
2023 Meeting

**WESTERN
SOCIETY
OF
WEED SCIENCE**

and

**WESTERN
AQUATIC PLANT
MANAGEMENT
SOCIETY**

February 27-March 3, 2023

**Boise Centre West
Boise, ID**



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2022-2023**

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Welcome to Boise, ID!

Welcome to the 2023 annual WSWS meeting in Boise, ID. This is a joint meeting with the Western Aquatic Plant Management Society. The Program Committee, Local Arrangements Committee, and the staff of the Boise Centre 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**

**George Newberry, Chair
Albert Adjesiwor
Eric Westra**

PROGRAM COMMITTEE MEMBERS

**Curtis Rainbolt, Chair
Jane Mangold
Harlene Hatterman-Valenti**



Student
Presentation



Breakfast









Break



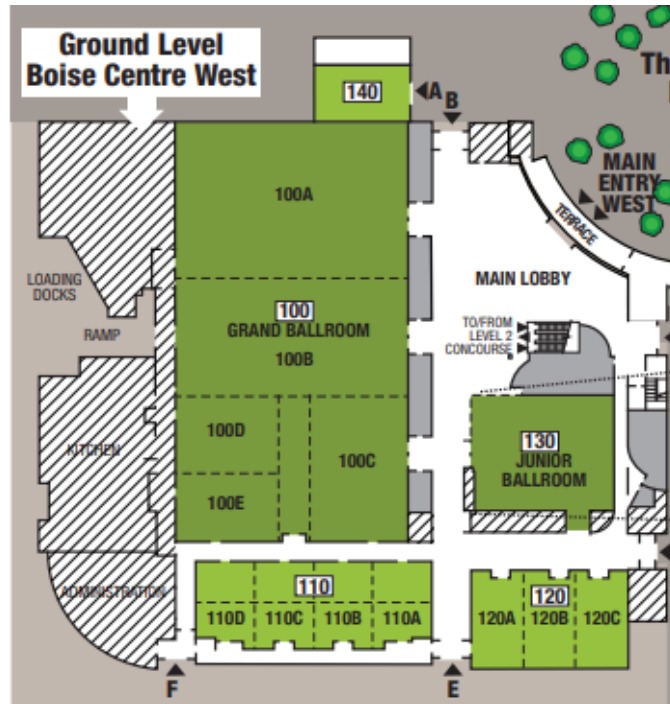
Reception

WSWS 2023 PROGRAM AT A GLANCE

Tuesday, February 28			
 Poster Session 7:15-8:45 am Authors of Odd Numbered Posters Present 130			
General Session 9:00 am to 12:00 pm 100B			
Student Luncheon 12:00 to 1:00 pm 110A			
130	100D	100E	120C
Poster Room Open 7:00 am to 5:00 pm	Symposium: <i>Water in The West: Implications for Weed Management</i> 1:15 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
 BREAK – 3:15 to 3:30 pm Junior Ballroom Foyer			
 Student Reception 5:00 to 6:30 pm 110A			
Wednesday, March 1			
 Poster Session 7:15 to 8:45 am Authors of Even Numbered Posters Present 130			
130	100D	100E	120C
Poster Room Open 7:00 am to 5:00 pm	Weeds of Range, Forest, and Natural Areas 9:15 to 11:15 am	Weeds of Agronomic Crops 9:15 to 11:30 am	Basic Biology and Ecology 9:15 to 11:00 am
WSWS Awards Luncheon 11:30 am to 2:00 pm 100B			
130	100D	100E	120C
Poster Room Open 7:00 am to 5:00 pm	Weeds of Range, Forest, and Natural Areas 2:15 to 3:15 pm	Weeds of Agronomic Crops 2:15 to 3:15 pm	Weeds of Horticultural Crops 2:15 to 3:15 pm
 BREAK – 3:15 to 3:30 pm Junior Ballroom Foyer			
130	100D	100E	120C
Please remove posters by 5:00 pm	Weeds of Range, Forest, and Natural Areas: Discussion 3:30 to 4:45 pm	Teaching and Technology Transfer: Papers and Discussion 3:30 to 5:00 pm	Weeds of Horticultural Crops 3:30 to 5:00 pm
What's New in Industry 5:00 to 6:25 pm 100D			
Student Night Out 6:30 pm (meeting locations determined by group leaders)			
Thursday, March 2			
 WSWS Business Meeting Breakfast and Student Awards 6:30 to 9:15 am 100B			
100D	100E	120B	120C
Weeds of Horticultural Crops: Discussion 9:30 to 10:30 am	Weeds of Agronomic Crops: Discussion 9:30 to 10:30 am	Education and Regulatory: Discussion 10:30 to 11:30 am	Basic Biology and Ecology: Discussion 10:30 to 11:30 am

