
2024 Meeting

**WESTERN
SOCIETY
OF
WEED SCIENCE**

March 4 - 7, 2024

**Grand Hyatt Denver
Denver, Colorado**



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2023-2024**

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McKenzie Barth
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mbarth3@uwyo.edu



Welcome to Denver!

Welcome to the 2024 annual WSWs meeting. The Program Committee and Local Arrangements Committee have worked 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.

**LOCAL ARRANGEMENTS COMMITTEE
MEMBERS**

**Eric Westra, Chair
Rui Liu**

PROGRAM COMMITTEE MEMBERS

**Tim Prather, Chair
Marcelo Moretti
Nevin Lawrence**



Student
Contest



Breakfast



Break



Reception

WSWS 2024 PROGRAM AT A GLANCE


Tuesday, March 5


 **Poster Session 7:30 – 9:15 am**
Authors of Odd Numbered Posters Present Colorado B

General Session 9:30 – 12:00 pm Colorado A

Student Luncheon 12:00 – 1:15 pm Maroon Peak

Colorado B	Colorado A	Mt. Sopris A	Mt. Sopris B
Poster Room Open 7:30 am to 5:00 pm	Weeds of Agronomic Crops 1:30 pm to 5:00 pm	Weeds of Range, Forest, and Natural Areas 1:30 pm to 3 PM Basic Biology, Ecology and Technology 3:30 to 5 pm	Weeds of Horticultural Crops 1:30 pm to 3:00 pm

 **BREAK – 3:00 pm to 3:30 pm Colorado B**

 **Student Reception 5:00 – 6:30 pm Maroon Peak**


Wednesday, March 6

 **Poster Session 7:30 - 9:15 am**
Authors of Even Numbered Posters Present Colorado B

Colorado B	Colorado A	Mt. Sopris A	Mt. Sopris B
Poster Room Open 7:30 am to 5:00 pm	Basic Biology, Ecology and Technology and Discussion 9:30 am to 11:45 am	Weeds of Range, Forestry and Natural Areas and Discussion Session 9:30 am to 11:00 am	Weeds of Horticultural Crops and Discussion Session 9:30 am to 11:45 am

WSWS Awards Luncheon 11:45 am - 1:30 pm Aspen Ballroom

Colorado B	Colorado A	Mt. Sopris A	Mt. Sopris B
Poster Room Open 7:30 am to 5:00 pm	Weeds of Agronomic Crops and Discussion Session 1:30 pm to 4:00 pm	Weeds of Range, Forestry and Natural Areas 1:30 pm to 3:00 pm	Symposium: ESA, How We Got Here and Potential Implications 1:30 pm to 5:00 pm

 **BREAK – 3:00 pm to 3:30 pm Colorado B**

<u>Please remove posters by 5:00 pm</u>	Weeds of Agronomic Crops and Discussion Session 1:30 pm to 4:00 pm		Symposium: ESA, How We Got Here and Potential Implications 1:30 pm to 5:00 pm
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What's New in Industry? 5:15 pm - 6:15 pm Colorado A

Student Night Out 6:30 pm

Thursday, March 7

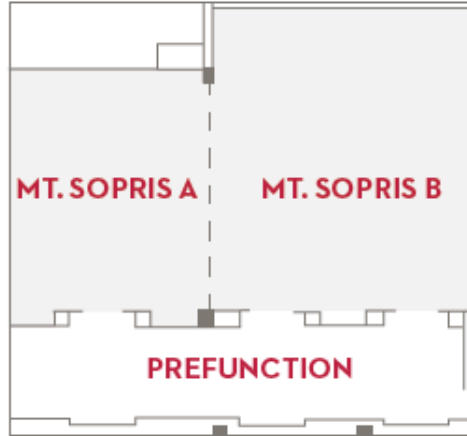
 **WSWS Business Meeting Breakfast and Student Awards**
6:30 - 9:00 am Aspen Ballroom

Colorado B	Colorado B	Mt. Sopris A	Mt. Sopris B
Weeds of Agronomic Crops 9:30 am to 11:30 am	Symposium – Palmer Amaranth in the West 9:30 am to 12:00 pm		

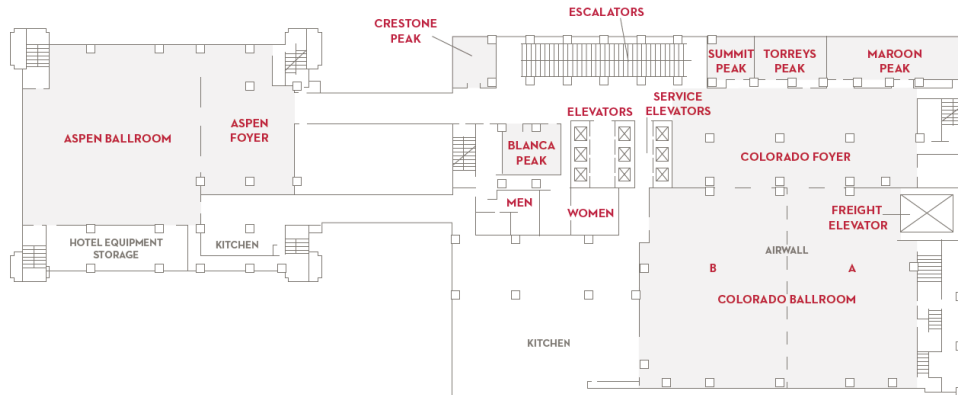
Grand Hyatt Denver
1750 Welton Street
Denver, Colorado, USA, 80202
303-295-1234

Floor Plan

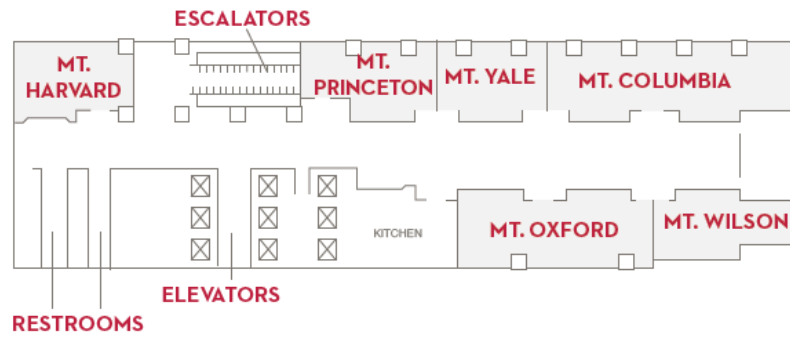
Lobby Level



Second Floor



Third Floor



**WSWS SPECIAL EVENTS – MONDAY
MARCH 4**

12:00 pm to 5:00 pm	Board of Directors Meeting Maroon Peak
3:00 pm to 5:30 pm	WERA-77 Meeting Torreys Peak
4:00 pm to 6:00 pm	Registration Colorado Foyer
5:00 pm to 11:00 pm	Poster Display Set-Up Colorado B
5:00 pm to 11:00 pm	Sustaining Members Displays Colorado Foyer
5:00 pm to 11:00 pm	Presentation Practice Room Torreys Peak
6:00 pm to 8:00 pm	WSWS Members Welcome Reception Colorado A <i>Y Sponsored by NuFarm</i>

**WSWS SPECIAL EVENTS – TUESDAY
MARCH 5**

7:00 am to 4:00 pm	Registration Colorado Foyer
7:30 am to 5:00 pm	Poster Displays Colorado B
7:30 am to 5:00 pm	Sustaining Members Displays Colorado Foyer
7:45 am to 9:15 am	Poster Session – Authors of Odd Numbered Posters Present Colorado B <i>■ Sponsored by Hubbard Ag Science</i>
9:30 am to 11:00 pm	Presentation Practice Room Torreys Peak
9:30 am to 12:00 pm	General Session Colorado A
Noon to 1:15 pm	Student Luncheon Maroon Peak <i>Sponsored by Bayer</i>
3:00 pm to 3:30 pm	■ Break - Sponsored by Jemmett Consulting and Research Farm R&D Sprayers & GDM Solutions, Inc.
5:00 pm to 6:30 pm	Student Reception Maroon Peak <i>Sponsored by Syngenta</i>

**WSWS SPECIAL EVENTS –
WEDNESDAY MARCH 6**

7:00 am to 4:00 pm	Registration Colorado Foyer
7:00am to 11:00 pm	Presentation Practice Room Torreys Peak
7:30 am to 5:00 pm	Sustaining Members Displays Remove Between 5 and 7 pm Colorado Foyer
7:45 am to 9:15 am	Poster Session – Authors of Even Numbered Posters Present Colorado B ☐ <i>Sponsored by Helena</i>
9:00 am to 9:30 am	WSWS New Officer Orientation – Eric Gustafson, WSWS- Business Manager Maroon Peak
9:30 am to 5:00 pm	Poster Displays Remove Posters by 5:00 pm Colorado B
11:45 am to 1:30 pm	Awards Luncheon Aspen Ballroom <i>Sponsored By</i> <i>Corteva</i> <i>UPL LTD.</i> <i>Miller Research</i> <i>Rohlfs & Adkins Research</i> <i>The Amalgamated Sugar Company</i>
1:30 pm to 5 pm	Symposium – ESA, How We Got Here and Potential Implications
3:15 pm to 3:30 pm	☐ Break – Sponsored by Gowan
5:00 pm to 6:15 pm	What’s New in Industry? Colorado A
6:30 pm	Student Night Out

**WSWS SPECIAL EVENTS –
THURSDAY MARCH 7**

6:30 am to 9:00 am	WSWS Business Breakfast Aspen Ballroom ☐ <i>Sponsored by</i> <i>Corteva Agriscience</i> <i>VARCO, Inc.</i> <i>BASF</i> <i>Mountain West PEST</i>
8:00 am to 10:00 am	Registration Colorado Foyer
9:30 pm to 12:00 pm	Symposium: Palmer Amaranth in the West Colorado B

PROGRAM

MONDAY AFTERNOON MARCH 4

WSWS Board of Directors Meeting

LOCATION: Maroon Peak
TIME: 12:00 PM - 5:00 PM MST
CHAIR: Curtis R. Rainbolt
BASF Corporation
Meridian, ID

MONDAY AFTERNOON MARCH 4

WERA-77 Meeting

LOCATION: Torreys Peak
TIME: 3:00 PM - 5:00 PM MST

MONDAY AFTERNOON MARCH 4

Registration

LOCATION: Colorado Foyer
TIME: 4:00 PM - 6:00 PM MST

MONDAY AFTERNOON MARCH 4

Poster Display Set Up

LOCATION: Colorado B
TIME: 5:00 PM - 9:00 PM MST

MONDAY AFTERNOON MARCH 4

WSWS Members Welcome Reception

LOCATION: Colorado A
TIME: 6:00 PM - 9:00 PM MST
CHAIR: Curtis R. Rainbolt
BASF Corporation
Meridian, ID

