative and Extension, Davis, CA (3)

Pinto Bean Response to Preplant Dicamba. Greg Endres*¹, Joseph T. Ikley², Brian Jenks³, Mike Ostlie¹, Nathan H. Haugrud²; ¹North Dakota State University, Carrington, ND, ²North Dakota State University, Fargo, ND, ³North Dakota State University, Minot, ND (4)

†Split-Residual Herbicide Treatments for Late-Season Weed Control in Dry Bean. Tyler C. Hicks*¹, Andrew R. Kniss², David A. Claypool²; ¹University of Wyoming, Powell, WY, ²University of Wyoming, Laramie, WY (5)

Control of Downy Brome and Feral Rye with Aggressor (Quizalofop-p-ethyl) in CoAXium Wheat. Judit Barroso*¹, Jennifer A. Gourlie¹, Victor H. Ribeiro²; ¹Oregon State University, Adams, OR, ²Oregon State University, Corvallis, OR (6)

†Understanding Water Utilization in Irrigated Spring Wheat and by Inter-seeded Cover Crop, Dynamite Red Clover. Dani Thiemann*¹, Corey V. Ransom², Earl Creech²; ¹Utah State University, Nibley, UT, ²Utah State University, Logan, UT (7)

Timing of Cover Crop Termination Effect on Sugarbeet Yield. Jenna Meeks*; University of Wyoming, Torrington, WY (8)

†Barley Cover Crop Termination Date Affects Weed Suppression in Chile Peppers. Kylie M. Gallegos*; New Mexico State University, Las Cruces, NM (9)

Structured PRE and POST Programs for Crop Tolerance and Weed Control in Industrial Hemp. Stevan Knezevic*; University of Nebraska-Lincoln, Concord, NE (10)

Exploratory PRE and POST Treatments for Crop Tolerance in Industrial Hemp. Stevan Knezevic*; University of Nebraska-Lincoln, Concord, NE (11)

†Industrial Hemp Biomass Negatively Affected by Herbicide Drift from Corn and Soybean Herbicides. Milos Zanic*¹, Bruno Canella Vieira¹, Barbara Vukoja¹, Greg Kruger¹, Kelly W. Bruns¹, Sam E. Wortman²; ¹University of Nebraska-Lincoln, North Platte, NE, ²University of Nebraska-Lincoln, Lincoln, NE (12)

Rescue Herbicide Treatments for Palmer Amaranth Control in Grain Sorghum. Rui Liu*¹, Vipin Kumar¹, Sachin Dhanda¹, Monica R. Marrs², Taylor Lambert¹; ¹Kansas State University, Hays, KS, ²Kansas State University, Manhattan, KS (13)

†Multiple Herbicide-Resistant Kochia in the Southcentral Great Plains: Field Survey and Management. Sachin Dhanda*¹, Vipin Kumar¹, Rui Liu¹, Misha R. Manuchehri², Muthukumar V. Bagavathiannan³, Phillip Stahlman¹; ¹Kansas State University, Hays, KS, ²Oklahoma State University, Stillwater, OK, ³Texas A&M University, College Station, TX (14)

†**Tracking Herbicide-Resistant Weeds in California Rice Through a Community-Driven Approach.** Aaron Becerra-Alvarez*, Kassim Al-Khatib; University of California, Davis, CA (15)

†**Performance of a New Broad-Spectrum Herbicide in California Rice: Weed Control and Rice Response to Pyraclonil.** Sarah L. Marsh*, Aaron Becerra-Alvarez, Alex R. Ceseski, Saul Estrada, Kassim Al-Khatib; University of California, Davis, CA (16)

California Weedy Rice Populations Response to Clethodim. Rasim Unan*, Liberty B. Galvin, Kassim Al-Khatib; University of California, Davis, CA (17)

†**A Cost Benefit Analysis of Crop Rotations in California Rice Systems.** Sara E. Rosenberg*¹, Whitney Brim-DeForest², Bruce Linqvist¹, Luis Espino³, Kassim Al-Khatib¹, Michelle M. Leinfelder-Miles⁴, Cameron M. Pittelkow¹; ¹University of California, Davis, CA, ²University of California Cooperative Extension, Yuba City, CA, ³University of California Cooperative Extension, Oroville, CA, ⁴University of California Cooperative Extension, Stockton, CA (18)

Field Disturbance and Greenhouse Irrigation Timing Effects on Italian Ryegrass Control with Pyroxasulfone. Traci A. Rauch*, Joan M. Campbell; University of Idaho, Moscow, ID (19)

Acifluorfen Provides Selective Weed Control in Sugarbeet. Nevin Lawrence*¹, Andrew R. Kniss²; ¹University of Nebraska-Lincoln, Scottsbluff, NE, ²University of Wyoming, Laramie, WY (20)

Acifluorfen Does Not Provide Selective Weed Control in Sugarbeet. Andrew R. Kniss*¹, Nevin Lawrence²; ¹University of Wyoming, Laramie, WY, ²University of Nebraska-Lincoln, Scottsbluff, NE (21)

Herbicide Programs for Pre-plant Weed Control in Wheat and Barley. Chandra L. Montgomery¹, Albert T. Adjesiwo*², Jared A. Spackman³; ¹University of Idaho, Moscow, ID, ²University of Idaho, Kimberly, ID, ³University of Idaho, Aberdeen, ID (22)

Postemergence Herbicide Combinations for Weed Control in Spring Wheat in ND. Daniel Guimaraes Abe*, Caleb D. Dalley; North Dakota State University, Hettinger, ND (23)

†**Herbicide Resistance in Downy Brome from Fescue Fields in Oregon.** Victor H. Ribeiro*¹, Caio A. Brunharo¹, Carol Mallory-Smith¹, Darrin Walenta²; ¹Oregon State University, Corvallis, OR, ²Oregon State University, La Grande, OR (24)

†**Survey of ALS Resistance in Winter Wheat Identifies Target-site Imazamox Resistance in *Secale cereale*.** André Lucas Simões Araujo*¹, Neeta Soni², Eric P. Westra¹, Camila Ferreira de Pinho³, Sarah Morran¹, Giuseppe Allegretta⁴, Jens Lerchl⁴, Philip Westra¹, Franck E. Dayan¹, Todd A. Gaines¹; ¹Colorado State University, Fort Collins, CO, ²Corteva Agriscience, Indianapolis, IN, ³Universidade Federal Rural do Rio de Janeiro, Seropédica, Brazil, ⁴BASF, Limburgerhof, Germany (25)

Feral Rye (*Secale cereale*) Control with ACCase Tolerant Wheat in Colorado. Eric P. Westra*¹, Todd A. Gaines¹, Chad Shelton²; ¹Colorado State University, Fort Collins, CO, ²Albaugh, Rosalia, WA (26)

†**Efficacy of Delayed Preemergence Herbicides in Various Winter Wheat Tillage Systems.** Hannah C. Lindell*¹, Caitlyn Carnahan¹, Grace F. Flusche Ogden¹, Misha R. Manuchehri¹, Jason G. Warren¹, Lane S. Newlin¹, Justin T. Childers²; ¹Oklahoma State University, Stillwater, OK, ²Oklahoma State University, Marlow, OK (27)

Feral Rye Control with Imazamox and Quizalofop-p-ethyl. Rui Liu*¹, Vipin Kumar¹, Sachin Dhanda¹, Monica R. Marrs², Taylor Lambert¹; ¹Kansas State University, Hays, KS, ²Kansas State University, Manhattan, KS (28)

Posters - Basic Biology and Ecology

***PRESENTER † STUDENT POSTER CONTEST**

†**Exploring Herbicide Resistance Patterns to Synthetic Auxin Herbicides with Innovative Molecular Tools.** Sofia Marques-Hill*¹, Mahima Krishnan², Christopher Preston³, Chad Sayer⁴, Franck E. Dayan¹, Todd A. Gaines¹; ¹Colorado State University, Fort Collins, CO, ²University of Adelaide, Adelaide, Australia, ³University of Adelaide, Glen Osmond, Australia, ⁴NuFarm Australia, Melbourne, Australia (29)

†**Seed Shattering Phenology of Problematic Weed Species in Cereal-based Cropping Systems in Northern Great Plains.** Het S. Desai*; Montana State University, Bozeman, MT (30)

†**Glyphosate Induced Phytohormone Response in Rapid Necrosis Biotype of Giant Ragweed.** Crystal D. Sparks*¹, Christopher Van Horn², Roland S. Beffa³, Franck E. Dayan¹, Philip Westra¹, Todd A. Gaines¹; ¹Colorado State University, Fort Collins, CO, ²Bayer CropScience, O'Fallon, MO, ³Senior Scientist Consultant, Frankfurt, Germany (31)