**Boise Centre West
850 W Front Street
Boise, Idaho, USA 83646
208-336-8900**

Floor Plan





**WSWS SPECIAL EVENTS –
MONDAY FEBRUARY 27**

12:00 pm to 5:00 pm	WSWS Board of Directors Meeting 100D
3:00 pm to 5:00 pm	WERA-77 Meeting 110D
4:00 pm to 6:00 pm	Registration Main Lobby
5:00 pm to 10:00 pm	Poster Display Set-Up 130 - Junior Ballroom
5:00 pm to 10:00 pm	Sustaining Members Displays 130 - Junior Ballroom
6:00 pm to 10:00 pm	Presentation Practice Room 110D
6:00 pm to 9:00 pm	WSWS Members Welcome Reception 100A <i>Y Sponsored by Nufarm</i>

**WSWS SPECIAL EVENTS –
TUESDAY FEBRUARY 28**

7:00 am to 4:00 pm	Registration Main Lobby
7:00 am to 5:00 pm	Poster Displays 130 - Junior Ballroom
7:00 am to 5:00 pm	Sustaining Members Displays 130 - Junior Ballroom
7:00 am to 5:00 pm	WAPMS Vendors 100C
7:15 am to 8:45 am	Poster Session – Authors of Odd Numbered Posters Present 130 - Junior Ballroom
8:30 am to 9:00 am	☕ Break - <i>Sponsored by Hubbard Ag Science</i> Foyer
7:00 am to 5:00 pm	Presentation Practice Room 110D
9:00 am to 12:00 pm	General Session 100B
12:00 pm to 1:00 pm	Student Luncheon 110A <i>Sponsored by Bayer</i>
3:15 pm to 3:30 pm	☕ Break - <i>Sponsored by FMC</i>
5:00 pm to 6:30 pm	Student Reception 110A <i>Sponsored by Syngenta</i>

**WSWS SPECIAL EVENTS –
WEDNESDAY MARCH 1**

7:00 am to 4:00 pm	Registration Main lobby
7:00 am to 5:00 pm	Presentation Practice Room 110D
7:00 am to 4:00 pm	Poster Displays Remove Posters by 5:00 pm 130 - Junior Ballroom
7:00 am to 4:00 pm	Sustaining Members Displays Remove Displays by 5:00 pm 130 - Junior Ballroom
7:00 am to 5:00 pm	WAPMS Vendors 100C
7:15 am to 8:45 am	Poster Session – Authors of Even Numbered Posters Present 130 - Junior Ballroom
8:30 am to 9:00 am	 Break – Sponsored by Jemmett Consulting & Research Farm and VARCO Foyer
9:00 am to 9:30 am	WSWS New Officer Orientation – Eric Gustafson, WSWS-Business Manager 120B
11:30 am to 2:00 pm	Joint WSWS-WAPMS Awards Luncheon <i>Sponsored by UPL, Corteva, Rolfs & Adkins Research, Miller Research, The Amalgamated Sugar Company</i> 100B
3:15 pm to 3:30 pm	 Break – Sponsored by Gowan Company and Winfield United
5:00 pm to 6:15 pm	What’s New in Industry 100D
6:30 pm	Student Night Out Please contact Grace Flusche Ogden if you have not signed up but would like to participate.

**WSWS SPECIAL EVENTS –
THURSDAY MARCH 14**

6:30 am to 9:15 am	WSWS Business Breakfast 100B ● <i>Sponsored by BASF, Corteva, FMC, and SePRO</i>
8:00 am to 9:15 am	WAPMS Business Breakfast 110A&B
8:00 am to 9:00 am	Registration Main Lobby
12:00 pm to 3:00 pm	WSWS Board of Directors Wrap-Up Meeting and Summer Meeting Planning 110D
Out-Going and Incoming Officers and Committee Chairs Requested to Attend	

PROGRAM

TUESDAY MORNING FEBRUARY 28

LOCATION: 130 - Junior Ballroom
TIME: 7:30 am to 5:00 pm

WSWS Committee Informational Posters

Necrology: WSWS Member Remembrance 2023. Rachel Seedorf*; Chair

WAPMS

***PRESENTER † STUDENT POSTER CONTEST**

Aquatic Photosynthetic Organisms. Luke C. Huffman*; University of Wisconsin, Madison, WI (1)