TUESDAY MORNING MARCH 5

Registration

LOCATION: Colorado Foyer
TIME: 7:00 AM - 4:00 PM MST

***POSTER SESSION: March 5, Odd Numbers
March 6, Even Numbers***

LOCATION: Colorado B
TIME: 7:30 AM - 9:15 AM

POSTER - Weeds of Range, Forestry, and Natural Areas

***PRESENTER † STUDENT CONTEST**

† **Assessing the Effectiveness of Plant Identification Apps During Invasive Plant Surveys.** Daniel J. Coles*¹, Chelsea-Victoria F. Turner², Kelsey C. Brock²; ¹University of Wyoming/Plant Sciences Department, Laramie, WY, ²University of Wyoming - Plant Sciences, Laramie, WY (1)

† **A Case for EDRR in Wyoming.** Caroline M. Kittle*¹, Kelsey C. Brock²; ¹University of Wyoming, Laramie, WY, ²University of Wyoming - Plant Sciences, Laramie, WY (2)

Invasive Annual Grass Control on Rangelands with Indaziflam: A Summary Analysis. Brian A. Meador*¹, Jaycie N. Arndt², Beth Fowers³, Chloe M. Mattilio³, Claire F. Visconti³; ¹University of Wyoming Sheridan Research and Extension Center, Laramie, WY, ²University of Wyoming, Arvada, WY, ³University of Wyoming, Sheridan, WY (3)

Seed Ecology of the Invasive Malta Starthistle (*Centaurea melitensis*) and Implications for Management. Talia J. Humphries*; Texas A&M University, College Station, TX (4)

Weed Suppression in Rangeland and Natural Areas Utilizing Native Grasses. Liberty B. Galvin*¹, Zhenglin Zhang²; ¹Oklahoma State University, Stillwater, OK, ²University of California Davis, Davis, CA (5)

†**Factors Influencing Plant Response to Indaziflam.** Maggi E. Mathews*¹, Weston Maughan², Mirella F. Ortiz¹, Eric P. Westra¹, Corey V. Ransom¹; ¹Utah State University, Logan, UT, ²Washington State University, Pullman, WA (6)

†**Ornamental Plants: Invasion Risk for Wyoming.** Alexandra von Bergman*¹, Kelsey C. Brock²; ¹University of Wyoming, Laramie, WY, ²University of Wyoming - Plant Sciences, Laramie, WY (7)

Comparing Remotely-Sensed Invasive Annual Grass Estimates with Ground Monitoring Data at Varying Spatial Scales. Chloe M. Mattilio*¹, Brian A. Mealor², Jaycie N. Arndt³, Beth Fowers¹, Claire F. Visconti¹; ¹University of Wyoming, Sheridan, WY, ²University of Wyoming Sheridan Research and Extension Center, Laramie, WY, ³University of Wyoming, Arvada, WY (8)

†**Seedbank Suppression is Critical for Long-Term Dyers Woad Control: It's a Long Woad.** Maloree J. McDonald*¹, Erin M. Hettinger¹, Eric P. Westra¹, Mirella F. Ortiz¹, Tom A. Monaco², Corey V. Ransom¹; ¹Utah State University, Logan, UT, ²USDA-ARS, Logan, UT (9)

Elongated Mustard Management Update in Utah. Cody J. Beckley*, Natalie L. Fronk, Eric P. Westra, Mirella F. Ortiz, Corey V. Ransom; Utah State University, Logan, UT (10)

Managing Tall Oatgrass: It's Not the Cow, It's the How Part II. Kelly T. Uhing*, Ryan Middleton, Ann Lezberg; City of Boulder Open Space and Mountain Parks, Boulder, CO (11)

POSTER - Basic Biology, Ecology, and Technology

†**Wind Speed and Nozzle Orientation Impact on Spray Patterns in Wind-Tunnel Experiments.** Gabriel de Souza Lemes*¹, Aleksandra Pantic¹, Taylor Lundgreen², Jeffrey Golus³, Milos Zaric³; ¹University of Nebraska, North Platte, NE, ²University of Nebraska, Lincoln, NE, ³University of Nebraska - Lincoln, North Platte, NE (12)

†**The Role of Cytokinin and Sucrose on 2,4-D Rapid Response of *Coryza sumatrensis*.** Luisa C. Baccin*, Marcelo L. Moretti; Oregon State University, Corvallis, OR (13)

Nozzle Angle and Orientation Considerations for Targeted Spray Applications. Jeffrey Golus*¹, Aleksandra Pantic², Gabriel de Souza Lemes², Milos Zaric¹; ¹University of Nebraska - Lincoln, North Platte, NE, ²University of Nebraska, North Platte, NE (14)

†**Potential Impacts of Transgenerational Memory from Weed Competition on Spring Wheat.** Albert O. Kwarteng*; University of Idaho, Moscow, ID (15)

†**Elevated Temperature Impact on Grass and Broad Leaf Weeds.** Amna Dar*, Swati Shrestha, Amarnadh Oleti; Oklahoma State University, Stillwater, OK (16)

†**Herbicide Resistance Within Oregon's Perennial Horticulture Crops: New Cases of Pendimethalin, Glufosinate, and ALS Resistance.** Leah N. Mowery*, Marcelo L. Moretti, Joshua W. Miranda; Oregon State University, Corvallis, OR (17)

†**Germination of Common Lambsquarters (*Chenopodium album*) Seeds in Response to Nitrate and Far-red Light.** Jonah Zubil Ziyaaba*, Andrew R. Kniss; University of Wyoming, Laramie, WY (18)

Modeling Germinability of Annual Bluegrass in Grass Seed Production Systems. Clint M. Mattox*; USDA-ARS, Corvallis, OR (19)

†**Basis for Dicamba Resistance in Palmer Amaranth (*Amaranthus palmeri*).** Dustin Abdiel Moreno*¹, Raphael M. Garrido², Larry Steckel³, Sofia Marques-hill⁴, Sarah Morran¹, Todd A. Gaines¹, Franck E. Dayan¹; ¹Colorado State University, Fort Collins, CO, ²São Paulo State University, Assis, Brazil, ³University of Tennessee, Jackson, TN, ⁴Colorado State University - Agricultural Biology, Fort Collins, CO (20)

†**Understanding the Molecular Mechanism of a Novel Transcription Factor Imparting Non-target-site Resistance to Quizalofop in Rice.** Srishti Gupta*; Colorado state University, Fort Collins, CO (21)

POSTER - Weeds of Agronomic Crops

†**Relating Herbicide Residue Level to Sugarbeet Stand and Growth Reduction.** Adam Kennedy*¹, Albert T. Adjesiwor¹, Clarke Alder²; ¹University of Idaho, Kimberly, ID, ²Amalgamated Sugar, Boise, ID (22)

†**Pre-emergence Herbicide Efficacy as Influenced by Delayed Incorporation.** Chandra L. Montgomery*¹, Albert T. Adjesiwor²; ¹University of Idaho, Moscow, ID, ²University of Idaho, Kimberly, ID (23)

Quizalofop Efficacy for Feral Rye Control in CoAXium Wheat Production Systems in Oregon. Victor Ribeiro*¹, Carol Mallory-Smith¹, Jennifer Gourlie², Judit Barroso³; ¹Oregon State University, Corvallis, OR, ²Oregon State University, Pendleton, OR, ³Oregon State University, Adams, OR (24)

Alternative Herbicides to Control Glyphosate-Resistant *Erigeron* spp. Jennifer Gourlie*¹, Fernando H. Oreja², Judit Barroso²; ¹Oregon State University, Pendleton, OR, ²Oregon State University, Adams, OR (25)

†Integration of Fall-Planted Cereal Cover Crops and Herbicides for Weed Control in Dry Bean. Prayusha Bhattarai*¹, Albert T. Adjewor², Olga S. Walsh³; ¹University of Idaho, Twin Falls, ID, ²University of Idaho, Kimberly, ID, ³University of Idaho, Parma, ID (26)

†*Echinochloa* Complex Differential Response to Florpyrauxifen-benzyl in California. Deniz Inci*, Kassim Al-Khatib; University of California, Davis, Davis, CA (27)

Confirmation of Glyphosate Resistance in *Erigeron* spp. in Oregon. Fernando H. Oreja*¹, Jennifer Gourlie², Judit Barroso¹; ¹Oregon State University, Adams, OR, ²Oregon State University, Pendleton, OR (28)

†Tolpyralate and Bromoxynil Efficacy on Green Foxtail in Small Grains. Hayden J. Lee*¹, Kirk A. Howatt¹, Joseph Mettler¹, Ryan M. Humann²; ¹North Dakota State University, Fargo, ND, ²Corteva Agriscience, Fargo, ND (29)

†Effect of Relative Humidity on Glufosinate Efficacy in Kochia and Common Lambsquarters Populations. Het Samir Desai*¹, Lovreet S. Shergill², Fabian Menalled¹; ¹Montana State University, Bozeman, MT, ²Montana State University, Huntley, MT (30)

Effects of Adjuvants on Canola Desiccation with Diquat. Jim T. Daniel*¹, Kirk A. Howatt²; ¹Daniel Ag Consulting, Keenesburg, CO, ²North Dakota State University, Fargo, ND (31)

Wild Oat Resistance in North Dakota. Joseph Mettler*, Kirk A. Howatt; North Dakota State University, Fargo, ND (32)

†In-Vitro Evaluation of Sorgoleone for Monocot Weed Growth Inhibition. Devanshi H. Desai*¹, Paul Nugent¹, Clint M. Mattox², Joan Campbell³, Scott R. Baerson⁴, Timothy Seipel¹, Wesley Everman⁵, Lovreet S. Shergill⁶; ¹Montana State University, Bozeman, MT, ²USDA-ARS, Corvallis, OR, ³University of Idaho, Moscow, ID, ⁴USDA-ARS, Oxford, MS, ⁵North Carolina State University, Raleigh, NC, ⁶Montana State University, Huntley, MT (33)

†Fall Application of Residual Herbicides Reduces Weed Abundance in Spring-Planted Chickpeas. Akamjot S. Brar*¹, Qasim Khan², Fabian Menalled¹, Clint W. Beiermann³, Zach Miller⁴, Kent McVay², Lovreet S. Shergill²; ¹Montana State University, Bozeman, MT, ²Montana State University, Huntley, MT, ³University of Wyoming, Laramie, WY, ⁴Montana State University, Corvallis, MT (34)

Glyphosate & Glufosinate: Fate in California Almond Orchards. Rohith Vulchi*, Bradley D. Hanson; University of California, Davis, Davis, CA (35)

Palmer Amaranth (*Amaranthus palmeri*) and Waterhemp (*Amaranthus tuberculatus*): an Emerging Problem in Idaho and Oregon. Clarke Alder*¹, Albert T. Adjewor², Joel Felix³; ¹Amalgamated Sugar, Boise, ID, ²University of Idaho, Kimberly, ID, ³Oregon State University, Ontario, OR (36)

Does Soil-applied Nitrogen Influence Weed Control and Soybean Yield? Jill Alms, David Vos, Eric Jones*; South Dakota State University, Brookings, SD (37)

†Evaluation of Stale Seedbed and Delayed Planting Date for Weed Management in Sugar Beet. Newman Benjamin Teye-doku*; University of Wyoming/Plant Science Department, Laramie, WY (38)