Poster - Education and Regulatory

***PRESENTER † STUDENT POSTER CONTEST**

Evaluating Noxious Weed Control and Vegetative Community Response Using a Standardized Monitoring Protocol. Jane Mangold*, Lisa J. Rew; Montana State University, Bozeman, MT (32)

Posters - Weeds of Horticultural Crops

***PRESENTER † STUDENT POSTER CONTEST**

Hop Tolerance to Tiafenacil. Ryan J. Hill*, David R. King, Marcelo L. Moretti; Oregon State University, Corvallis, OR (33)

Performance of Florpyrauxifen-Benzyl in High Bush Blueberry. David R. King*, Ryan J. Hill, Marcelo L. Moretti; Oregon State University, Corvallis, OR (34)

Hazelnut Tolerance to Pyroxasulfone, Pronamide, and S-metolachlor. Rafael M. Pedroso*¹, Marcelo L. Moretti²; ¹Oregon State University, Philomath, OR, ²Oregon State University, Corvallis, OR (35)

European Hazelnuts Tolerance to Clopyralid and Quinclorac Basal-Directed Applications. Rafael M. Pedroso*¹, Marcelo L. Moretti²; ¹Oregon State University, Philomath, OR, ²Oregon State University, Corvallis, OR (36)

†Use of Preemergence Herbicides in California Orchard and Vineyard Systems. Andres Contreras*, Brad Hanson; University of California, Davis, CA (37)

Greenhouse Studies Comparing Imazosulfuron Against Commonly Used Herbicides for Yellow Nutsedge Control in Chile Pepper. Andea Nunez, Edward Morris, Brian J. Schutte*; New Mexico State University, Las Cruces, NM (38)

†Hazelnut Crop Safety Using Electric Weed Control. James R. Wirth*¹, Rafael M. Pedroso², Marcelo L. Moretti¹; ¹Oregon State University, Corvallis, OR, ²Oregon State University, Philomath, OR (39)

Cover Crops for Weed Suppression in Irrigated Crops of the Arid Southwest. Erik A. Lehnhoff*¹, Prashasti Agarwal², Robert L. Steiner¹, Brian J. Schutte¹; ¹New Mexico State University, Las Cruces, NM, ²Virginia Polytechnical, Blacksburg, VA (40)

Effect of Adjuvant and Tankmix on Garlic Tolerance to Bicyclopyrone. Ed Peachey*¹, Stephen M. Schraer², Andrew Nagy¹; ¹Oregon State University, Corvallis, OR, ²Syngenta Crop Protection, Meridian, ID (41)

Liberty Link Sweet Corn Tolerance to Sinate and Other Herbicides. Ed Peachey*¹, Richard K. Zollinger², Andrew Nagy¹; ¹Oregon State University, Corvallis, OR, ²Amvac Chemical Company, Spokane Valley, WA (42)

Pendimethalin Applications to Seeded Onion: Grower Field or University Ground - Does it Matter? Avery Shikanai, Harlene M. Hatterman-Valenti*; North Dakota State University, Fargo, ND (43)

Posters - Teaching and Technology Transfer

***PRESENTER**

Macro Photography of Weeds: Update. Robert F. Norris*; University of California, Davis, CA (44)

There and Back Again: A Look at North Dakota Weed Control Research Over 50 Years. Stephanie DeSimini*, Kirk A. Howatt, Joseph T. Ikley; North Dakota State University, Fargo, ND (45)

Posters - Weeds of Range, Forest, and Natural Areas

***PRESENTER † STUDENT POSTER CONTEST**

2021 Survey Results for the Most Common and Troublesome Weeds in Aquatic and Non-Crop Areas. Lee Van Wyche*¹, Devon E. Carroll², Rebecca Champagne³; ¹Weed Science Society of America, Alexandria, VA, ²The University of Tennessee, Knoxville, TN, ³The University of Maine, Orono, ME (46)

Long-term *Halogeton glomeratus* Control with Indaziflam in Moffat County, CO US. Jacob Courkamp*¹, Paul J. Meiman²; ¹Colorado State University, Fort Collins, CO, ²University of Nevada-Reno, Department of Agriculture, Veterinary, and Rangeland Sciences, Elko, NV (47)

†Evaluation of Tiafenacil Tank-mixed with Glufosinate for Control of Annual and Perennial Weeds in California. Guelta Laguerre*, Brad Hanson; University of California, Davis, CA (48)

†Sagebrush Tolerance at Various Growth Stages to Four Annual Grass Herbicides. Jodie A. Crose*, Brian A. Meador; University of Wyoming, Sheridan, WY (49)

†Fluctuations in Precipitation as a Driver of Response to Invasive Annual Grass Management. Peter W. Maughan*¹, Corey V. Ransom¹, Hailey L. Buell¹, Harry Quicke²; ¹Utah State University, Logan, UT, ²Bayer CropScience, Windsor, CO (50)

†**Targeting Different Life Stages of Dyer's Woad with Various Herbicides and Timings.** Erin M. Hettinger*¹, Corey V. Ransom¹, Tom Monaco²; ¹Utah State University, Logan, UT, ²USDA- ARS, Logan, UT (51)

Comparison of Visual Estimation and Line Point Intercept Vegetation Survey Methods on Annual Grass-invaded Rangelands of Wyoming. Andrea De Stefano*, Beth Fowers, Brian A. Mealor; University of Wyoming, Sheridan, WY (52)

Chlorsulfuron Ineffective for Controlling Perennial Pepperweed Population in Sierra Valley. Thomas J. Getts*; University of California Cooperative Extension, Susanville, CA (53)

†**Identification, Distribution, and Management of Elongated Mustard.** Natalie L. Fronk*, Corey V. Ransom; Utah State University, Logan, UT (54)

†**Genome Wide Scan for ALS Resistance in *Bromus tectorum*.** Mariana F. B. Amaral*, Samuel R. Revolinski, Ian C. Burke, Marija Savic; Washington State University, Pullman, WA (55)

Intact Endothall Translocates to the Roots of Aquatic Plants: Providing Evidence of Systemic Activity. Mirella F. Ortiz*¹, Scott J. Nissen¹, Cody J. Gray²; ¹Colorado State University, Fort Collins, CO, ²United Phosphorus, INC., Peyton, CO (56)

Undergraduate Posters

*PRESENTER † STUDENT POSTER CONTEST

†**Adaptive Trait Variation and Evolution of Increased Competitive Ability in Native Perennial and Invasive Annual Grasses.** Courtney R. Malmberg*¹, Dr. Jeremy James¹, and Dr. Roger Sheley²; Cal Poly, San Luis Obispo, CA¹, USDA-ARS Burns, OR² (57)

†**Cross-resistance of *Conyza* spp. to Auxinic Herbicides.** Rafaela Cinelli¹, Felipe Bagnara*², Alisson M. Hahn³, Michelangelo M. Trezzi⁴, Augusto Kalsing⁵, Anderson L. Nunes⁶; ¹Universidade Tecnológica Federal do Paraná - Campus Pato Branco, Passo Fundo, Brazil, ²Colorado State University, Fort Collins, CO, ³Instituto Federal de Educação Ciência e Tecnologia do Rio Grande do Sul - Campus Sertão, Sertão, Brazil, ⁴Universidade Tecnológica Federal do Paraná - Campus Pato Branco, Pato Branco, Brazil, ⁵Corteva Agriscience, Primavera Do Leste, Brazil, ⁶Instituto Federal de Educação Ciência e Tecnologia do Rio Grande do Sul - Campus Sertão, Getúlio Vargas, Brazil (58)

Evaluating the Shade Avoidance Response of Mouse-Ear Cress Across Time Intervals. Walker T. Billings*, Joe G. Ballenger; University of Wyoming, Laramie, WY (59)

†**California Weedy Rice Germination at Various Temperatures.** Maya T. DeLong*, Liberty B. Galvin, Kassim Al-Khatib; University of California, Davis, CA (60)

TUESDAY MORNING MARCH 8

New WSWS New Member Orientation

LOCATION: Pacific Room
TIME: 8:00 AM - 9:00 AM
MODERATOR: Eric Gustafson
IMI
Westminster, CO

TUESDAY MORNING MARCH 8

General Session

LOCATION: Plaza I & II
TIME: 9:15 AM – 12:00 PM
MODERATOR: Joel Felix
Oregon State University
Ontario, OR

***SPEAKER**

9:15 Introductions and Announcements. Joel Felix*; Oregon State University, Ontario, OR

9:25 Presidential Address. Sandra K. McDonald*; Mountain West PEST, Fort Collins, CO

9:45 WSWS History: Building on the Past for the Future. Vanelle F. Peterson*¹, Rod G. Lym², Philip A. Banks*³, Don W. Morishita⁴; ¹President 2011-2012, ²President 1997-1998, ³President 2004-2005, ⁴President 1999-2000