Weeds of Range, Forest, and Natural Areas

***PRESENTER † STUDENT POSTER CONTEST**

†Annual Grass Control and Plant Community Response to Aerial Application of Indaziflam: 2-years Post-treatment. Georgia R. Harrison*, Lisa C. Jones, Eva K. Strand, Timothy S. Prather; University of Idaho, Moscow, ID (2)

Response of Seeded Species to Three Common Herbicides Used for Downy Brome Control. Melissa L. Landeen*¹, Kevin Gunnell¹, Weston Maughan²; ¹Utah Division of Wildlife Resources, Ephraim, UT, ²Utah State University, Logan, UT (3)

Managing Tall Outgrass: It's Not the Cow, It's the How. Kelly T. Uhing*, Ryan Middleton, Ann Lezberg; City of Boulder Open Space and Mountain Parks, Boulder, CO (4)

†Managing Invasive Annual Grasses with an Indigenous Integrated Perspective. Ian I. McRyhehew*; Montana State University, Polson, MT (5)

Evaluating Pyraflufen-ethyl for Rangeland Weed Control. Jaycie N. Arndt*¹, Beth Fowers², Brian A. Meador³, Jane Mangold⁴; ¹University of Wyoming, Arvada, WY, ²University of Wyoming, Sheridan, WY, ³University of Wyoming, Laramie, WY, ⁴Montana State University, Bozeman, MT (6)

Cheatgrass (*Bromus tectorum* L.) Control and Secondary Invasion at Dinosaur National Monument. Emily Spencer¹, Alexandra Stoneburner*², Jordan Spaak²; ¹National Park Service, Vernal, UT, ²National Park Service, Fort Collins, CO (7)

†**Testing Barrier-created Safe Sites for Revegetation Purposes in Indaziflam-treated Areas.** Weston Maughan*, Corey V. Ransom; Utah State University, Logan, UT (8)

Weeds of Horticultural Crops

*PRESENTER † STUDENT POSTER CONTEST

†**Electrical Weed Control in Organic Highbush Blueberry.** Luisa C. Baccin*, Marcelo L. Moretti; Oregon State University, Corvallis, OR (9)

Review of Weed Control Strategies for Desert Turfgrass. Kai Umeda*; University of Arizona, Phoenix, AZ (10)

†**Indaziflam Resistance in Annual Bluegrass (*Poa annua* L.) from Hazelnut Orchards.** Joshua W. Miranda*, Marcelo L. Moretti; Oregon State University, Corvallis, OR (11)

Evaluation of Fluridone in Christmas Trees. David R. King*, Ryan J. Hill, Marcelo L. Moretti; Oregon State University, Corvallis, OR (12)

†**Evaluation of PPO Inhibitors Tank Mixes in California Orchards.** Tong Zhen*, Seth Watkins, Brad Hanson; University of California, Davis, Davis, CA (13)

Cranberry Response to Pyroxasulfone. David R. King, Ryan J. Hill, Marcelo L. Moretti*; Oregon State University, Corvallis, OR (14)

Comparing the Efficacy of Non-Selective Herbicides in Western Oregon and New Mexico. Clint M. Mattox*¹, Leslie L. Beck², Tim Stock³, Bernd R. Leinauer⁴, Alec R. Kowalewski³; ¹USDA-ARS, Corvallis, OR, ²New Mexico State University, Los Lunas, NM, ³Oregon State University, Corvallis, OR, ⁴New Mexico State University, Las Cruces, NM (15)

Delayed Preemergence Applications of Pendimethalin in New Mexico Onion. Brian Schutte*, Chris Cramer, Stephanie Walker; New Mexico State University, Las Cruces, NM (16)

†**Evaluation of Potential Preemergence Herbicides in California Orchard Crops.** Andres Contreras*; University of California, Davis, Davis, CA (17)

Overview of Yellow Nutsedge Management in Washington State Potato Production. Rui Liu*¹, Tim Waters²; ¹Washington State University, Prosser, WA, ²Washington State University, Pasco, WA (18)

Weeds of Agronomic Crops

*PRESENTER † STUDENT POSTER CONTEST

†*Typha* Spp., Cattail, Response to Florpyrauxifen-benzyl in California Drill-Seeded Rice. Deniz Inci*, Kassim Al-Khatib; University of California, Davis, Davis, CA (19)

Rush Skeletonweed Control with Picloram Applied in Fallow with a Weed-sensing Sprayer. Drew J. Lyon*, Mark E. Thorne; Washington State University, Pullman, WA (20)

Developer of Novel Adjuvant Systems for Herbicides. Chase T. Boman*¹, Jim T. Daniel²; ¹AgraSyst, Spokane, WA, ²Daniel Ag Consulting, Keenesburg, CO (21)