†"Potential Of Soil and Plant Surfactants on the Efficacy of Some Pre- And-post Emergence Herbicides". Bianey A. Medina Garcia*¹, John Breen², Anil Shrestha³; ¹California State University Fresno, Fresno, CA, ²Nutrien Ag Solutions, Biola, CA, ³California State University, Fresno, CA (39)

Wheat, Canola, and Pulse Tolerance to Pronamide. Joan Campbell*; University of Idaho, Moscow, ID (40)

RapidilTM, a New Preplant Burndown PPO-Herbicide from Valent U.S.A. Garrison J. Gundy*¹, Patrick A. Clay², John Pawlak³, Jonathon Kohrt⁴, Chad L. Smith⁵, Eric J. Ott⁶, Randall L. Landry⁷; ¹Valent U.S.A LLC, Mcpherson, KS, ²Valent U.S.A. LLC, Fresno, CA, ³Valent U.S.A. LLC, Spring Lake, MI, ⁴Valent USA LLC, Noblesville, IN, ⁵Valent U.S.A. LLC, Hallsville, MO, ⁶Valent U.S.A. LLC, Greenfield, IN, ⁷Valent U.S.A. LLC, Seymour, IL (41)

†Herbicide-resistant Common Chickweed [*Stellaria media*(L.) Vill.] Populations and Yield Losses in Small Grain Crops in the Central Valley of California. Jennifer Valdez Herrera*¹, Anil Shrestha², Katherine Waselkov², Nicholas E. Clark³; ¹California State University, Fresno, Fresno, CA, ²California State University, Fresno, CA, ³University of California Cooperative Extension, Kings County, Hanford, CA (42)

†Mechanism of Resistance to Pyroxulam in Italian Ryegrass. Shuo Wang*¹, Samuel R. Revolinski², Marija Savic¹, Shahbaz Ahmed¹, Ian Burke¹; ¹Washington State University, Pullman, WA, ²University of Kentucky, Lexington, KY (43)

Potential Interaction Between Cover Crops and Soil Nitrogen for Dry Edible Bean Growth and Development. Andrew R. Kniss, Ramawatar Yadav*; University of Wyoming, Laramie, WY (44)

Weed Control with 2,4-D and Glufosinate Applied Alone, Mixed, and Sequentially in Soybean. David Vos, Jill Alms, Eric Jones*; South Dakota State University, Brookings, SD (45)

Response of Italian Ryegrass to Crop Rotation and Indaziflam in Eastern Washington. Marija Savic*¹, Kenton C. Lyman¹, Samuel R. Revolinski², Ian Burke¹; ¹Washington State University, Pullman, WA, ²University of Kentucky, Lexington, KY (46)

Kentucky Bluegrass Response to Pyroxasulfone and Carfentrazone. Jessica E. R. Kalin*, Ian Burke; Washington State University, Pullman, WA (47)

Evaluation of Preemergence and Postemergence Herbicide Options in Soybean for Weed Control in Southwest North Dakota. Caleb D. Dalley*, Daniel Guimaraes Abe; North Dakota State University, Hettinger, ND (48)

Impact of Irrigation on Herbicide Activity in Cotton Production System. Jasleen S. Makkar*, Rupinder Saini, Preetaman Bajwa, Lindsey Slaughter, Sukhbir Singh; Texas Tech University, Lubbock, TX (49)

Weed Control from Soil Residual Herbicides in Sugarbeet. Nevin Lawrence¹, Andrew R. Kniss*²; ¹University of Nebraska, Scottsbluff, NE, ²University of Wyoming, Laramie, WY (50)

Bulk Segregant Analysis Identifies Regions of the Genome Associated with Paraquat Resistance in *Conyza Sumatrensis*. Ana Beatriz Amaral de Macedo¹, André Lucas Simões Araujo², Jacob S. Montgomery², Eduardo Amorim¹, Jessica Leal³, Sarah Morran², Todd A. Gaines², Camila Ferreira Pinho*¹; ¹UFRRJ - Federal Rural University of Rio de Janeiro, Seropédica, Brazil, ²Colorado State University, Fort Collins, CO, ³UPL Brazil, Pereiras, Brazil (51)

†Effect of Cover Crop Presence on Herbicide Efficacy. Madison L. Wright*, Ramawatar Yadav, Andrew R. Kniss; University of Wyoming, Laramie, WY (52)

†Evaluation of Dicamba, Glyphosate, and Glufosinate-Resistant Sugar Beet Across the Western Production Region. Abraham Akuoko*¹, Albert T. Adjesiwor², Joel Felix³, Andrew R. Kniss⁴, Nevin Lawrence⁵; ¹University of Nebraska, Lincoln, NE, ²University of Idaho, Kimberly, ID, ³Oregon State University, Ontario, OR, ⁴University of Wyoming, Laramie, WY, ⁵University of Nebraska, Scottsbluff, NE (53)

Herbicide Resistant Italian Ryegrass Survey in Northern Idaho and Eastern Washington. Traci Rauch*, Joan Campbell; University of Idaho, Moscow, ID (54)

Crop Safety Evaluation of Dichlorprop-p and Bromoxynil Preplant Applications. Daniel Beran*¹, Bob Bruss²; ¹Nufarm, Eldora Us, IA, ²Nufarm, Morrisville, NC (55)

Scorch EXT and Maestro EXT: Dichlorprop-p Based Herbicides for Management of Kochia in Fallow and Small Grains. Daniel Beran*¹, Bob Bruss²; ¹Nufarm, Eldora Us, IA, ²Nufarm, Morrisville, NC (56)

Pre-plant Burndown of *Conyza spp.* in soybeans using atrazine + mesotrione and the evaluation of changes in leaf structure, weed germination timing, and plant back intervals. Pedro Antonio Vougado Salmazo*¹, Paulo V. Da Silva¹, Claudia A.I. Cardoso², Arthur C. Sanchez³, Elias S. Medeiros³, Mirella F. Ortiz⁴; ¹Universidade Federal da Grande Dourados, Dourados, Brazil, ²Universidade Estadual de Mato Grosso do Sul, Dourados - Ms, Brazil, ³Universidade Federal da Grande Dourados, Dourados - Ms, Brazil, ⁴Utah State University, Logan, UT (57)

Halauxifen + Diclosulam in Association with Other Herbicides in Pre-plant of Soybeans ENLIST: Control of *Conyza Spp.*, Changes in Leaf Structure and Membrane Damage. Mateus S. Monteiro*¹, Paulo V. Da Silva², Pedro Antonio Vougado Salmazo², Cleberton C. Santos¹, Silvana P. Q. Scaloni¹, Elias S. Medeiros¹; ¹Universidade Federal da Grande Dourados, Dourados - Ms, Brazil, ²Universidade Federal da Grande Dourados, Dourados, Brazil (58)

Indaziflam Reduces Downy Brome Seedbanks in Wheat-Fallow Systems in Eastern Washington. Weston Maughan*, Mariana F B Amaral, Marija Savic, Jessica E. R. Kalin, Ian Burke; Washington State University, Pullman, WA (59)

Building a Weed Seed Database from the Field of Inland Pacific Northwest. Shahbaz Ahmed*, Marija Savic, Jessica E. R. Kalin, Ian Burke; Washington State University, Pullman, WA (60)

Mature Alfalfa Tolerance to Flaming. Stevan Knezevic*¹, Luka Milosevic², Jon Scott³, Chris Bruening³, George Gogos³; ¹University of Nebraska - Lincoln, Concord, NE, ²University of Nebraska - Lincoln, Department of Agronomy and Horticulture, Lincoln, NE, ³University of Nebraska - Lincoln, Lincoln, NE (61)

POSTER - Teaching and Outreach

Field Experiences for Effective Weed Management: the Promise of Co-Produced Student-Led Invasive Plant Surveys. Jacob Courkamp*; Colorado State University, Fort Collins, CO (62)

†From Stress to Success: Hormesis Explained. Luka Milosevic*¹, Stevan Knezevic²; ¹University of Nebraska - Lincoln, Department of Agronomy and Horticulture, Lincoln, NE, ²University of Nebraska - Lincoln, Concord, NE (63)

Advancing Weed Science Research, Extension, and Education: NIFA Grants and Panel Reviewer Opportunities.

Annu Kumari^{*1}, Cynthia Sias², James Kells³, Vijay Nandula⁴, Lee Van Wychen⁵; ¹Crop, Soil & Environmental Sciences Department, Auburn University, Auburn, AL, ²Virginia Tech, Blacksburg, VA, ³Michigan State University, East Lansing, MI, ⁴USDA, Stoneville, MS, ⁵Weed Science Society of America, Alexandria, VA (64)

Developing a Decision Support System to Aid in Selection of Multiple Mode of Action Tank Mixes.

Breanne D. Tidemann^{*1}, Gregory Innes¹, Christine Cock², Charles M. Geddes³; ¹Agriculture and Agri-Food Canada, Lacombe, AB, Canada, ²Agriculture and Agri-Food Canada, Summerland, BC, Canada, ³Agriculture and Agri-Food Canada, Lethbridge, AB, Canada (65)

The Importance of Communicating Agricultural Science and Technology, the Role of CAST, and You!

Gregory K. Dahl^{*1}, Jill Schroeder², Thomas J. Peters³, Anthony L. Witcher⁴, Gray Turnage⁵; ¹Winfield United Retired, Eagan, MN, ²New Mexico State University, Las Cruces, NM, ³North Dakota State University, Fargo, ND, ⁴Tennessee State University, Mcminnville, TN, ⁵Mississippi State University, Starkville, MS (66)

2023 Survey Results for the Most Common and Troublesome Weeds in Grass Crops, Pasture, and Turf.

Cynthia Sias¹, Annu Kumari², Lee Van Wychen^{*3}; ¹Virginia Tech, Blacksburg, VA, ²Crop, Soil & Environmental Sciences Department, Auburn University, Auburn, AL, ³Weed Science Society of America, Alexandria, VA (67)

What Should Undergraduate Students Learn About Applied Plant Protection?

Randa Jabbour^{*}, Clint W. Beiermann; University of Wyoming, Laramie, WY (68)

Educational Strategies for Sustainable Weed Control in Agricultural Systems with Crop Rotation in the State of Mato Grosso Do Sul Under a Climate Change Scenario.