10:00 A Future Shaped by Our Past I: Teaching Weed Science in the West. Andrew Kniss*; University of Wyoming, Laramie, WY

10:25 A Future Shaped by Our Past II: Research and Extension in the West. Jane Mangold*; Montana State University, Bozeman, MT

10:50 DC Update. Lee Van Wychen*; WSSA - Executive Director of Science Policy, Alexandria, VA

11:25 Automated Weeding. Steven Snyder*; Chief Technologist, Stout AgTech, Salinas, CA

TUESDAY AFTERNOON MARCH 8

Symposium: "New Technology for Physical Weed Control"

LOCATION: Patio Room
TIME: 1:00 PM - 5:00 PM
MODERATOR: Steve Fennimore
University of California
Salinas, CA
CO-MODERATOR: Marcelo L. Moretti
Oregon State University
Corvallis, OR

***SPEAKER**

1:00 Introduction

1:10 Deep Learning and Robotics Are Enabling the Next Era of Weed Management. William Patzold*; Blue River Technology, Sunnyvale, CA (61)

1:35 The Business of Robotic Weed Control. Ryan Herbon*; AgMechtronix, Silver City, NM (62)

2:00 Laserweeding. John Mey*; Carbon Robotics, Seattle, WA (63)

2:25 Physical Methods to Reduce Hand Weeding in Vegetable Crops. Steve Fennimore*; University of California - Davis, Salinas, CA (64)

2:50 Break

3:05 Electric Weed Control in Perennial Crops. Marcelo L. Moretti*; Oregon State University, Corvallis, OR (65)

3:30 Electric Weed Control in Row Crops. Lynn M. Sosnoskie*; Cornell University, Geneva, NY (66)

3:55 Biodegradable Mulches in Perennial Crops. Lisa W. DeVetter*; Washington State University, Mount Vernon, WA (67)

4:20 Panel Discussion

TUESDAY AFTERNOON MARCH 8

Weeds of Agronomic Crops

LOCATION: Plaza I & II
TIME: 1:15 PM - 5:00 PM
CHAIR & Moderator: Nevin Lawrence
UNIVERSITY OF NEBRASKA
SCOTTSBLUFF, NE
CHAIR-ELECT: Stephen A. Valenti
Bayer CropScience
FARGO, ND

***SPEAKER † STUDENT CONTEST**

- 1:15 †Metabolic Resistance of *Echinochloa crus-galli* to Florpyrauxifen-benzyl is Affected by Temperature.** Luan Cutti*¹, Guilherme M. Turra², Carlos A. G. Rigon², Crystal D. Sparks², Catarine Markus¹, Todd A. Gaines², Aldo Merotto¹; ¹Federal University of Rio Grande do Sul, Porto Alegre, Brazil, ²Colorado State University, Fort Collins, CO (68)
- 1:30 Evaluation of Dichlorprop-p for Management of Resistant Kochia in Fallow and Small Grains.** Daniel Beran*¹, Bob Bruss²; ¹Nufarm Americas, Eldora, IA, ²Nufarm Americas, Morrisville, NC (69)
- 1:45 †Utilization of Pre-emergent Oxyfluorfen to Control Weedy (Red) Rice (*Oryza sativa Spontanea*), an Emerging Chemical Control Option for California Rice Producers.** Liberty B. Galvin*, Kassim Al-Khatib; University of California, Davis, CA (70)
- 2:00 The Stale-drill Cropping Method in California Rice: Challenges and Potential for Small-grain Systems.** Alex R. Ceseski*, Kassim Al-Khatib; University of California, Davis, CA (71)
- 2:15 †Evaluation of CoAXium Winter Wheat Varietal Tolerance to Quizalofop in the Southern Great Plains.** Caitlyn Carnahan*¹, Misha R. Manuchehri¹, Brett Carver¹, Vipin Kumar², Hannah C. Lindell¹, Lane S. Newlin¹, Justin T. Childers³; ¹Oklahoma State University, Stillwater, OK, ²Kansas State University, Hays, KS, ³Oklahoma State University, Marlow, OK (72)

- 2:30 Efficacy and Crop Safety of a New Cross Spectrum Herbicide Premix containing Pinoxaden, Halauxifen-methyl and Fluroxypyr-meptyl, in Northern Plains and Pacific Northwest Cereals.** Joe Yenish*¹, Patti Prasifka², Dave Johnson³, Mike Moechnig⁴, Ryan Humann⁵; ¹Corteva Agriscience, Billings, MT, ²Corteva Agriscience, West Fargo, ND, ³Corteva Agriscience, St. Paul, MN, ⁴Corteva Agriscience, Toronto, SD, ⁵Corteva Agriscience, Fargo, ND (73)
- 2:45 †Germination Response of Italian Ryegrass (*Lolium multiflorum*) to Gibberellic Acid 3 and Preemergence Herbicides in Eastern Washington Dryland Wheat Production.** Madisyn R. Beaudoin*, Rachel J. Zuger, Samuel R. Revolinski, Ian C. Burke; Washington State University, Pullman, WA (74)
- 3:00 Break**
- 3:15 †Herbicide Strategies for Grass and Broadleaf Weed Control in Spring Wheat in the Northern Great Plains.** Het S. Desai*; Montana State University, Bozeman, MT (75)
- 3:30 †Seedbank Management of Italian Ryegrass (*Lolium multiflorum*) in High Rainfall Zones of Eastern Washington.** Kenton C. Lyman*, Samuel R. Revolinski, Ian C. Burke; Washington State University, Pullman, WA (76)
- 3:45 New Herbicide-Resistant Grain Sorghum for Grass Weed Control in High Plains.** Vipin Kumar*¹, Rui Liu¹, Sachin Dhanda¹, Taylor Lambert¹, Brent Bean²; ¹Kansas State University, Hays, KS, ²United Sorghum Checkoff, Lubbock, TX (77)
- 4:00 †Sweep Tillage Impact on Tumble Windmill Grass.** Grace F. Flusche Ogden*, Jason G. Warren; Oklahoma State University, Stillwater, OK (78)
- 4:15 Herbicide Programs for Control of Palmer Amaranth (*Amaranthus palmeri*) in Dry Bean.** Joseph T. Ikley*, Nathan H. Haugrud; North Dakota State University, Fargo, ND (79)
- 4:30 †Palmer Amaranth Interference and Fecundity in Dry Bean.** Joshua W.A. Miranda*¹, Amit J. Jhala², Jeff Bradshaw³, Nevin Lawrence³; ¹Oregon State University, Corvallis, OR, ²University of Nebraska-Lincoln, Lincoln, NE, ³University of Nebraska-Lincoln, Scottsbluff, NE (80)

TUESDAY AFTERNOON MARCH 8

Weeds of Range, Forest, and Natural Areas

LOCATION: Plaza III
TIME: 1:15 PM - 5:00 PM
CHAIR & William L. Hatler
MODERATOR: Corteva Agriscience
Meridian, ID
CHAIR-ELECT: Lisa C. Jones
University of Idaho
Moscow, ID

***SPEAKER † STUDENT CONTEST**

- 1:15 A Plant Pathologist Looks at Rangeland Ecology Post Fire, Vol. II.** William Cobb*; Cobb Consulting Services, Kennewick, WA (81)
- 1:30 †Management Challenges for Garlic Mustard in Forest Understories.** Natalie L. Fronk*, Corey V. Ransom; Utah State University, Logan, UT (82)
- 1:45 Evaluating Control Options for Knapweed in Utah.** Cody J. Beckley*, Corey V. Ransom; Utah State University, Logan, UT (83)
- 2:00 †Using All-in-One Crop Monitor and Weather Stations to Identify Target Windows for Herbicide Applications on Mesquite.** Joshua Weinstein¹, Brian J. Schutte¹, Amy Ganguli², Brandi Wheeler¹, David Thompson¹, John Idowu¹; ¹New Mexico State University, Las Cruces, NM, ²United States Department of Agriculture: National Institute of Food and Agriculture, Kansas City, MO (84)
- 2:15 Considerations in the Use of Herbicides for Annual Grass Control in Degraded Arid and Semi-arid Rangeland Restoration.** Kevin Gunnell*¹, Melissa L. Landeen¹, Corey V. Ransom²; ¹Utah Division of Wildlife Resources, Ephraim, UT, ²Utah State University, Logan, UT (85)
- 2:30 †Multispectral Satellite Remote Sensing for Leafy Spurge Mapping in Northwestern Colorado.** Chloe M. Mattilio*; University of Wyoming, Laramie, WY (86)