†**Weed Seedbank Control in Rotational Crops for Proactive Herbicide Resistance Management.** Chandra L. Montgomery*¹, Albert T. Adjesiwor²; ¹University of Idaho, Moscow, ID, ²University of Idaho, Kimberly, ID (22)

Study of Alternative Herbicides to Glyphosate in Fallow-Based Cropping Systems. Jennifer A. Gourlie*, Judit Barroso; Oregon State University, Adams, OR (23)

Impact of Wheat Stubble Height on Russian Thistle Dispersion. Fernando H. Oreja*¹, Jennifer A. Gourlie², Judit Barroso¹; ¹Oregon State University, Adams, OR, ²Oregon State University, Pendleton, OR (24)

Annual Grass Weed Control and Crop Tolerance with Indaziflam in Kentucky Bluegrass Grown for Seed. Traci A. Rauch*, Joan Campbell; University of Idaho, Moscow, ID (25)

Evaluation of Group 15 Herbicide Efficacy on Pigweed Species and Injury on Sunflower. Keith A. Biggers*, Kirk A. Howatt, Joseph T. Ikley, Quincy D. Law; North Dakota State University, Fargo, ND (26)

Maverick™ Corn Herbicide: A New Herbicide Premix for PRE and POST Weed Control in Corn. Garrison J. Gundy*¹, Rachel J. Zuger², Jonathon Kohrt³, Pat Clay⁴; ¹Valent USA, Mcpherson, KS, ²Valent USA, Uniontown, WA, ³Valent USA, Noblesville, IN, ⁴Valent USA, Fresno, CA (27)

†**Late-Season Weed Control in Dry Bean with Split Application of Residual Herbicides.** McKenzie J. Barth*¹, Jim Heitholt², Jenna Meeks³, Andrew R. Kniss¹; ¹University of Wyoming, Laramie, WY, ²University of Wyoming, Powell, WY, ³University of Wyoming, Torrington, WY (28)

Hemp Response to ACCase Inhibiting Herbicides. Joseph Mettler*¹, Kirk A. Howatt¹, Michael H. Ostlie², Bryan Hanson³; ¹North Dakota State University, Fargo, ND, ²North Dakota State University, Carrington Research Extension Center, Carrington, ND, ³North Dakota State University, Langdon Research Extension Center, Langdon, ND (29)

Weed Seed Predation in Diversified Wheat Production Systems Depends on Crop and Weed Species. Jessica E. R. Kalin*¹, Sanford D. Eigenbrode², Ian Burke¹; ¹Washington State University, Pullman, WA, ²University of Idaho, Moscow, ID (30)

†Evaluation of POST-Herbicides for Glyphosate-Resistant Palmer Amaranth Control in Glufosinate, Glyphosate, and Dicamba-Resistant Sugar Beet. Michael D. Weber*¹, Nevin Lawrence²; ¹University of Nebraska, Lincoln, NE, ²University of Nebraska, Scottsbluff, NE (31)

Alfalfa Outperforms Alternative Cropping Sequences for Creeping Perennial Weed Suppression in Organic Small Grain Production. Greta G. Gramig*¹, Zachary Pull¹, Pat Carr²; ¹North Dakota State University, Fargo, ND, ²Montana State University, Moccasin, MT (32)

Dry Bean and Sunflower Response to Preplant Dicamba. Greg Endres*¹, Joseph T. Ikley², Brian Jenks³, Nathan H. Haugrud², Michael H. Ostlie⁴; ¹North Dakota State University, Carrington, ND, ²North Dakota State University, Fargo, ND, ³North Dakota State University, Minot, ND, ⁴North Dakota State University, Carrington Research Extension Center, Carrington, ND (33)

†Influence of Planting Date and Fall-Applied Soil Active Herbicides on Weed Control in Chickpea. Akamjot S. Brar*¹, Qasim Khan², Fabian Menalled¹, Zach Miller¹, Clint W. Beiermann¹, Kent McVay², Lovreet S. Shergill³; ¹Montana State University, Bozeman, MT, ²Southern Ag Research Centre, Montana State University, Huntley, MT, ³Montana State University, Huntley, MT (34)

Effect of Soil Residual Herbicides on Sugar Beet Yield in Conventional and Minimum Tillage Systems in Southern Idaho. Clarke Alder*¹, Albert T. Adjesiwor²; ¹Amalgamated Sugar, Boise, ID, ²University of Idaho, Kimberly, ID (35)