Paulo V. Da Silva^{*1}, Munir Mauad², Mirella F. Ortiz³; ¹Universidade Federal da Grande Dourados, Dourados, Brazil, ²Universidade Federal da Grande Dourados, Dourados-ms, Brazil, ³Utah State University, Logan, UT (69)

POSTER - Weeds of Horticultural Crops

Exploring the Interaction of Tiafenacil with ACCase Inhibitors and Glufosinate for Italian Ryegrass Control in Hazelnut. Joshua W. Miranda^{*}, Marcelo L. Moretti; Oregon State University, Corvallis, OR (70)

†**Evaluating the Effect of Endothall-treated Irrigation Water on California Crops.** Stephen C. Chang*¹, Bradley D. Hanson²; ¹UC Davis, Davis, CA, ²University of California, Davis, Davis, CA (71)

†**Evaluation of Electrical Weed Control in California Orchards.** Tong Zhen*¹, Bradley D. Hanson²; ¹University of California, Davis - Department of Plant Sciences, Davis, CA, ²University of California, Davis, Davis, CA (72)

Weeds Present at Green Chile Harvest in the Rio Grande Valley of Southern New Mexico. Ram Singh Insa*, Brian Schutte, Erik A. Lehnhoff; New Mexico State University, Las Cruces, NM (73)

Development of Non-synthetic Herbicide Application Programs for Weed Management in Perennial Crops. Clebson Gomes Goncalves*; University of California, UC Cooperative Extension, Lakeport, Ca, CA (74)

WATTS UP! Soil Applied Pulse Electric Field for Weed Control. Austin Frewert*, Marcelo L. Moretti; Oregon State University, Corvallis, OR (75)

†**Reducing Plastic Dependence in Horticulture: Hydromulching in Strawberry.** Andres Torres Moya*, Greta Gramig, Deirdre Prischmann-Voldseth; North Dakota State University, Fargo, ND (76)

†**Hydromulches Enhance Weed Management and Crop Yield in Organic Onion Production.** Waqas Ahmad*¹, Sharon Weyers², Benjamin Weiss³, Lisa Wasko DeVetter³, Andrew Durado⁴, Dilpreet Bajwa⁴, Suzette P. Galinato⁵, Alice Formiga⁶, Greta Gramig¹; ¹North Dakota State University, Fargo, ND, ²USDA, ARS, Morris, MN, ³Washington State University - NWREC, Mount Vernon, WA, ⁴Montana State University, Mozeman, MT, ⁵Washington State University-Pullman, Pullman, WA, ⁶Oregon State University, Corvallis, OR (77)

Evaluating Nostoc Control with Herbicides in Nursery Gravel Pads. David R. King*, Marcelo L. Moretti; Oregon State University, Corvallis, OR (78)

Effect of Hill-drop Seeding on Snap Bean Yield and Potential of In-row Cultivation. Ed Peachey*; Oregon State University, Corvallis, OR (79)

†**Can Paper Mulch Replace Plastic Mulch for Floral Hemp Production?** Brock C. Schulz*, Harlene M. Hatterman-Valenti, Collin Auwater; North Dakota State University, Fargo, ND (80)

Halosulfuron and Imazosulfuron Effects on Yellow Nutsedge Plants Exceeding Sizes Listed on Labels. Brian Schutte*; New Mexico State University, Las Cruces, NM (81)

Management of Herbicide-Resistant Palmer Amaranth in Chipping Potato. Nevin Lawrence*; University of Nebraska, Scottsbluff, NE (82)

Weed Control and Nitrogen Rate Trial on Native Spearmint. Rui Liu*¹, Troy Peters¹, Ruijun Qin²;
¹Washington State University, Prosser, WA, ²Oregon State University, Hermiston, OR (83)

TUESDAY MORNING MARCH 5

General Session

LOCATION: Colorado A
TIME: 9:30 AM - 12:00 PM MST
CHAIR: Curtis R. Rainbolt
BASF Corporation
Meridian, ID
MODERATOR: Timothy S. Prather
University of Idaho
Moscow, ID

***SPEAKER**

09:30 AM Presidential Address. Curtis R. Rainbolt*;
BASF Corporation, Meridian, ID

09:45 AM The Archaeology of the Mesa Verde Region.
Susan C. Ryan*; Research Institute, Crow
Canyon Archaeological Center, Cortez, CO

**10:40 AM Science for a Changing World: Applications
in the Colorado River Basin.** Katharine G.
Dahm*; U.S. Geological Service, Rocky
Mountain Region, Denver, CO

11:25 AM Washington D.C. Policy Update. Lee Van
Wychen*; Weed Science Society of America,
Alexandria, VA

TUESDAY AFTERNOON MARCH 5

Student Luncheon

LOCATION: Maroon Peak
TIME: 12:00 PM - 1:30 PM MST
CHAIR: Curtis R. Rainbolt
BASF Corporation

Meridian, ID
MODERATOR: Aaron Becerra-Alvarez
University of California Davis
Davis, CA
CO-MODERATOR: McKenzie J. Barth
University of Wyoming
Laramie, WY

TUESDAY AFTERNOON MARCH 5

ORAL - Weeds of Agronomic Crops

LOCATION: Colorado A
TIME: 1:30 PM - 3:00 PM MST
CHAIR: Alix Whitener
FMC
Malaga, WA
CO-MODERATOR: Joseph Mettler
North Dakota State University
Fargo, ND

*SPEAKER † STUDENT CONTEST

01:30 PM Alternatives to Paraquat for Weed Burndown in Alfalfa. Albert T. Adjesiwor*¹, McKenna Carnahan², Earl Creech², Chandra L. Montgomery³, James Gomm¹; ¹University of Idaho, Kimberly, ID, ²Utah State University, Logan, UT, ³University of Idaho, Moscow, ID **(84)**

01:45 PM †EPSPS Copy Number Variation is Correlated with Glyphosate Resistance in Some Italian Ryegrass Populations. Victor Ribeiro*¹, Joseph Gallagher², Pete Berry¹, Judit Barroso³, Carol Mallory-Smith¹; ¹Oregon State University, Corvallis, OR, ²United States Department of Agriculture, Corvallis, OR, ³Oregon State University, Adams, OR **(85)**

02:00 PM A Quizalofop-p-ethyl and Glufosinate-ammonium Premix - the Rest of the Story. Richard K. Zollinger*¹, Joseph A. Bruce², Peter J. Porpiglia³; ¹Amvac Chemical Company, Spokane Valley, WA, ²AMVAC Chemical Corporation, Glen Carbon, IL, ³AMVAC Chemical Corporation, Newport Beach, CA **(86)**

02:15 PM †Post-emergence Pendimethalin in Herbicide Mixture Applications Effect on Weed Control and Rice Response in Water-Seeded Rice. Aaron Becerra-Alvarez*, Kassim Al-Khatib; University of California Davis, Davis, CA (87)

02:30 PM Storen: A New Corn Herbicide in 2024 That Provides Clean Rows and Clear Results. Nathan H. Haugrud¹, Scott E. Cully², Thomas H. Beckett³, Benjamin C. Westrich*⁴, Jafe D. Weems⁵, Mark J. Kitt³; ¹Syngenta Crop Protection, Fargo, ND, ²Syngenta Crop Protection, Marion, IL, ³Syngenta Crop Protection, Greensboro, NC, ⁴Syngenta Crop Protection, Loveland, CO, ⁵Syngenta Crop Protection, Kennewick, WA (88)

02:45 PM †Florpyrauxifen-benzyl Provides Selective Broadleaf Weed Control in Sugarbeet. Adam Aberle*; North Dakota State University Department of Plant Science Extension Sugarbeet, Fargo, ND (89)

TUESDAY AFTERNOON MARCH 5

ORAL - Weeds of Range, Forestry, and Natural Areas

LOCATION: Mt. Sopris A
TIME: 1:30 PM - 3:00 PM MST
CHAIR: Rachel H. Seedorf
Colorado State University -
Weed Research Lab
Fort Collins, CO
MODERATOR: Rachel H. Seedorf
Colorado State University -
Weed Research Lab
Fort Collins, CO

***SPEAKER † STUDENT CONTEST**

01:30 PM †Improving Rangeland Sustainability Through Novel Downy Brome Management Tactics. Erin B. Teichroew*, Jane Mangold, Lilly L. Sencenbaugh, Lisa J. Rew; Montana State University, Bozeman, MT (90)

01:45 PM Evaluating Differences in the Ecology of Small, Non-native Annual Mustards and the Need for Management in Grasslands. Lisa J. Rew*, Jordan Meyer-Morey, Matthew Lavin; Montana State University, Bozeman, MT (91)

- 02:00 PM †Effects of Grazing Deferment Following Invasive Annual Grass Control with Indaziflam in Northeast Wyoming.** Walker T. Billings*¹, Brian A. Meador²; ¹University of Wyoming Department of Plant Science, Sheridan, WY, ²University of Wyoming Sheridan Research and Extension Center, Laramie, WY (92)
- 02:15 PM The Effects of Invasive Annual Grass Control on Shrub Leader Growth and Mule Deer (*Odocoileus hemionus*) Visitation in Boulder County, CO US.** Jacob Courkamp*¹, James Sebastian²; ¹Colorado State University, Fort Collins, CO, ²Boulder County Open Space, Longmont, CO (93)
- 02:30 PM †Impacts of Herbicide, and Macro- and Micro-nutrients on Non-native Annual Grass, *Ventenata*, and Desired Species Composition in Montana Rangelands.** Lilly L. Sencenbaugh*, Lisa J. Rew, Jane Mangold; Montana State University, Bozeman, MT (94)
- 02:45 PM Long-Term Resilience of Sagebrush Steppe Plant Communities to Annual Grass Control.** Lisa C. Jones*¹, Georgia R. Harrison², Timothy S. Prather¹; ¹University of Idaho, Moscow, ID, ²Plant Sciences, University of Idaho, Moscow, ID (95)

TUESDAY AFTERNOON MARCH 5

ORAL - Weeds of Horticultural Crops

LOCATION: Mt. Sopris B
 TIME: 1:30 PM - 3:00 PM MST
 CHAIR: Elizabeth G. Mosqueda
 Madera Community College
 Madera, CA
 CO-MODERATOR: Clint M. Mattox
 USDA-ARS
 Corvallis, OR

***SPEAKER † STUDENT CONTEST**

- 01:30 PM Tank Mixing Bicyclopyrone and Bromoxynil Herbicides for Post-Emergence Weed Management in Direct-Seeded Onion.** Joel Felix*; Oregon State University, Ontario, OR (96)

- 01:45 PM †Reducing Hand Hoeing in Chile Pepper by Controlling Weeds in a Rotational Sorghum Crop.** Ram Singh Insa*, Brian Schutte, Erik A. Lehnhoff; New Mexico State University, Las Cruces, NM (97)
- 02:00 PM Adapting Solarization and Biosolarization Technology to Low Desert Agriculture.** James J. Stapleton*; University of California, Parlier, CA (98)
- 02:15 PM †Crop Safety and Weed Control in Organic Highbush Blueberries Using Electrical Weeding.** Luisa C. Baccin*, Marcelo L. Moretti; Oregon State University, Corvallis, OR (99)
- 02:30 PM Onion Response to Bicyclopyrone Applied Pre-Emergence to Manage Weeds in Direct Seeded Onion.** Joel Felix*; Oregon State University, Ontario, OR (100)
- 02:45 PM †Progress Toward In-season Chemigation Treatments for Branched Broomrape Management.** Matthew Fatino*, Brad Hanson; University of California, Davis, Davis, CA (101)