- 2:45 Beyond the Dead Weed - Collaborating to Capture and Share the Benefits of Managing Vegetation to Meet Wildlife, Pollinator and Other Habitat Objectives.** Byron B. Sleugh*¹, William L. Hatler², Scott Flynn³, Travis Rogers⁴, Charles Hart⁵, Sam Ingram⁶, Mark J. Renz⁷, Brian A. Mealor⁸, Timothy S. Prather⁹, Jane Mangold¹⁰; ¹Corteva Agriscience, Carmel, IN, ²Corteva Agriscience, Meridian, ID, ³Corteva Agriscience, Lees Summit, MO, ⁴Corteva Agriscience, Charleston, SC, ⁵Corteva Agriscience, Abilene, TX, ⁶Corteva Agriscience, Savannah, GA, ⁷University of Wisconsin-Madison, Madison, WI, ⁸University of Wyoming, Sheridan, WY, ⁹University of Idaho, Moscow, ID, ¹⁰Montana State University, Bozeman, MT (87)
- 3:00 Break**
- 3:15 †Enterprise Budget Comparisons of Ventenata Control on a Private-Land Ranch of Northeast Wyoming.** Marshall Hart*, Brian A. Mealor; ¹University of Wyoming, Sheridan, WY (88)
- 3:30 Enhancing Adaptive Invasive Annual Grass Management Via Landscape-scale Vegetation Monitoring.** Brian A. Mealor¹, Andrew C. Cassiday², Luke Sander³, Jaycie N. Arndt*⁴, Oakley Ingersoll²; ¹University of Wyoming, Sheridan, WY, ²USDA NRCS, Sheridan, WY, ³Wyoming Weed and Pest, Sheridan, WY, ⁴University of Wyoming, Arvada, WY (89)
- 3:45 Does Annual Grass Invasion Affect Rangeland Drought Resistance?** Marshall Hart*, Brian A. Mealor; University of Wyoming, Sheridan, WY (90)
- 4:00 Pairing Monitoring and Research to Manage Early-stage Downy Brome Invasion at the Landscape Scale.** Julie A. Kraft*; Sublette County Weed and Pest, Pinedale, WY (91)
- 4:15 †Relative Tolerance of Newly-Seeded Grasses, Forbs, and Shrubs to Indaziflam in Northeast Wyoming.** Jodie A. Crose*, Brian A. Mealor; University of Wyoming, Sheridan, WY (92)
- 4:30 Effects of Introduced Annual Graminoids on Native Vegetation of Rangelands Across Northwestern United States.** Andrea De Stefano*¹, Brian A. Mealor¹, Lisa J. Rew², Jane Mangold², Corey V. Ransom³, Lisa C. Jones⁴, Timothy S. Prather⁴; ¹University of Wyoming, Sheridan, WY, ²Montana State University, Bozeman, MT, ³Utah State University, Logan, UT, ⁴University of Idaho, Moscow, ID (93)

- 4:45 †**Sagebrush Steppe Plant Community Response and Annual Grass Control After Aerial Application of Indaziflam.** Georgia R. Harrison*¹, Lisa C. Jones¹, Eva Strand¹, Harry Quicke², Timothy S. Prather¹; ¹University of Idaho, Moscow, ID, ²Bayer CropScience, Windsor, CO (94)

WEDNESDAY MORNING MARCH 9

New WSWs Officer Orientation

LOCATION: Lido Room
TIME: 9:00 AM - 9:45 AM
MODERATOR: Eric Gustafson
WSWS – Business Manager
Westminster, CO

WEDNESDAY MORNING MARCH 9

Weeds of Agronomic Crops

LOCATION: Plaza I
TIME: 9:15 AM - 11:15 PM
CHAIR & MODERATOR: Nevin Lawrence
University of Nebraska
Scottsbluff, NE
CHAIR-ELECT: Stephen A. Valenti
Bayer
Fargo, ND

*SPEAKER † STUDENT CONTEST

- 9:15 †**Cover Crop and Herbicide Combinations for Season-Long Weed Control in Dry Beans.** Ryan T. Johnson*¹, Jenna Meeks², Tyler C. Hicks³, Andrew R. Kniss¹; ¹University of Wyoming, Laramie, WY, ²University of Wyoming, Torrington, WY, ³University of Wyoming, Powell, WY (95)
- 9:30 **TENDOVO - Setting the Standard for Soybean Herbicides.** Stott Howard*¹, Pete Eure², Brett R. Miller³; ¹Syngenta Crop Protection, Des Moines, IA, ²Syngenta Crop Protection, Greensboro, NC, ³Syngenta Crop Protection, Fargo, ND (96)
- 9:45 †**Effect of Winter Wheat Cover Crop Termination Time on Dry Bean Production.** Tyler C. Hicks*¹, Andrew R. Kniss², Jim J. Heitholt¹; ¹University of Wyoming, Powell, WY, ²University of Wyoming, Laramie, WY (97)

- 10:00 Weed Control Efficacy and Dry Bean Response to Preemergence Herbicide Activation Timing.**
Albert T. Adjesiwor*, James Gomm, Howard Neibling; University of Idaho, Kimberly, ID (98)
- 10:15 †Effect of Fall- or Spring-Planted Cover Crops on Weed Suppression in the Central Great Plains.**
Sachin Dhanda*¹, Vipin Kumar¹, Rui Liu¹, Taylor Lambert¹, Augustine Obour¹, Anita Dille²; ¹Kansas State University, Hays, KS, ²Kansas State University, Manhattan, KS (99)
- 10:30 Better Together: Bicyclopyrone and Mesotrione Enhance Weed Control in Acuron GT.** Pete Forster*¹, Ryan D. Lins², Mark Kitt³, David Stafford⁴, Mark Johnston⁴, Brian Pickett⁴, Sunil Kumar⁵; ¹Syngenta Crop Protection, Eaton, CO, ²Syngenta Crop Protection, Rochester, MN, ³Syngenta Crop Protection, Greensboro, NC, ⁴Syngenta Crop Protection, Jealotts Hill, United Kingdom, ⁵Syngenta Crop Protection, Basel, Switzerland (100)
- 10:45 †Inter-seeded Cover Crop Performance for Competitive Suppression of Weeds and Invasive Kochia in Small Grains Crops in the Intermountain West.** Dani Thiemann*¹, Corey V. Ransom², Earl Creech²; ¹Utah State University, Nibley, UT, ²Utah State University, Logan, UT (101)
- 11:00 Response of Conventional Grain Sorghum to Simulated Drift of Imazamox, Nicosulfuron, and Quizalofop-p-ethyl.** Rui Liu*¹, Vipin Kumar¹, Sachin Dhanda¹, Monica R. Marrs², Taylor Lambert¹; ¹Kansas State University, Hays, KS, ²Kansas State University, Manhattan, KS (102)

WEDNESDAY MORNING MARCH 9

Basic Biology and Ecology

LOCATION: Plaza II
TIME: 9:15 AM - 11:15 AM
CHAIR & MODERATOR: O. Adewale Osipitan
FMC Corporation
Philadelphia, PA
CHAIR-ELECT: Rui Liu
Kansas State University
Hays, KS

*SPEAKER † STUDENT CONTEST

- 9:15 †Exploring Genetic Variation Underlying Adaptive Traits in Invasive *Bromus tectorum*.**
Samuel R. Revolinski*¹, Peter J. Maughan², Craig Coleman², Ian C. Burke¹; ¹Washington State University, Pullman, WA, ²BYU, Provo, UT (103)
- 9:30 Comparative Genomics of the Tumbleweeds Russian Thistle and Kochia in the Western US.**
Philip Westra*¹, Todd A. Gaines¹, Jacob S. Montgomery¹, Eric L. Patterson²; ¹Colorado State University, Fort Collins, CO, ²Michigan State University, East Lansing, MI (104)
- 9:45 †Inheritance of 2,4-D Resistance in *Conyza sumatrensis* Population from Brazil.** André Lucas Simões Araujo*¹, Jéssica Ferreira Lourenço Leal², Amanda dos Santos Souza³, Sarah Morran¹, Todd A. Gaines¹, Camila Ferreira de Pinho⁴; ¹Colorado State University, Fort Collins, CO, ²UPL, São Paulo, Brazil, ³BASF, São Paulo, Brazil, ⁴Universidade Federal Rural do Rio de Janeiro, Seropédica, Brazil (105)
- 10:00 †Identification and Validation of Cytochrome P450 Involved in Tembotrione Metabolism in HPPD-resistant Palmer Amaranth (*Amaranthus palmeri*).** Carlos A. G. Rigon*¹, Crystal D. Sparks¹, Lennart Charton², Anita Küpper³, Roland S. Beffa⁴, Franck E. Dayan¹, Todd A. Gaines¹; ¹Colorado State University, Fort Collins, CO, ²Bayer AG, Frankfurt Am Main, Germany, ³Bayer AG, Frankfurt, Germany, ⁴Senior Scientist Consultant, Frankfurt, Germany (106)
- 10:15 Does the Presence of Weeds Increase Crop Injury Potential from Herbicides?** Andrew R. Kniss*¹, Albert T. Adjesiwor²; ¹University of Wyoming, Laramie, WY, ²University of Idaho, Kimberly, ID (107)

- 10:30 †Shade Avoidance Alters the Root Architecture of Sugar Beets.** Joe G. Ballenger*, Andrew R. Kniss; University of Wyoming, Laramie, WY (108)
- 10:45 Effect of Biofumigation Products on the Germination and Establishment of Native and Non-native Grasses.** Lilly L. Sencenbaugh, Jane Mangold, Danielle Ulrich, Lisa J. Rew*; Montana State University, Bozeman, MT (109)
- 11:00 †Transgenerational Effect of Weed Competition on Wheat.** Albert O. Kwarteng*¹, Albert T. Adjesiwor²; ¹University of Idaho, Moscow, ID, ²University of Idaho, Kimberly, ID (110)

WEDNESDAY MORNING MARCH 9

Weeds of Horticultural Crops

LOCATION: Plaza III
 TIME: 9:15 AM - 11:15 AM
 CHAIR & MODERATOR: Marcelo L. Moretti
 Oregon State University
 Corvallis, OR
 CHAIR-ELECT: Elizabeth G. Mosqueda
 Madera Community College
 Madera, CA

***SPEAKER † STUDENT CONTEST**

- 9:15 IR-4 Weed Science Update - Food Crops.** Roger B. Batts*¹, Jerry Baron², Venkat Pedibhotla²; ¹IR-4 Project HQ, NC State University, Raleigh, NC, ²IR-4 Project, Raleigh, NC (111)
- 9:30 Weed Control in Specialty Crops Using Bicyclopyrone.** Stephen M. Schraer*¹, Pete Eure², Cristin Weber³, Thomas H. Beckett²; ¹Syngenta Crop Protection, Meridian, ID, ²Syngenta Crop Protection, Greensboro, NC, ³Syngenta Crop Protection, Normal, IL (112)
- 9:45 †Auxinic Herbicides Injury to Grapevines.** Natalia Garcia*¹, Franck E. Dayan², Luis A. Avila¹; ¹Federal University of Pelotas, Pelotas, Brazil, ²Colorado State University, Fort Collins, CO (113)

- 10:00 Residual Weed Management in Western Pecans with Penoxsulam + Oxyfluorfen.** Jesse M. Richardson*¹, Spencer Samuelson², William B. McCloskey³, Brian J. Schutte⁴, Kelly A. Backscheider⁵; ¹Corteva Agriscience, Mesa, AZ, ²Corteva Agriscience, Bryan, TX, ³University of Arizona, Tucson, AZ, ⁴New Mexico State University, Las Cruces, NM, ⁵Corteva Agriscience, Franklin, IN (114)
- 10:15 †Simulated Off-Target Drift of Florpyrauxifen-benzyl in Orchards and Vineyards.** Deniz Inci*, Brad Hanson, Kassim Al-Khatib; University of California, Davis, CA (115)
- 10:30 Efficacy of Various Preemergence Herbicides for Season-long Control of Puncturevine in Pumpkin.** Cody D. Zesiger*¹, Corey V. Ransom², Dan Drost²; ¹Utah State University, Ogden, UT, ²Utah State University, Logan, UT (116)
- 10:45 †Early Termination of a Mustard Cover Crop Reduces Risks from Beet Leafhoppers and Potentially Suppresses Weeds in Chile Pepper.** Akash Bajagain*, Brian J. Schutte, Erik A. Lehnhoff, Rebecca Creamer, Robert L. Steiner; New Mexico State University, Las Cruces, NM (117)
- 11:00 Flaming and Cultivation Strategies to Control Weeds in Snap Beans.** Ed Peachey*, Andrew Nagy; Oregon State University, Corvallis, OR (118)

WEDNESDAY MORNING MARCH 9

WSWS Awards Luncheon

LOCATION: Amphitheater
TIME: 11:30 AM - 1:30 PM
MODERATOR: Joel Felix
Oregon State University
Ontario, OR

WEDNESDAY AFTERNOON MARCH 9

Weeds of Agronomic Crops

LOCATION: Plaza I
TIME: 1:45 PM - 4:30 PM
CHAIR & MODERATOR: Nevin Lawrence
University of Nebraska
Scottsbluff, NE
CHAIR-ELECT: Stephen A. Valenti
Bayer
Fargo, ND

*SPEAKER † STUDENT CONTEST

- 1:45 †Incorporating Cover Crops into a Semi-arid Alfalfa Rotation: Yield, Weed Control, and Economic Considerations.** Tyler Z. Jones*, Brian A. Meador; University of Wyoming, Sheridan, WY (119)
- 2:00 Postemergence Herbicides for Broadleaf Weed Control in Sesame: the Good, the Bad, and the Ugly.** J Connor Ferguson*¹, Eric Votava², Gerald De La Fuente³, Zachary A. Carpenter⁴; ¹Sesaco Corporation, Yukon, OK, ²Sesaco Corporation, Austin, TX, ³Sesaco Corporation, San Antonio, TX, ⁴Oro Agri Inc., New Braunfels, TX (120)
- 2:15 †Residual and Postemergence Weed Control in Newly Established Alfalfa.** Chandra L. Montgomery*¹, James Gomm², Nevin Lawrence³, Albert T. Adjesiwor²; ¹University of Idaho, Moscow, ID, ²University of Idaho, Kimberly, ID, ³University of Nebraska-Lincoln, Scottsbluff, NE (121)
- 2:30 Hemp Tolerance to Soil Herbicides Applied POST.** Joseph Mettler*, Kirk A. Howatt; North Dakota State University, Fargo, ND (122)

- 2:45 †Comparison of ACCase Inhibiting Herbicides for Use in Industrial Hemp.** Milos Zaric*¹, Marija Savic², Greg Kruger¹, Sam E. Wortman³, Kelly W. Bruns¹; ¹University of Nebraska-Lincoln, North Platte, NE, ²Washington State University, Pullman, WA, ³University of Nebraska-Lincoln, Lincoln, NE (123)
- 3:00 Volunteer Hemp Control with Herbicides.** Kirk A. Howatt*, Joseph Mettler, Stephanie DeSimini; North Dakota State University, Fargo, ND (124)
- 3:15 Break**
- 3:30 Winter Management of Grass Weeds in Grasses Grown for Seed.** Kyle Roerig*; Pratum Co-op, Salem, OR (125)
- 3:45 Chaff Lining Harvest Weed Seed Control in Colorado Dryland Crops.** Eric P. Westra*, Todd A. Gaines; Colorado State University, Fort Collins, CO (126)
- 4:00 Utilizing Preemergence Herbicides to Maximize the Value of Machine-Vision Application Technology.** Jason W. Adams*¹, Pete Berry², R. Joseph Wuerffel³, Dane L. Bowers⁴; ¹Syngenta Crop Protection, Vero Beach, FL, ²Syngenta Crop Protection, Monticello, IL, ³Syngenta Crop Protection, Gerald, MO, ⁴Syngenta Crop Protection, Greensboro, NC (127)
- 4:15 Introducing UltraLock™, a Novel Deposition and Drift Reducing Adjuvant.** Gregory K. Dahl*¹, Ryan J. Edwards², Wolf Ryan³, Joshua Mayfield⁴, Joshua J. Skelton⁵, Steven A. Fredericks², Eric P. Spandl⁶, Kevin Krueger⁶; ¹WinField United, Eagan, MN, ²WinField United, River Falls, WI, ³WinField United, Sheldon, IA, ⁴WinField United, Four Oaks, NC, ⁵WinField United, Saint Paul, MN, ⁶WinField United, Arden Hills, MN (128)
- 4:30 Female *versus* Male Palmer Amaranth: Are There Opportunities to Explore Gender's Biology as a Management Approach?** Edinaldo A. Borgato*, Eduardo C. Rudell, Mithila Jugulam, Anita Dille; Kansas State University, Manhattan, KS (129)

WEDNESDAY AFTERNOON MARCH 9

Weeds of Horticultural Crops

LOCATION: Plaza III
TIME: 1:45 PM - 2:15 PM
CHAIR & Marcelo L. Moretti
MODERATOR: Oregon State University
Corvallis, OR
CHAIR-ELECT: Elizabeth G. Mosqueda
Madera Community College
Madera, CA

*SPEAKER † STUDENT CONTEST

- 1:45 † **Overview of Current UCD Research on Chemical Control of Branched Broomrape in Processing Tomato, Including Crop Safety and Efficacy of Israeli Developed PICKIT Decision Support System.** Matthew J. Fatino*; University of California, Davis, CA (130)
- 2:00 **Evaluating Flumioxazin Application Timing and Hilling on Efficacy and Crop Safety in Potato.** Harlene M. Hatterman-Valenti*, Collin Auwarter; North Dakota State University, Fargo, ND (131)

WEDNESDAY AFTERNOON MARCH 9

Weeds of Horticultural Crops Discussion Session

LOCATION: Plaza III
TIME: 3:30 PM - 4:45 PM
CHAIR & Marcelo L. Moretti
MODERATOR: Oregon State University
Corvallis, OR
CHAIR-ELECT: Elizabeth G. Mosqueda
Madera Community College
Madera, CA

"The Future of On-Line Extension Resources in Horticultural Crops."