TUESDAY AFTERNOON MARCH 5

Coffee Break

LOCATION: Colorado B
TIME: 3:00 PM - 3:30 PM MST

TUESDAY AFTERNOON MARCH 5

ORAL - Weeds of Agronomic Crops

LOCATION: Colorado A
TIME: 3:30 PM - 5:00 PM MST
CHAIR: Alix Whitener
FMC
Malaga, WA
CO-MODERATOR: Joseph Mettler
North Dakota State University
Fargo, ND

***SPEAKER † STUDENT CONTEST**

03:30 PM †Optimization of Metamitron Rate Applied PRE in Sugar Beet for Management of Palmer Amaranth. Abraham Akuoko*¹, Phil Westra², Chris Proctor¹, Cody F. Creech³, Nevin Lawrence³; ¹University of Nebraska, Lincoln, NE, ²Colorado State University, Fort Collins, CO, ³University of Nebraska, Scottsbluff, NE (102)

03:45 PM †Herbicide Strategies to Manage Glyphosate-, Glufosinate-, and Dicamba-Resistant Kochia Populations in Triple-Stacked Sugarbeet Cultivar. Het Samir Desai*¹, Fabian Menalled¹, Lovreet S. Shergill²; ¹Montana State University, Bozeman, MT, ²Montana State University, Huntley, MT (103)

04:00 PM Herbicide-Resistance In Kochia (*Bassia scoparia*) is Increasing in North Dakota. Joseph T. Ikley*¹, Kirk A. Howatt¹, Brian Jenks², Quincy D. Law¹; ¹North Dakota State University, Fargo, ND, ²North Dakota State University, Minot, ND (104)

04:15 PM Kochia Resistance to Foliar-Applied PPO Herbicides. Quincy D. Law¹, Charles M. Geddes², Kirk A. Howatt*¹, Brian Jenks³, Joseph T. Ikley¹; ¹North Dakota State University, Fargo, ND, ²Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, ³North Dakota State University, Minot, ND (105)

04:30 PM Kochia Resistance to Soil-Applied PPO Herbicides. Brian Jenks*¹, Kirk A. Howatt², Joseph T. Ikley²; ¹North Dakota State University, Minot, ND, ²North Dakota State University, Fargo, ND (106)

04:45 PM †Creating and Employing a Geospatial Database for Monitoring Resistant Weed Populations in the Pacific Northwest. Jamie Burroughs*; Oregon State University, Corvallis, OR (107)

TUESDAY AFTERNOON MARCH 5

ORAL - Basic Biology, Ecology, and Technology

LOCATION: Mt. Sopris A
TIME: 3:30 PM - 5:00 PM MST
CHAIR: Alex R. Ceseski
University of California,
Davis
Davis, CA
CO-MODERATOR: Breanne D. Tidemann
Agriculture and Agri-Food
Canada
Lacombe, AB, Canada

***SPEAKER † STUDENT CONTEST**

- 03:30 PM †The Influence of Rainfall on S-metolachlor Activity Applied to Wheat Residue.** Olanrewaju E. Adeyemi*¹, Fernando Munaro², Pedro Antonio Vougado Salmazo², Paulo V. Da Silva², Eric P. Westra¹, Mirella F. Ortiz¹; ¹Utah State University, Logan, UT, ²Universidade Federal da Grande Dourados, Dourados, Brazil **(108)**
- 03:45 PM Novel Weed Control with Low Doses of Electricity.** Erik A. Lehnhoff*¹, Leslie Beck¹, Paul Neher²; ¹New Mexico State University, Las Cruces, NM, ²Retired, Las Cruces, NM **(109)**
- 04:00 PM †Evaluation of Intermediate Wheatgrass (*Thinopyrum intermedium*) Herbicide Tolerance.** McKenzie J. Barth*, Andrew R. Kniss, David A. Claypool; University of Wyoming, Laramie, WY **(110)**
- 04:15 PM From Liberty 280 (Racemic Glufosinate) to Liberty® ULTRA Herbicide (L-glufosinate), Powered by Glu-LTM Technology.** Rand M. Merchant*¹, Eric C. Schultz², ALice L. Harris², Marcel P. Kienle³, Ryan B. Aldridge², Samuel D. Willingham², Ingo Meiners², Siyuan Tan⁴; ¹BASF, Greeley, CO, ²BASF, Rtp, NC, ³BASF, Limburgerhof, Germany, ⁴BASF, Cary, Nc 27519, Usa, NC **(111)**
- 04:30 PM †Effect of Different Herbicides on Soil Health in Cotton Production Systems.** Jasleen S. Makkar*, Rupinder Saini, Arjun Kafle, Lindsey Slaughter, Glen Ritchie; Texas Tech University, Lubbock, TX **(112)**

04:45 PM Developing a Petri Dish Assay to Compare the Response of Pigweed Species to Residual Herbicides. Ramawatar Yadav*, Andrew R. Kniss; University of Wyoming, Laramie, WY (113)

TUESDAY AFTERNOON MARCH 5

ORAL - Teaching and Outreach

LOCATION: Mt. Sopris B
TIME: 3:30 PM - 4:45 PM MST
CHAIR: Kirk A. Howatt
North Dakota State University
Fargo, ND
CO-MODERATOR: Harlene M. Hatterman-Valenti
North Dakota State University
Fargo, ND

***SPEAKER † STUDENT CONTEST**

03:30 PM † Various Dicamba Thresholds in Soybean. Luka Milosevic*¹, Amit J. Jhala², Jon Scott², Stevan Knezevic³; ¹University of Nebraska - Lincoln, Department of Agronomy and Horticulture, Lincoln, NE, ²University of Nebraska Lincoln, Lincoln, NE, ³University of Nebraska - Lincoln, Concord, NE (114)

03:45 PM Invasive Annual Grasses Tech Transfer Partnership: Empowering Land Managers to Strategically Defend and Grow the Sagebrush Core. Claire F. Visconti*¹, Brian A. Mealor², Seth Flanigan³, Lindy Garner⁴, Mandi Hirsch⁵, Jeremy Maestas⁶, Jane Mangold⁷, Paul Meiman⁸, Andrew Olsen⁹, Jordan Spaak¹⁰; ¹University of Wyoming, Sheridan, WY, ²University of Wyoming Sheridan Research and Extension Center, Laramie, WY, ³Bureau of Land Management, Boise, ID, ⁴US Fish and Wildlife Service, Great Falls, MT, ⁵Intermountain West Joint Venture, Lander, WY, ⁶NRCS, Bend, OR, ⁷Montana State University, Bozeman, MT, ⁸University of Nevada - Reno, Elko, NV, ⁹Intermountain West Joint Venture, Missoula, MT, ¹⁰National Park Service, Fort Collins, CO (115)

04:00 PM Protecting Freshwater Resources in the Arid West: Understanding the Impacts of Aquatic Weeds. Mirella F. Ortiz*¹, Scott J. Nissen²; ¹Utah State University, Logan, UT, ²Colorado State University, Ft Collins, CO (116)

04:15 PM Utilizing Hands-On Learning During In-Person Extension Weeds Schools. Jeanne Falk Jones*; Kansas State University - NW Area Office, Colby, KS (117)

04:30 PM Podcasting as a Strategy to Win the War Against Weeds. Sarah Lancaster*¹, Joseph T. Ikley², Alyssa Essman³; ¹Kansas State University, Manhattan, KS, ²North Dakota State University, Fargo, ND, ³The Ohio State University, Columbus, OH (118)

TUESDAY AFTERNOON MARCH 5

Discussion - Teaching and Outreach

LOCATION: Mt. Sopris A
TIME: 4:30 PM - 5:00 PM MST

So You Want to Start a Podcast?

TUESDAY AFTERNOON MARCH 5

Student Reception

LOCATION: Maroon Peak
TIME: 5:00 PM - 6:30 PM MST

WEDNESDAY MORNING MARCH 6

Registration

LOCATION: Colorado Foyer
TIME: 7:00 AM - 4:00 PM MST

WEDNESDAY MORNING MARCH 6

ORAL - Basic Biology, Ecology, and Technology

LOCATION: Colorado A
TIME: 9:30 AM - 11:15 AM MST
CHAIR: Alex R. Ceseski
University of California,
Davis
Davis, CA
CO-MODERATOR: Breanne D. Tidemann
Agriculture and Agri-Food
Canada
Lacombe, AB, Canada

***SPEAKER † STUDENT CONTEST**

- 09:30 AM † Buffering the Effects of a Changing Climate: Halophytes as a Source of Osmotic Stress Tolerance.** John M. Lemas*¹, Philip Westra¹, Eric L. Patterson², Todd A. Gaines¹; ¹Colorado State University, Fort Collins, CO, ²Michigan State University, East Lansing, MI (119)
- 09:45 AM Factors Affecting the Management of Aminopyralid Residues, a Persistent Herbicide Used for Invasive Plant Management in Alaska.** Gino Graziano*¹, Zachary Redman², Brant Woodruff³; ¹UAF Cooperative Extension Service, Anchorage, AK, ²University of Alaska Anchorage, Anchorage, AK, ³University of Alaska Fairbanks, Anchorage, AK (120)
- 10:00 AM † Investigating Dicamba Resistance in Kochia Populations from Colorado.** André Lucas Simões Araujo*, Jacob S. Montgomery, Todd A. Gaines; Colorado State University, Fort Collins, CO (121)
- 10:15 AM Germination, Ecology, and Herbicide Resistance Status of Palmer Amaranth and Common Waterhemp in the Central Valley of California.** Anil Shrestha*¹, Kelsey Galvan², Takui Frnzyan², Katherine Waselkov¹; ¹California State University, Fresno, CA, ²California State University, Fresno, Fresno, CA (122)
- 10:30 AM † GST Inhibition - Influence on Quizalofop P-ethyl Metabolism in Winter Wheat.** Amber Pelon*; Colorado State University, Fort Collins, CO (123)

10:45 AM Kochia and Russian Thistle: Two Tumbleweeds in a Pod? Philip Westra*¹, Todd A. Gaines¹, Eric L. Patterson², John M. Lemas¹; ¹Colorado State University, Fort Collins, CO, ²Michigan State University, East Lansing, MI (124)

11:00 AM Russian Thistle Seedbank Longevity and Seedling Emergence in Oregon. Fernando H. Oreja*¹, Jennifer Gourlie², Nicholas G. Genna², Judit Barroso¹; ¹Oregon State University, Adams, OR, ²Oregon State University, Pendleton, OR (125)

WEDNESDAY MORNING MARCH 6

Discussion - Basic Biology, Ecology and Technology

LOCATION: Colorado A
TIME: 11:15 AM - 11:45 AM MST

Weed management in 2040: Will novel biological interventions play a role?