WEDNESDAY AFTERNOON MARCH 9

Education and Regulatory

LOCATION: Plaza II
TIME: 1:45 PM - 4:30 PM
CHAIR & MODERATOR: Carl W. Coburn
Bayer CropScience
St. Louis, MO
CHAIR-ELECT: Jane Mangold
Montana State University
Bozeman, MT

***SPEAKER**

1:45 Introductions

1:50 What Was WSWS Like in the Past 25 Years? Contemplating How to Build the Future on This Foundation. Vanelle F. Peterson*¹, Philip A. Banks*², Rodney G. Lym³, Don W. Morishita⁴;
¹retired Dow AgroSciences, Fort Collins, CO,
²Marathon-Agricultural & Environmental Consulting, Inc., Las Cruces, NM, ³North Dakota State University, Fargo, ND, ⁴University of Idaho, Kimberly, ID (132)

2:05 A History of the Weeds of the West Publication and What it Has Meant to WSWS. Philip A. Banks*¹, Tom Whitson²; ¹Marathon-Agricultural & Environmental Consulting, Inc., Las Cruces, NM, ²Retired, Santa Fe, NM (133)

2:20 Weed Science Graduate Student Education: Past and Present. Carol Mallory-Smith*; Oregon State University, Corvallis, OR (134)

2:35 Industry and the WSWS: A Tale of Cooperation, Communication and Consternation. Charles P. Hicks, Bayer CropScience, Fort Collins, CO (135)

2:50 Weed Science and Washington: Interactions and Opportunities. Jill Schroeder*¹, Lee Van Wychen²;
¹New Mexico State University, Las Cruces, NM,
²Weed Science Society of America, Alexandria, VA (136)

3:05 Break

WEDNESDAY AFTERNOON MARCH 9

Education and Regulatory Discussion Session

LOCATION: Pacific Room
TIME: 3:30 PM - 4:45 PM
MODERATOR: Carl W. Coburn
St. Louis, MO
CO-MODERATOR: Jane Mangold
Montana State University
Bozeman, MT

“Future Outlook for WSWS”

WEDNESDAY AFTERNOON MARCH 9

Basic Biology and Ecology Discussion Session

LOCATION: Patio Room
TIME: 3:30 PM - 4:45 PM
CHAIR & MODERATOR: O. Adewale Osipitan
FMC Corporation
Philadelphia, PA
CHAIR-ELECT: Rui Liu
Kansas State University
Hays, KS

"Emerging Tools for Ecological Management of Weeds and Herbicide Resistance."

WEDNESDAY AFTERNOON MARCH 9

What's New in Industry?

LOCATION: Plaza I
TIME: 5:15 PM - 6:15 PM
MODERATOR: Charlie Hicks
Bayer CropScience
Fort Collins, CO

THURSDAY MORNING MARCH 10

Teaching and Technology Transfer

LOCATION: Plaza III
TIME: 9:30 AM - 10:15 AM
CHAIR & MODERATOR: Breanne D. Tidemann
Agriculture and Agri-Food
Canada
Lacombe, AB, Canada
CHAIR-ELECT: Jeanne S. Falk Jones
Kansas State University
Colby, KS

***SPEAKER**

- 9:30 Nonchemical Strategies for Weed Control in No-Till Dryland Cropping Systems in High Plains.**
Vipan Kumar*, Rui Liu, Sachin Dhanda, Taylor Lambert; Kansas State University, Hays, KS (137)
- 9:45 Music and Weed Control Research: Can You Carry the Tune?** Pamela J.s. Hutchinson*;
University of Idaho, Aberdeen, ID (138)
- 10:00 Reaching and Interacting with Audiences on Virtual Formats.** Jeanne S. Falk Jones*;
Kansas State University, Colby, KS (139)

THURSDAY MORNING MARCH 10

**Teaching and Technology Transfer Discussion
Session**

LOCATION: Plaza III
TIME: 10:15 PM - 12:00 PM
CHAIR & MODERATOR: Breanne D. Tidemann
Agriculture and Agri-Food
Canada
Lacombe, AB, Canada
CO-MODERATOR: Jeanne S. Falk Jones
Kansas State University
Colby, KS

**"Learning from the Past to Improve the Future
of Teaching and Technology Transfer"**

THURSDAY MORNING MARCH 10

Weeds of Agronomic Crops Discussion Session

LOCATION: Plaza I
TIME: 9:30 AM - 12:00 PM
CHAIR & MODERATOR: Nevin Lawrence
University of Nebraska
Scottsbluff, NE
CHAIR-ELECT: Stephen A. Valenti
Bayer
Fargo, ND

"Supply Chain Disruptions and Herbicide Shortages, How Will Weed Control Differ in 2022?"

THURSDAY MORNING MARCH 10

Weeds of Range, Forest, and Natural Areas

LOCATION: Plaza II
TIME: 9:30 AM - 11:00 AM
CHAIR & MODERATOR: William L. Hatler
Corteva Agriscience
Meridian, ID
CHAIR-ELECT: Lisa C. Jones
University of Idaho
Moscow, ID

***SPEAKER**

9:30 Florpyrauxifen-benzyl + Aminopyralid with Flumioxazin + Pyroxasulfone for Non-crop Weed Control in U.S. Land Management. William L. Hatler*¹, Byron B. Sleugh², Scott Flynn³, Sam Ingram⁴; ¹Corteva Agriscience, Meridian, ID, ²Corteva Agriscience, Carmel, IN, ³Corteva Agriscience, Lees Summit, MO, ⁴Corteva Agriscience, Savannah, GA (140)

- 9:45 Native Annual, Biennial, Monocarpic, and Short-lived Perennial Species Response to Long-term Cheatgrass Control with Indaziflam.** James Sebastian¹, Joe Swanson¹, Shursteen Sharpe¹, Derek J. Sebastian², Shannon Clark³, Harry Quicke⁴; ¹Boulder County Parks and Open Space, Longmont, CO ²Bayer CropScience, Greeley, CO ³Bayer CropScience, Ft. Collins, CO, ⁴Bayer, Windsor, CO (141)
- 10:00 Indaziflam Absorption by Downy Brome and Jointed Goatgrass Seeds Reduces Plant Establishment.** Scott J. Nissen*¹, Shannon Clark², Rachel H. Seedorf³; ¹Colorado State University, Fort Collins, CO, ²Bayer CropScience, Fort Collins, CO, ³Aero Applicators, Sterling, CO (142)
- 10:15 Utilization and Response of Native Browse Species in Critical Mule Deer Winter Range to Long-term Cheatgrass Control with Indaziflam.** James Sebastian*¹, Joe Swanson¹, Derek J. Sebastian,² Shannon Clark,³ Harry Quicke,⁴; ¹Boulder County Parks and Open Space, Longmont, CO, ²Bayer CropScience, Greeley, CO, ³Bayer CropScience, Ft. Collins, CO, ⁴Bayer, Windsor, CO (143)
- 10:30 Assessing Community Resilience to Annual Grass Control in Sagebrush Steppe.** Lisa C. Jones*, Georgia R. Harrison, Timothy S. Prather; University of Idaho, Moscow, ID (144)
- 10:45 Effects of Indaziflam Application Timing on Annual Grass Control at Seven Rangeland Sites.** Beth Fowers*¹, Brian A. Meador¹, Corey V. Ransom², Shannon Clark³, Derek J. Sebastian⁴, Scott J. Nissen⁵; ¹University of Wyoming, Sheridan, WY, ²Utah State University, Logan, UT, ³Bayer CropScience, Fort Collins, CO, ⁴Bayer, Greeley, CO, ⁵Colorado State University, Fort Collins, CO (145)

THURSDAY AFTERNOON MARCH 10

Weeds of Range, Forest, and Natural Areas
Discussion Session

LOCATION: Plaza II
TIME: 11:00 PM - 12:00 PM
CHAIR & William L. Hatler
MODERATOR: Corteva Agriscience
Meridian, ID
CHAIR-ELECT: Lisa C. Jones
University of Idaho
Moscow, ID

**"New, Emerging, or Existing Problem Weed
Species: Where are the Research Gaps?"**

THURSDAY MORNING MARCH 10

Workshop: "Weeds and Wildfires in the West"

LOCATION: Plaza II
TIME: 1:00 PM - 5:30 PM
CHAIR & Matt Baur
MODERATOR: University of California
Davis, CA