WEDNESDAY MORNING MARCH 6

ORAL - Weeds of Range, Forestry, and Natural Areas

LOCATION: Mt. Sopris A
TIME: 9:30 AM - 10:30 AM MST
CHAIR: Rachel H. Seedorf
Colorado State University -
Weed Research Lab
Fort Collins, CO

*SPEAKER † STUDENT CONTEST

09:30 AM †Long-Term Effects of Indaziflam Applications on a Healthy, Diverse Landscape in Northern Utah. Weston Maughan*¹, Hailey L. Buell², Mirella F. Ortiz², Eric P. Westra², Thomas Monaco³, Corey V. Ransom²; ¹Washington State University, Pullman, WA, ²Utah State University, Logan, UT, ³United States Department of Agriculture, Logan, UT (126)

- 09:45 AM Twenty Years of the Snake River Project: an EDRR Success Story.** Lesley Coats Beckworth*, Erika Edmiston, Mark Daluge; Teton County Weed & Pest, Jackson, WY (127)
- 10:00 AM Management of Potential Wildfire Ladder Fuels in Western U.S. Forests.** William L. Hatler*¹, Byron B. Sleugh², Craig M. Alford³, Jodie A. Crose⁴; ¹Corteva Agriscience, Meridian, ID, ²Corteva Agriscience, Carmel, IN, ³Corteva, Ankeny, IA, ⁴Corteva Agriscience, Claremore, OK (128)
- 10:15 AM Forb Response to Florpyrauxifen-benzyl, Aminopyralid, and Clopyralid for Use in Natural Areas.** Jodie A. Crose*¹, William L. Hatler²; ¹Corteva Agriscience, Claremore, OK, ²Corteva Agriscience, Meridian, ID (129)

WEDNESDAY MORNING MARCH 6

Discussion - Range, Forestry, and Natural Areas

LOCATION: Mt. Sopris A
 TIME: 10:30 AM - 11:00 AM MST

What is the role of modern innovation tools for invasive plant species management in noncropland environments?

WEDNESDAY MORNING MARCH 6

ORAL - Weeds of Horticultural Crops

LOCATION: Mt. Sopris B
 TIME: 9:30 AM - 11:30 AM MST
 CHAIR: Elizabeth G. Mosqueda
 Madera Community College
 Madera, CA
 CO-MODERATOR: Clint M. Mattox
 USDA-ARS
 Corvallis, OR

***SPEAKER † STUDENT CONTEST**

- 09:30 AM Florpyrauxifen for Orchard Floor Weed Management in Western Tree Nuts.** Jesse M. Richardson*¹, Stephen F. Colbert², Kelly A. Backscheider³; ¹Corteva Agriscience, Mesa, AZ, ²Corteva Agriscience, Escalon, CA, ³Corteva, Franklin, IN (130)

- 09:45 AM Control of Italian Ryegrass, Yellow Nutsedge, and Hazelnut Suckers with EXP KD1.** Joshua W. Miranda*¹, Tye C. Shauck², Marcelo L. Moretti¹; ¹Oregon State University, Corvallis, OR, ²BASF Corporation, Roslyn, WA (131)
- 10:00 AM Managing Italian Ryegrass in Hazelnut Orchards with Electricity.** Marcelo L. Moretti*; Oregon State University, Corvallis, OR (132)
- 10:15 AM †Suitability of a Barley Crop to Suppress Weeds of Chile Pepper in Southern New Mexico.** Caroline R. Toth*, Brian Schutte; New Mexico State University, Las Cruces, NM (133)
- 10:30 AM Overcoming Weed Competition During Pollinator Habitat Establishment.** Ryan J. Hill*¹, David R. King², Marcelo L. Moretti²; ¹UC ANR, Red Bluff, CA, ²Oregon State University, Corvallis, OR (134)
- 10:45 AM Twists and Turns: Effects of Simulated Excess Rainfall on Potato Crop Injury.** Pamela J.s. Hutchinson*¹, Brent Beutler²; ¹University of Idaho, Aberdeen R & E Center, Aberdeen, ID, ²University of Idaho, Aberdeen, ID (135)
- 11:00 AM Can Application Timing Reduce Potential Flumioxazin Injury to Potato?** Harlene M. Hatterman-Valenti*, Collin P. Auwarter; North Dakota State University, Fargo, ND (136)
- 11:15 AM Yellow Nutsedge Control in Pacific Northwest Potato Production.** Rui Liu*¹, Tim Waters², Joel Felix³; ¹Washington State University, Prosser, WA, ²Washington State University, Pasco, WA, ³Oregon State University, Ontario, OR (137)

WEDNESDAY MORNING MARCH 6

Discussion - Weeds of Horticultural Crops

LOCATION: Mt. Sopris B
 TIME: 11:15 AM - 11:45 AM MST

How can we help growers increase profitability in the next 10 years – opportunity and needs for research and extension?

WEDNESDAY MORNING MARCH 6

WSWS Awards Luncheon

LOCATION: Aspen Ballroom
TIME: 11:45 AM - 1:30 PM MST
CHAIR: Curtis R. Rainbolt
BASF Corporation
Meridian, ID
MODERATOR: Timothy S. Prather
University of Idaho
Moscow, ID

WEDNESDAY AFTERNOON MARCH 6

ORAL - Weeds of Agronomic Crops

LOCATION: Colorado A
TIME: 1:30 PM - 3:00 PM MST
CHAIR: Alix Whitener
FMC
Malaga, WA
CO-MODERATOR: Joseph Mettler
North Dakota State University
Fargo, ND

***SPEAKER † STUDENT CONTEST**

01:30 PM Evaluating Chaff Lining in Canadian Cropping Systems. Breanne D. Tidemann^{*1}, Charles M. Geddes², Brett Mollison³;
¹Agriculture and Agri-Food Canada, Lacombe, AB, Canada, ²Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, ³Agriculture and Agri-Food Canada, Melfort, SK, Canada
(138)

01:45 PM Smooth Scouringrush (*Equisetum laevigatum*) Control in Direct-seed Pacific Northwest Cropping Systems with Residual and Non-residual Herbicides. Mark E. Thorne*, Drew J. Lyon; Washington State University, Pullman, WA **(139)**

02:00 PM Pre and Post-Emergent Use of Flumetsulam in Clover Grown for Seed. Kyle Roerig*; Pratum Co-op, Salem, OR **(140)**

02:15 PM Rotational Crop Response to a Novel Cereal Mixture of Tolpyralate and Bromoxynil. Rory Degenhardt¹, Joseph Yenish*², David H. Johnson³, Ryan M. Humann⁴, Kevin G. Falk⁵, Cody J. Chytyk⁶, Jamshid Ashigh⁷, Laura Smith⁸; ¹Corteva Agrisciences, Edmonton, AB, ²Corteva Agrisciences, Billings, MT, ³Corteva, St. Paul, MN, ⁴Corteva Agriscience, Fargo, ND, ⁵Corteva Agriscience, Oak Bluff, MB, Canada, ⁶Corteva Agriscience, Saskatoon, SK, Canada, ⁷Corteva Agriscience, London, ON, Canada, ⁸Corteva Agriscience, West Lorne, ON, Canada (141)

02:30 PM Russian Thistle Cooperative Management. Judit Barroso*¹, Stewart B. Wuest²; ¹Oregon State University, Adams, OR, ²USDA-ARS, Adams, OR (142)

02:45 PM POST Emergence Broadleaf Weed Control in Sorghum Sudangrass. Clint W. Beiermann*; University of Wyoming, Laramie, WY (143)

WEDNESDAY AFTERNOON MARCH 6

Discussion - Weeds of Agronomic Crops

LOCATION: Colorado A
TIME: 3:30 PM - 4:00 PM MST

Using Precision Technology in Research

WEDNESDAY AFTERNOON MARCH 6

ORAL - Weeds of Range, Forestry, and Natural Areas

LOCATION: Mt. Sopris A
TIME: 1:30 PM - 3:00 PM MST
CHAIR: Rachel H. Seedorf
Colorado State University -
Weed Research Lab
Fort Collins, CO
MODERATOR: Rachel H. Seedorf
Colorado State University -
Weed Research Lab
Fort Collins, CO

*SPEAKER † STUDENT CONTEST

- 01:30 PM Better Together? Remote Detection of Invasive Annual Grass Species as Groups vs Single Species Models.** Chloe M. Mattilio*¹, Brian A. Meador², Jaycie N. Arndt³; ¹University of Wyoming, Sheridan, WY, ²University of Wyoming Sheridan Research and Extension Center, Laramie, WY, ³University of Wyoming, Arvada, WY (144)
- 01:45 PM Harnessing Digital Technologies to Advance Invasive Annual Grass Management.** Shannon Clark¹, Derek Sebastian*², Craig Hossfeld¹; ¹Envu, Sheridan, WY, ²Envu, Greeley, CO (145)
- 02:00 PM Lichen and Moss Response to Cheatgrass Control with Indaziflam and Fire.** James Sebastian*; Boulder County Open Space, Longmont, CO (146)
- 02:15 PM What Does Repeated Rapid Landscape Monitoring Tell Us About Invasive Annual Grass Treatment?** Jaycie N. Arndt*¹, Brian A. Meador², Kelsey C. Brock³, Chloe M. Mattilio⁴; ¹University of Wyoming, Arvada, WY, ²University of Wyoming Sheridan Research and Extension Center, Laramie, WY, ³University of Wyoming - Plant Sciences, Laramie, WY, ⁴University of Wyoming, Sheridan, WY (147)
- 02:30 PM Carbon on the Range: Impacts of Exotic Annual Grass Invasion and Wildfire.** Harold Quicke*¹, Toby Maxwell², Samuel J. Price³, Matthew Germino³; ¹Environmental Science US LLC, Windsor, CO, ²Boise State University, U.S. Geological Survey, Boise, ID, ³U.S. Geological Survey, Boise, ID (148)
- 02:45 PM Update of Long-term Cheatgrass Control Benefits on Boulder County Open Space Properties.** Joe Swanson*; Boulder County Parks and Open Space, Longmont, CO (149)

WEDNESDAY AFTERNOON MARCH 6

SYMPOSIUM - ESA, How We Got Here and Potential Implications

LOCATION: Mt. Sopris B
 TIME: 1:30 PM - 3:00 PM MST
 CHAIR: Alan Helm
 Gowan Company
 Success, MO

***SPEAKER**

01:30 PM EPA Perspective. Rebecca Perrin*; EPA Region 8, Denver, CO (150)

02:15 PM U.S. Forest Service Perspective. Daniel Tekiela*; U.S.D.A. Forest Service, Lakewood, CO (151)

WEDNESDAY AFTERNOON MARCH 6

Coffee Break

LOCATION: Colorado B
TIME: 3:00 PM - 3:30 PM MST

WEDNESDAY AFTERNOON MARCH 6

SYMPOSIUM - ESA, How We Got Here and Potential Implications

LOCATION: Mt. Sopris B
TIME: 3:30 PM - 5:00 PM MST
CHAIR: Alan Helm
Gowan Company
Success, MO

***SPEAKER**

03:30 PM Colorado Department of AG Perspective. Les Owen*; Colorado Department of Agriculture, Broomfield, CO (152)

04:15 PM Questions and Discussion. Alan Helm*; Gowan, USA, Walla Walla, WA (153)

WEDNESDAY AFTERNOON MARCH 6

Whats New in Industry

LOCATION: Colorado A
TIME: 5:15 PM - 6:15 PM MST
CHAIR: Charlie Hicks
Bayer CropScience U.S.
Fort Collins, CO

WEDNESDAY AFTERNOON MARCH 6

Student Night Out

TIME: 6:30 PM - 8:30 PM MST

THURSDAY MORNING MARCH 7

WSWS Business Meeting and Student Awards

LOCATION: Aspen Ballroom
TIME: 6:30 AM - 9:00 AM MST
CHAIR: Curtis R. Rainbolt
BASF Corporation
Meridian, ID
MODERATOR: Curtis R. Rainbolt
BASF Corporation
Meridian, ID
CO-MODERATOR: Timothy S. Prather
University of Idaho
Moscow, ID

THURSDAY MORNING MARCH 7

ORAL - Weeds of Agronomic Crops

LOCATION: Colorado A
TIME: 9:30 AM - 11:30 AM MST
CHAIR: Alix Whitener
FMC
Malaga, WA
CO-MODERATOR: Joseph Mettler
North Dakota State University
Fargo, ND

*SPEAKER † STUDENT CONTEST

- 09:30 AM IronGate Is a New Pre-mixture of Flucarbazono and Pyroxsulam for Weed Control in US Wheat.** Ryan S. Henry*¹, Ryan Bryant-Schlobohm², Nathan Popiel³, Kathleen Seitzinger⁴, Cody Gray⁵; ¹UPL NA Inc., Fort Wayne, IN, ²UPL NA Inc., Amarillo, TX, ³UPL NA Inc., Bismark, ND, ⁴UPL NA Inc., Minneapolis, MN, ⁵UPL NA Inc., Peyton, CO (154)
- 09:45 AM Grassy Weed Control in Winter Wheat with Imazamox and Quizalofop-p-ethyl.** Cody F. Creech*¹, Amanda C. Easterly²; ¹University of Nebraska, Scottsbluff, NE, ²University of Nebraska, Sidney, NE (155)
- 10:00 AM Weed Seed and Plant Control with IR and Visible Light.** Joan Campbell*; University of Idaho, Moscow, ID (156)
- 10:15 AM Pre-emergent Herbicides for Low Desert Guayule.** Oli G. Bachie*; University of California Agriculture and Natural Resources, Holtville, CA (157)
- 10:30 AM Screening Post Emergence Herbicides for Annual Grass Control in Grass Seed Production.** Beth Fowers*¹, Brian A. Meador², Donna K. Harris¹; ¹University of Wyoming, Sheridan, WY, ²University of Wyoming Sheridan Research and Extension Center, Laramie, WY (158)
- 10:45 AM Rapidicil™, a Novel Broad-Spectrum Burndown Herbicide from Valent U.S.A. LLC.** Patrick A. Clay*¹, Jonathon Kohrt², John Pawlak³, Garrison J. Gundy⁴, Andrew Rodstrom⁵; ¹Valent U.S.A. LLC, Fresno, CA, ²Valent USA LLC, Noblesville, IN, ³Valent U.S.A. LLC, Spring Lake, MI, ⁴Valent U.S.A. LLC, Mcpherson, KS, ⁵Valent U.S.A. LLC, Kennewick, WA (159)
- 11:00 AM Integrating Unmanned Aerial System (UAS) Imagery with Ground-Based Spot Spray Application Technology.** Pete Berry*; Oregon State University, Corvallis, OR (160)
- 11:15 AM Nozzle Selection and Application Methods for Optimal Weed Management in Specialty Crops Utilizing Trellis.** Milos Zaric*; University of Nebraska - Lincoln, North Platte, NE (161)

THURSDAY MORNING MARCH 7

SYMPOSIUM - Palmer Amaranth in the West

LOCATION: Colorado B
TIME: 9:30 AM - 12:00 PM MST
CHAIR: Nevin Lawrence
University of Nebraska
Scottsbluff, NE
CO-MODERATOR: Albert T. Adjesiwor
University of Idaho
Kimberly, ID

***SPEAKER**

- 09:30 AM Origin Stories: Hypotheses for the Rise of Palmer Amaranth.** Kelsey C. Brock*; University of Wyoming - Plant Sciences, Laramie, WY (162)
- 10:00 AM Impacts of Palmer Amaranth to the Dry Bean Industry.** Jerry Haynes*; Jacks Bean Company, Denver, CO (163)
- 10:20 AM Impacts of Palmer amaranth to the Sugar Beet Industry.** Rebecca Larson*; Western Sugar Cooperative, Denver, CO (164)
- 10:40 AM Impacts of Palmer Amaranth to the Seed Industry.** Laura Pottorff*; Colorado State University, Ft Collins, CO (165)
- 11:00 AM State of Palmer Amaranth Resistance in the West.** Todd A. Gaines*; Colorado State University, Fort Collins, CO (166)
- 11:30 AM Management of Palmer Amaranth the West.** Nevin Lawrence*; University of Nebraska, Scottsbluff, NE (167)

AUTHOR INDEX

Aberle, Adam	89
Adeyemi, Olanrewaju E.	108
Adjesiwor, Albert T.	22, 23, 26, 36, 53, 84
Ahmad, Waqas	77
Ahmed, Shahbaz	43, 60
Akuoko, Abraham	53, 102
Alder, Clarke	22, 36
Aldridge, Ryan B.	111
Alford, Craig M.	128
Al-Khatib, Kassim	27, 87
Alms, Jill	37, 45
Amaral, Mariana F B	59
Amorim, Eduardo	51
Arndt, Jaycie N.	3, 8, 144, 147
Ashigh, Jamshid	141
Auwarter, Collin P.	136
Auwater, Collin	80
Baccin, Luisa C.	13, 99
Bachie, Oli G.	157
Backscheider, Kelly A.	130
Baerson, Scott R.	33
Bajwa, Dilpreet	77
Bajwa, Preetaman	49
Barroso, Judit	24, 25, 28, 85, 125, 142
Barth, McKenzie J.	110
Becerra-Alvarez, Aaron	87
Beck, Leslie	109
Beckett, Thomas H.	88
Beckley, Cody J.	10
Beiermann, Clint W.	34, 68, 143
Beran, Daniel	55, 56
Berry, Pete	85, 160
Beutler, Brent	135
Bhattarai, Prayusha	26
Billings, Walker T.	92
Brar, Akamjot S.	34
Breen, John	39
Brock, Kelsey C.	1, 2, 7, 147, 162

Bruce, Joseph A.	86
Bruening, Chris	61
Bruss, Bob	55, 56
Bryant-Schlobohm, Ryan	154
Buell, Hailey L.	126
Burke, Ian	43, 46, 47, 59, 60
Burroughs, Jamie	107
Campbell, Joan	33, 40, 54, 156
Cardoso, Claudia A.I.	57
Carnahan, McKenna	84
Chang, Stephen C.	71
Chytyk, Cody J.	141
Clark, Nicholas E.	42
Clark, Shannon	145
Clay, Patrick A.	41, 159
Claypool, David A.	110
Coats Beckworth, Lesley	127
Cock, Christine	65
Colbert, Stephen F.	130
Coles, Daniel J.	1
Courkamp, Jacob	62, 93
Creech, Cody F.	102, 155
Creech, Earl	84
Cröse, Jodie A.	128, 129
Cully, Scott E.	88
Da Silva, Paulo V.	57, 58, 69, 108
Dahl, Gregory K.	66
Dalley, Caleb D.	48
Daluge, Mark	127
Daniel, Jim T.	31
Dar, Amna	16
Dayan, Franck E.	20
Degenhardt, Rory	141
Desai, Devanshi H.	33
Desai, Het Samir	30, 103
DeVetter, Lisa Wasko	77
Durado, Andrew	77
Easterly, Amanda C.	155
Edmiston, Erika	127
Essman, Alyssa	118

Everman, Wesley	33
Falk, Kevin G.	141
Falk Jones, Jeanne	117
Fatino, Matthew	101
Felix, Joel	36, 53, 96, 100, 137
Flanigan, Seth	115
Formiga, Alice	77
Fowers, Beth	3, 8, 158
Frewert, Austin	75
Frnzyan, Takui	122
Fronk, Natalie L.	10
Gaines, Todd A.	20, 51, 119, 121, 124, 166
Galinato, Suzette P.	77
Gallagher, Joseph	85
Galvan, Kelsey	122
Galvin, Liberty B.	5
Garner, Lindy	115
Garrido, Raphael M.	20
Geddes, Charles M.	65, 105, 138
Genna, Nicholas G.	125
Germينو, Matthew	148
Gogos, George	61
Golus, Jeffrey	12, 14
Gomm, James	84
Goncalves, Clebson Gomes	74
Gourlie, Jennifer	25, 24, 28, 125
Gramig, Greta	76, 77
Gray, Cody	154
Graziano, Gino	120
Guimaraes Abe, Daniel	48
Gundy, Garrison J.	41, 159
Gupta, Srishti	21
Hanson, Brad	101
Hanson, Bradley D.	35, 71, 72
Harris, ALice L.	111
Harris, Donna K.	158
Harrison, Georgia R.	95
Hatler, William L.	128, 129

Hatterman-Valenti, Harlene M.	80, 136
Haugrud, Nathan H.	88
Haynes, Jerry	163
Helm, Alan	153
Henry, Ryan S.	154
Hettinger, Erin M.	9
Hill, Ryan J.	134
Hirsch, Mandi	115
Hossfeld, Craig	145
Howatt, Kirk A.	29, 31, 32, 104, 105, 106
Humann, Ryan M.	29, 141
Humphries, Talia J.	4
Hutchinson, Pamela J.s.	135
Ikley, Joseph T.	104, 105, 106, 118
Inci, Deniz	27
Innes, Gregory	65
Insa, Ram Singh	73, 97
Jabbour, Randa	68
Jenks, Brian	104, 105, 106
Jhala, Amit J.	114
Johnson, David H.	141
Jones, Eric	37, 45
Jones, Lisa C.	95
Kafle, Arjun	112
Kalin, Jessica E. R.	47, 59, 60
Kells, James	64
Kennedy, Adam	22
Khan, Qasim	34
Kienle, Marcel P.	111
King, David R.	78, 134
Kitt, Mark J.	88
Kittle, Caroline M.	2
Knezevic, Stevan	61, 63, 114
Kniss, Andrew R.	18, 44, 50, 52, 53, 110, 113
Kohrt, Jonathon	41, 159
Kumari, Annu	64, 67
Kwarteng, Albert O.	15
Lancaster, Sarah	118

Landry, Randall L.	41
Larson, Rebecca	164
Lavin, Matthew	91
Law, Quincy D.	104, 105
Lawrence, Nevin	50, 53, 82, 102, 167
Leal, Jessica	51
Lee, Hayden J.	29
Lehnhoff, Erik A.	73, 97, 109
Lemas, John M.	119, 124
Lemes, Gabriel de Souza	12, 14
Lezburg, Ann	11
Liu, Rui	83, 137
Lundgreen, Taylor	12
Lyman, Kenton C.	46
Lyon, Drew J.	139
Macedo, Ana Beatriz Amaral de	51
Maestas, Jeremy	115
Makkar, Jasleen S.	49, 112
Mallory-Smith, Carol	24, 85
Mangold, Jane	90, 94, 115
Marques-hill, Sofia	20
Mathews, Maggi E.	6
Mattilio, Chloe M.	3, 8, 144, 147
Mattox, Clint M.	19, 33
Mauad, Munir	69
Maughan, Weston	6, 59, 126
Maxwell, Toby	148
McDonald, Maloree J.	9
McVay, Kent	34
Mealor, Brian A.	3, 8, 92, 115, 144, 147, 158
Medeiros, Elias S.	57, 58
Medina Garcia, Bianey A.	39
Meiman, Paul	115
Meiners, Ingo	111
Menalled, Fabian	30, 34, 103
Merchant, Rand M.	111
Mettler, Joseph	29, 32
Meyer-Morey, Jordan	91
Middleton, Ryan	11