***SPEAKER**

- 1:00 Developing the Team to Manage Invasive Plants:
Who Should be at the Table?** Kassim Al-Khatib*;
University of California, Davis, CA (146)
- 1:10 Strategic, Landscape-Scale Management for
Invasive Annual Grasses.** Brian A. Meador*;
University of Wyoming, Sheridan, WY (147)
- 1:50 Invasive Plants Changing Wildfire Regimes in
California: A Case Study.** Jutta Burger*¹, Danny
Fry², Dave Erickson³; ¹California Invasive Plant
Council, Berkeley, CA, ²Natural Communities
Coalition, Irvine, CA, ³Orange County Fire
Authority, Irvine, CA (148)
- 2:30 Economics and Low Cost Management Options
for Medusahead.** Jeremy James*¹, Matthew J.
Rinella², Josh S. Davy³, Larry C. Forero⁴; ¹UCANR,
Browns Valley, CA, ²USDA-ARS, Miles City, MT,
³University of California Cooperative Extension, Red
Bluff, CA, ⁴University of California Cooperative
Extension, Redding, CA (149)

- 3:10 Break**
- 3:20 Invasive Plants, Biological Control, and Wildfire: Why Integrated Invasive Plant Management Matters with Increasing Wildfire Risk.** Carol Randall*; USDA Forest Service, Medimont, ID (150)
- 4:00 Revegetation Following Wildfires.** Jane Mangold*; Montana State University, Bozeman, MT (151)
- 4:40 Fuel Break Post-Fire Vegetation Recovery in Southern California Shrubland.** Lorelee Larios*¹, Noah Teller¹, Erin McCann¹, Janet Franklin¹, Marko Spasojevic¹, Nicole Molinari²; ¹University of California, Riverside, CA, ²US Forest Service, Goleta, CA (152)
- 5:00 Adjourn**

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WSWS PAST PRESIDENTS

1938	H. L. Spence, Jr.	1985	E. Stanley Heathman
1940	G. R. Hyslop	1986	Harvey D. Tripple
1941	C. L. Corkins	1987	John O. Evans
1942	W. W. Robbins	1988	Larry W. Mitich
1944	E. Hutchings	1989	Donn C. Thill
1945	Lee M. Burge	1990	Sheldon E. Blank
1946	B. E. Kuhns	1991	Peter K. Fay
1947	H. E. Morris	1992	Paul J. Ogg
1948	Virgil H. Freed	1993	Stephen D. Miller
1949	Bruce J. Thornton	1994	Doug K. Ryerson
1950	E. W. Whitman	1995	Tom D. Whitson
1952	W. W. Robbins	1996	Gus Foster
1954	Clarence I. Seely	1997	Charlotte V. Eberlein
1956	Walter S. Ball	1998	Barbra Mullin
1958	H. Wolfe	1999	Rodney G. Lym
1960	Richard A. Fosse	2000	Jeffrey M. Tichota
1962	William R. Furtick	2001	Don Morishita
1963	P. Eugene Heikes	2002	Robert Parker
1965	Jesse M. Hodgson	2003	Jill Schroeder
1967	Louis A. Jensen	2004	Gilbert Cook
1968	S. Strew	2005	Phil Stahlman
1969	K. C. Hamilton	2006	Phil Banks
1970	Harold P. Alley	2007	Kassim Al-Khatib
1971	Kenneth W. Dunster	2008	Ron Crockett
1972	Arnold P. Appleby	2009	Dan Ball
1973	David E. Bayer	2010	Jesse Richardson
1974	D. Burgoyne	2011	Joe DiTomaso
1975	Gary A. Lee	2012	Vanelle Peterson
1976	William L. Anliker	2013	Kai Umeda
1977	Clyde L. Elmore	2014	Roger Gast
1978	Lowell S. Jordon	2015	Drew Lyon
1979	Richard D. Comes	2016	Joe Yenish
1980	Larry C. Burrill	2017	Kirk Howatt
1981	L.E. "Jack" Warren	2018	Monte Anderson
1982	Alex G. Ogg, Jr.	2019	Andrew Kniss
1983	J. Wayne Whitworth	2020	Pat Clay
1984	Gary Massey	2021	Corey Ransom

HONORARY MEMBERS

1976	Dick Beeler
1978	Dale W. Bohmont
1982	R. Phillip Upchurch
1983	Virgil H. Freed
1984	Warren C. Shaw
1987	Norman B. Akesson
1988	Logan A. Norris
1989	Gary A. Lee
1990	Earl Spurrier
1992	Bruce Ames
1993	Jerry Caulder
1994	Will D. Carpenter
1995	K. James Fornstrom
1997	F. Dan Hess
2001	Darrell Hanavan
2003	Roy Nishimoto
2004	Doug Schmale
2006	Wanda Graves
2007	Rob Hedberg
2008	Robert Zemetra
2009	Tom Brokaw
2010	Harry Cline
2011	A. G. Kawamura
2014	David Armstrong
2020	Dr. William Price
2021	Michael Walsh

WSWS FELLOWS

1968	Robert B. Balcom Walter S. Ball Alden S. Crafts F.L. Timmons D.C. Tingey	1996	Don Colbert Robert Parker
1969	Lambert C. Erickson Jesse M. Hodgson	1997	Steven A. Dewey Mike Newton
1970	Lee M. Burge Bruce Thornton	1998	Doug K. Ryerson Tom D. Whitson
1971	Virgil H. Freed W.A. Harvey	1999	Charlotte V. Eberlein John E. Orr
1972	H. Fred Arle Boysie E. Day	2000	Rodney G. Lym Frank L. Young
1973	Harold P. Alley K.C. Hamilton	2001	Barbra Mullin Jill Schroeder
1974	William R. Furtick Oliver A. Leonard	2002	Jeff Tichota Philip Westra
1975	Richard A. Fosse Clarence I. Seely	2003	Vanelle Peterson Carol Mallory-Smith
1976	Arnold P. Appleby	2004	Don Morishita Phil Banks
1977	J. LaMar Anderson Arthur H. Lange	2005	Nelroy Jackson Roland Shirman
1978	David E. Bayer Kenneth W. Dunster	2006	Celestine Duncan Joan Campbell
1979	Louis A. Jensen Gary A. Lee	2007	Bill Cobb Phil Stahlman
1980	W.L. Anliker	2008	K. George Beck Rick Boydston
1981	P. Eugene Heikes J. Wayne Whitworth	2009	Kassim Al-Khatib Scott Nissen
1982	Bert L. Bohmont Lowell S. Jordan	2010	Tracy Sterling Rick Arnold
1983	Richard D. Comes Clyde L. Elmore	2011	Daniel A. Ball Roger Gast
1984	Larry C. Burrill	2012	Jodie Holt Lars Anderson
1985	L.E. "Jack" Warren	2013	Tim Miller Tom Lanini
1986	Dwight V. Peabody Robert L. Zimdahl	2014	Robert Stougaard Robert Norris
1987	Alex G. Ogg, Jr. Jean H. Dawson	2015	Pete Forster Gilbert Cook
1988	Harvey D. Tripple E. Stan Heathman	2016	Jesse Richardson Joseph DiTomaso
1989	John O. Evans W.B. "Jim" McHenry	2017	Ralph Whitesides Ed Peachey
1990	Harry S. Agamalian Bart A. Brinkman	2018	Phillip Munger Kai Umeda
1991	Larry W. Mitich Edward E. Schweizer	2019	Joe Yenish Drew Lyon
1992	Donald C. Thill Harold M. Kempen	2020	Traci Rauch Monte Anderson
1993	Paul J. Ogg Peter K. Fay	2021	Carl Libbey Charlie Hicks
1994	Sheldon E. Blank Gus J. Foster		
1995	Stephen D. Miller John T. Schlesselman		

OUTSTANDING WEED SCIENTISTS

1989	Jean H. Dawson	2008	Robert G. Wilson
1990	Arnold P. Appleby		Leo Charvat
1991	Stephen D. Miller		Pat Clay [‡]
	Harvey D. Tripple	2009	Carol Mallory-Smith
1992	Alex G. Ogg, Jr.		Pete Forster
	Kenneth W. Dunster		Alan Helm [‡]
1993	Edward E. Schweizer	2010	Drew Lyon
	Sheldon E. Blank		Ian Burke [‡]
1994	Larry C. Burrill	2011	Monte D. Anderson
1995	Larry W. Mitich		Bradley D. Hanson [‡]
	Paul J. Ogg	2012	Brett Oemichen
1996	Donald C. Thill		Andrew Kniss [‡]
	Neal R. Hageman	2013	Mary Halstvedt
1997	Jeff Tichota		Jane Mangold [‡]
	Harry S. Agamalian	2014	Charlie Hicks
1998	Donald R. Colbert	2015	Brian Mealor [‡]
	Clyde L. Elmore	2016	Prashant Jha [‡]
1999	Gus J. Foster	2017	Erik Lehnhoff [‡]
	Philip Westra	2018	Rick Boydston
2000	Bart Brinkman		Brian Schutte [‡]
	K. George Beck	2019	Don Morishita
2001	John E. Orr		Bill Cobb
	Phillip W. Stahlman		Todd Gaines [‡]
2002	Doug Ryerson	2020	Tim Harrington
	Tom Whitson		Marty Schraer
2003	Frank Young		Vipan Kumar [‡]
2004	Ron P. Crockett	2021	Prashant Jha
	Joe DiTomaso		Nevin Lawrence [‡]
	Jim Vandecoevering [‡]		
2005	Kassim Al-Khatib		
	Kelly Luff		
2006	Rick Arnold		
2007	John Fenderson		
	Rod Lym		