Miller, Zach	34
Milosevic, Luka	61, 63, 114
Miranda, Joshua W.	17, 70, 131
Mollison, Brett	138
Monaco, Thomas	126
Monaco, Tom A.	9
Monteiro, Mateus S.	58
Montgomery, Chandra L.	23, 84
Montgomery, Jacob S.	51, 121
Moreno, Dustin Abdiel	20
Moretti, Marcelo L.	13, 17, 70, 75, 78, 99, 131, 132, 134
Morran, Sarah	20, 51
Mowery, Leah N.	17
Munaro, Fernando	108
Nandula, Vijay	64
Neher, Paul	109
Nissen, Scott J.	116
Nugent, Paul	33
Oleti, Amarnadh	16
Olsen, Andrew	115
Oreja, Fernando H.	25, 28, 125
Ortiz, Mirella F.	6, 9, 10, 57, 69, 108, 116, 126
Ott, Eric J.	41
Owen, Les	152
Pantic, Aleksandra	12, 14
Patterson, Eric L.	119, 124
Pawlak, John	41, 159
Peachey, Ed	79
Pelon, Amber	123
Perrin, Rebecca	150
Peters, Thomas J.	66
Peters, Troy	83
Pinho, Camila Ferreira	51
Popiel, Nathan	154
Porpiglia, Peter J.	86
Pottorff, Laura	165
Prather, Timothy S.	95
Price, Samuel J.	148

Prischmann-Voldseth, Deirdre	76
Proctor, Chris	102
Qin, Ruijun	83
Quicke, Harold	148
Ransom, Corey V.	6, 9, 10, 126
Rauch, Traci	54
Redman, Zachary	120
Revolinski, Samuel R.	43, 46
Rew, Lisa J.	90, 91, 94
Ribeiro, Victor	24, 85
Richardson, Jesse M.	130
Ritchie, Glen	112
Rodstrom, Andrew	159
Roerig, Kyle	140
Saini, Rupinder	49, 112
Salmazo, Pedro Antonio Vougodo	57, 58, 108
Sanches, Arthur C.	57
Santos, Cleberton C.	58
Savic, Marija	43, 46, 59, 60
Scalon, Silvana P. Q.	58
Schroeder, Jill	66
Schultz, Eric C.	111
Schulz, Brock C.	80
Schutte, Brian	73, 81, 97, 133
Scott, Jon	61, 114
Sebastian, Derek	145
Sebastian, James	93, 146
Seipel, Timothy	33
Seitzinger, Kathleen	154
Sencenbaugh, Lilly L.	90, 94
Shauck, Tye C.	131
Shergill, Lovreet S.	30, 33, 34, 103
Shrestha, Anil	39, 42, 122
Shrestha, Swati	16
Sias, Cynthia	64, 67
Simões Araujo, André Lucas	51, 121
Singh, Sukhbir	49
Slaughter, Lindsey	49, 112

Sleugh, Byron B.	128
Smith, Chad L.	41
Smith, Laura	141
Spaak, Jordan	115
Stapleton, James J.	98
Steckel, Larry	20
Swanson, Joe	149
Tan, Siyuan	111
Teichroew, Erin B.	90
Tekiela, Daniel	151
Teye-doku, Newman Benjamin	38
Thorne, Mark E.	139
Tidemann, Breanne D.	65, 138
Torres Moya, Andres	76
Toth, Caroline R.	133
Turnage, Gray	66
Turner, Chelsea-Victoria F.	1
Uhing, Kelly T.	11
Valdez Herrera, Jennifer	42
Van Wychen, Lee	64, 67
Visconti, Claire F.	3, 8, 115
von Bergman, Alexandra	7
Vos, David	37, 45
Vulchi, Rohith	35
Walsh, Olga S.	26
Wang, Shuo	43
Waselkov, Katherine	42, 122
Waters, Tim	137
Weems, Jafe D.	88
Weiss, Benjamin	77
Westra, Eric P.	6, 9, 10, 108, 126
Westra, Phil	102
Westra, Philip	119, 124
Westrich, Benjamin C.	88
Weyers, Sharon	77
Willingham, Samuel D.	111
Witcher, Anthony L.	66
Woodruff, Brant	120
Wright, Madison L.	52

Wuest, Stewart B.	142
Yadav, Ramawatar	44, 52, 113
Yenish, Joseph	141
Zaric, Milos	12, 14, 161
Zhang, Zhenglin	5
Zhen, Tong	72
Ziyaaba, Jonah Zubil	18
Zollinger, Richard K.	86

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
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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
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1979	Richard D. Comes	2016	Joe Yenish
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1981	L.E. "Jack" Warren	2018	Monte Anderson
1982	Alex G. Ogg, Jr.	2019	Andrew Kniss
1983	J. Wayne Whitworth	2020	Pat Clay
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		2022	Sandra McDonald
		2023	Joel Felix

HONORARY MEMBERS

1976	Dick Beeler
1978	Dale W. Bohmont
19821	R. Phillip Upchurch
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1987	Norman B. Akesson
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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
2002	Senator Larry Craig - Idaho
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	William Price
2021	Michael Walsh
2022	Hugh Beckie
2023	Daniel Kunkel

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
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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	2022	Andrew Kniss Richard Zollinger
1995	Stephen D. Miller John T. Schlesselman	2023	Bradley D. Hanson Corey V. Ransom

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 Mealar [‡]
	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 Vandecoeving [‡]	2022	Charles Geddes [‡]
2005	Kassim Al-Khatib	2023	Breanne Tideman
	Kelly Luff		Byron Sleugh
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
2020	Steve Sauer	Weed Manager
2022	Julie Kraft	Weed Manager
2023	Beth Fowers	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	Marty Schraer
2021	Elizabeth Mosqueda
2022	Vanelle Peterson
	Mithila Jugulam
	Todd Neel
	Dennis Scott
	Mirella Ortiz
2023	Charlie Hicks

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*
2020-2022	Phil Banks	Treasurer
2023-current	Ryan Rapp	Treasurer

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

WSWS Committees 2023-24

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

<p>Awards <i>President</i> Tim Prather, (2024) Harry Quicke Chair (2025) Drew Lyon (2026) Het Desai, Student Rep (2024)</p>	<p>Legislative <i>WSSA Representative</i> Slade Franklin, (2024) Ryan Edwards (2025) Lisa Rew (2026) Lee Van Wychen, Ex-officio</p>
<p>Fellows and Honorary Membership <i>Past President</i> Ed Peachey, (2024) Rich Zollinger (2025) Carol Mallory Smith (2026)</p>	<p>Local Arrangements <i>President-Elect</i> George Newberry, (2024) Albert Adjesiwor (2024) Eric Westra (2025) Rui Liu (2026)</p>
<p>Finance <i>Member-at-Large Public</i> Ryan Rapp, Chair (2024) (Treasurer) Scott Cook (2025) Cody Creech (2026)</p>	<p>Necrology <i>Secretary</i> Rachel Seedorf, (2024) Lesley Beckworth (2025) Earl Creech (2026)</p>
<p>Herbicide Resistant Plants <i>Member-at-Large Private</i> Lovreet Shergill, (2024) Stephen Valenti (2025) Rui Lui (2026) Sachin Dhanda, Student</p>	<p>Nominations <i>Past President</i> Brian Schutte, (2024) Pat Clay (2025) Caleb Dalley (2026)</p>
<p>Program <i>President-Elect</i> Curtis Rainbolt, Chair (2023) Jane Mangold (2023) Harlene Hatterman-Valenti (year off)</p>	<p>Poster <i>President-Elect</i> Rui Liu, (2024) Lovreet Shergill (2025) Shannon Clark (2026)</p>
<p>Publications <i>President-Elect</i> Carl Libbey, Proceedings & Newsletter Eric Gustafson, Website Editor</p>	<p>Public Relations <i>Ed. & Reg. Section Chair</i> Albert Adjesiwor, (2024) Mirella Ortiz (2025) Joshua Miranda, Student Rep (2024)</p>
<p>Student Paper Judging <i>President-Elect</i> Clint Beiermann, (2024) Alix Whitener (2025) Jake Courcamp (2026) Tong Zhen, Student</p>	<p>Site Selection <i>Past President</i> Ryan Bryant-Schlobohm, (2024) Kyle Roerig (2025) Craig Alford (2026)</p>
<p>Sustaining Membership <i>Past President</i> Rachel Zuger, Chair (2024) Carl Coburn (2025) Ben Westrich (2026)</p>	<p>Ad-Hoc Committees <i>President</i> Diversity and Inclusion; Elizabeth Mosqueda, Invasive Species; Mirella Ortiz, Lisa Jones</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, 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 Marty Schraer** for making the arrangements for the sponsored activities.

BASF Corporation	Nufarm
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Corteva AgriScience	SePRO Corporation
FMC Corporation	Syngenta Crop Protection
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Hubbard Ag Science	UPL LTD
Jemmett Cons. & Research	Valent USA
Miller Research	VARCO
Mountain West PEST	Winfield United

2024 WSWS Sustaining Members

AMVAC Chemical Corporation
BASF Corporation
Bayer CropScience
Corteva Agriscience
FMC Corporation
GDM Solutions
Gowan Company
Helena
R&D Sprayers
GDM Solutions
NuFarm
Syngenta Crop Protection
The Amalgamated Sugar Company
UPL- Ltd.
Valent U.S.A
Winfield United



FUTURE MEETING DATES AND SITES

March 10-13, 2025 The Westin Seattle Seattle, WA	2026 TBD
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TIME	TUESDAY	WEDNESDAY	THURSDAY
6:30			WSWS Business Breakfast and Student Awards Aspen Ballroom
7:00			
7:15	Poster Session Odd # Authors Present Colorado B	Poster Session Even # Authors Present Colorado B	
7:30			
7:45			
8:00			
8:15			
8:30			
8:45			
9:00	General Session Colorado A		
9:15			
9:30			
9:45			
10:00			
10:15			
10:30			
10:45			
11:00			
11:15			
11:30			WSWS Awards Luncheon Aspen Ballroom
11:45			
12:00			
1:15			
1:30			
1:45			
2:00			
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2:30			
2:45			
3:00			
3:15			
3:30			
3:45			
4:00			
4:15			
4:30			
4:45			
5:00		What's New in Industry Colorado A	
5:15			
5:30			
5:45			
6:00			