[‡]Early Career

OUTSTANDING ACHIEVEMENT AWARDS

2003	Bill Brewster	Professional Staff
2005	Guy Kyser	Professional Staff
	Eric Lane	Weed Manager
2006	Ed Peachy	Professional Staff
2007	Jim Freeman	Weed Manager
	Carl Libbey	Professional Staff
2008	Lars Baker	Weed Manager
	Lori Howlett	Professional Staff
2009	April Fletcher	Weed Manager
	Gary Willoughby	Professional Staff
2010	Cheryl Fiore	Professional Staff
2011	Robert Higgins	Professional Staff
2012	James Sebastian	Professional Staff
	Jerry Asher	Weed Manager
2013	Joan Campbell	Professional Staff
	Tim D'Amato	Weed Manager
2014	Ed Davis	Professional Staff
	Rita Beard	Weed Manager
2015	Brent Beutler	Profession Staff
2019	Traci Rauch	Professional Staff
2020	Steve Sauer	Weed Manager

PRESIDENTIAL AWARD OF MERIT

1994	Rodney G. Lym
1995	John E. Orr
1996	Steven A. Dewey
1997	Jill Schroeder
1999	Celestine Duncan
2000	Gus Foster
2001	Jack Schlesselman
2002	Tom Whitson
2003	Nelroy Jackson
2004	Joan Campbell
2005	Tony White
2006	Janet Clark
2007	Tim Miller
2009	Mike Edwards
2010	Phil Motooka
2011	Kai Umeda
2012	Tim Miller
2013	Phil Banks
2014	Carl Libbey
2015	Carol Mallory-Smith
2016	Roland Schirman
2017	Phil Stahlman
2018	Roger Gast
2019	Sandra K. McDonald
2020	Stephen (Marty) Schaer
2021	Elizabeth Mosqueda

PROCEEDINGS EDITORS 1990-2021

1990 - 1997	Rodney Lym
1998 - 2000	Kathy Christianson
2001	Joan Campbell & Donn Thill
2002 - 2003	Joan Campbell
2004 - 2010	Joan Campbell & Traci Rauch
2011 - 2017	Bill McCloskey
2018 - current	Carl Libby

NEWSLETTER EDITORS 2002-2021

2002 - 2003	Don Morishita
2004 - 2006	Pat Clay
2007 - 2011	Cheryl Fiore
2011 - 2013	Cheryl Fiore and Carl Libby
2013 to present	Carl Libby

BUSINESS MANAGERS AND TREASURERS

1939-1953	Walter Ball	Secretary/ Treasurer
1954-1955	W.A. Harvey	Secretary/ Treasurer
1956-1957	W.C. Robocker	Secretary/ Treasurer
1958-1959	W.R. Furtick	Secretary/ Treasurer
1960-1961	Eugene Heikes	Secretary/ Treasurer
1962-1963	Edward Boles	Secretary/ Treasurer
1964-1966	Edward Boles	Business Manager
1967-1989	LaMar Anderson	Treasurer/ Business Manager
1990-2006	Wanda Graves	Treasurer / Business Manager
2007-2017	Phil Banks	Treasurer / Business Manager
2017-2018	Tara Steinke	Treasurer / Business Manager
2018-2019	Kala Travis	Treasurer / Business Manager
2019-current	Eric Gustafson	Business Manager*
2020-current	Phil Banks	Treasurer

* A separate position for Treasurer on the Board of Directors was created in 2020

WSWS Committees 2021-22

Board contact *italicized*. (Year to rotate off of committee in parenthesis)

<p>Awards <i>President</i> Craig Alford (2022) Rich Zollinger, Chair (2023) Timothy Prather (2024) Joshua Miranda, Student rep (2022)</p>	<p>Legislative <i>WSSA Representative</i> Rachel Zuger (2022) John Vickery, Chair (2023) Slade Franklin (2024) Lee Van Wychen, Ex-officio</p>
<p>Fellows and Honorary Membership <i>Past President</i> Jesse Richardson (2022) Drew Lyons, Chair (2023) Ed Peachey (2024)</p>	<p>Local Arrangements <i>President-Elect</i> Sonia Rios, Chair (2023) George Newberry (2024) Albert Adjesiwor (2024) Eric Westra (2025)</p>
<p>Finance <i>Treasurer</i> Pete Forester (2022) Nevin Lawrence, Chair (2023) Ryan Rapp (2024) Phil Banks, (Treasurer)</p>	<p>Necrology <i>Secretary</i> Earl Creech (2022) Ryan Rapp, Chair (2023) Rachel Seedorf (2024)</p>
<p>Herbicide Resistant Plants <i>Member-at-Large Private</i> Caio Brunharo (2022) Misha Manuchehri, Chair (2023) Lovrett Shergill (2024) Jake Montgomery, Student Rep (2024)</p>	<p>Nominations <i>Past President</i> Ryan Edwards (2022) Vipam Kumar, Chair (2023) Brian Schutte (2024) Corey Ransom (Past-President)</p>
<p>Program <i>President-Elect</i> Joel Felix, Chair (2022) Judit Barroso (2022) Carl Coburn (2022)</p>	<p>Poster <i>President-Elect</i> Clarke Alder (2022) Caleb Dalley, Chair (2023) Rui Liu (2024)</p>
<p>Publications <i>President-Elect</i> Joel Felix, Chair Carl Libbey, Proceedings & Newsletter Traci Rauch, Research Progress Report Eric Gustafson, Website Editor</p>	<p>Public Relations <i>Education & Regulatory Section Chair</i> Charles Geddes (2022) Breanne Tidemann, Chair (2023) Albert Adjesiwor (2024)</p>
<p>Student Paper Judging <i>President-Elect</i> Dennis Scott (2022) Josh Adkins, Chair (2023) Clint Beiermann (2024) Prashasti Agarwal, Student rep (2022)</p>	<p>Site Selection <i>Education & Regulatory Section Chair</i> Charlie Hicks (2022) Byron Sleugh, Chair (2023) Ryan Bryant-Schlobohm (2024)</p>
<p>Sustaining Membership <i>Past President</i> Alan Helm (2022) Stephen A. Valenti, Chair (2023) Rachel Zuger (2024)</p>	<p>Ad-Hoc Committees <i>President</i> Diversity and Inclusion; Elizabeth G.Mosqueda,Chair History; Vanelle Peterson, Chair Invasive Weeds; Brian Mealor, Co-Chair Chad Cummings, Co-Chair</p>

THANK YOU!

The WSWS members thank the Sustaining Members of the WSWS for their support. We would also like to thank the industry sponsors listed below for providing refreshments for the retiree reception and meeting breaks and for hosting the graduate student, spouses, and business breakfasts. Please thank the sustaining members and sponsors for their generosity and support of the society. The Program and Local Arrangements Committees would like to **thank Pete Forster** for making the arrangements for all of the sponsored activities.

Alligare, LLC	Gowan Company
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2022 WSWS Sustaining Members

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BASF Corporation
Bayer CropScience
Corteva AgriScience
FMC Corporation
Gowan Company
Gylling Data Management
R & D Sprayers
Syngenta Crop Protection
UPL-Ltd
Valent U.S.A.
Wilbur-Ellis Company
WinField United



FUTURE MEETING DATES AND SITES

<p>February 27-March 2, 2023 The Grove Hotel/Boise Center Boise, Idaho</p>	<p>March 4-7, 2024 The Grand Hyatt Denver Denver, Colorado</p>
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TIME	TUESDAY	WEDNESDAY	THURSDAY
6:30			WSWS Business Breakfast and Student Awards Amphitheater
6:45			
7:00			
7:30			
7:45	Poster Session Odd # Authors Present Plaza Arbor	Poster Session Even # Authors Present Plaza Arbor	
8:00			
8:15			
8:30			
8:45			
9:00			
9:15			
9:30	General Session Plaza I & II		
9:45			
10:00			
10:15			
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