Curious and Concerning False Cleavers (*Galium spurium*) Response to Quinclorac. Breanne D. Tidemann*¹, Shaun M. Sharpe², Charles M. Geddes³; ¹Agriculture and Agri-Food Canada, Lacombe, AB, Canada, ²Agriculture and Agri-Food Canada, Saskatoon, SK, Canada, ³Agriculture and Agri-Food Canada, Lethbridge, AB, Canada (36)

†Effect of Seeding Rate and Herbicide Applications on Weed Management and Yield Potential of Chickpea. Het S. Desai*¹, Fabian Menalled¹, Tim Tim Seipel², Lovreet S. Shergill³; ¹Montana State University, Bozeman, MT, ²Montana State University, LRES, Bozeman, MT, ³Montana State University, Huntley, MT (37)

Evaluation of Oat Tolerance to Soil-applied Herbicides Applied Preemergence and Early Postemergence. Caleb D. Dalley*¹, Brian Jenks², Daniel Guimaraes Abe¹; ¹North Dakota State University, Hettinger, ND, ²North Dakota State University, Minot, ND (38)

Acifluorfen Selectivity in Sugarbeet in Nebraska and Wyoming. Nevin Lawrence*¹, Andrew R. Kniss²; ¹University of Nebraska, Scottsbluff, NE, ²University of Wyoming, Laramie, WY (39)

Weed Management Options in Dormant-Seeded Safflower. Earl Creech*, Rodney Nelson, Corey V. Ransom, Matt Yost; Utah State University, Logan, UT (40)

The Economics of Wild Oat (*Avena fatua* L.) in Small Grains Production in Utah. Cody J. Beckley*, Corey V. Ransom; Utah State University, Logan, UT (41)

Impacts of Deep Tillage and a Deversified Herbicide Program on Palmer Amaranth Control in Enlist and XtendFlex Cotton in Arizona. Jose Luiz Carvalho de Souza Dias*, Bryan Pastor, Inana Schutze, Yossue Trejo; University of Arizona, Maricopa, AZ (42)

Selectivity of Broadcast Applied Broadleaf Herbicides on Guayule (*Parthenium Argentatum*) in Arizona. Jose Luiz Carvalho de Souza Dias*, Bryan Pastor, Inana Schutze, Yossue Trejo; University of Arizona, Maricopa, AZ (43)

Selectivity of Post-Directed Applied Broadleaf Herbicides on Guayule (*Parthenium argentatum*) in Arizona. Jose Luiz Carvalho de Souza Dias*, Inana Schutze, Bryan Pastor, Yossue Trejo; University of Arizona, Maricopa, AZ (44)

Indaziflam Use During Seedling Establishment of Kentucky Bluegrass Grown for Seed. John F. Spring*¹, Darrin L. Walenta²; ¹Central Oregon Agricultural Research & Extension Center, Oregon State University, Madras, OR, ²Oregon State University Extension, La Grande, OR (45)

Teaching and Technology Transfer

***PRESENTER**

Pilot Safety and Aerial Application Proficiency Training Utilizing an Air Tractor Simulator. Jeffrey Golus*¹, Tom May²; ¹University of Nebraska, North Platte, NE, ²Flying M Enterprises, Holdrege, NE (46)

Basic Biology and Ecology

*PRESENTER † STUDENT POSTER CONTEST

†**Weed Survey in Colorado Sugar Beet Farms Reveals Resistance to Dicamba and Glyphosate.** Andre Lucas Simoes Araujo*¹, Eric P. Westra², Todd A. Gaines¹; ¹Colorado State University, Fort Collins, CO, ²Utah State University, Logan, UT (47)

Monitoring Herbicide Resistant Weeds in Sugarbeet Cropping Systems in SE Montana. Lovreet S. Shergill*¹, Het S. Desai², Todd A. Gaines³; ¹Montana State University, Huntley, MT, ²Montana State University, Bozeman, MT, ³Colorado State University, Fort Collins, CO (48)

†**Impact of Repeated Weed Exposure on the Competitive Ability of Wheat.** Albert O. Kwarteng*; University of Idaho, Moscow, ID (49)

TUESDAY MORNING FEBRUARY 28

WSWS-WAPMS General Session

LOCATION: 100B
TIME: 9:00 am to 12:00 pm
MODERATOR: Curtis Rainbolt
BASF
Meridian, ID

*SPEAKER

- 9:00 Introductions and Announcements.** Curtis Rainbolt*; BASF, Meridian, ID
- 9:05 WSWS Presidential Address.** Joel Felix*; Oregon State University, Ontario, OR
- 9:20 WAPMS Presidential Address.** Doug Kleweno*; Cygnet Enterprises, Inc., Camas, WA
- 9:35 Women of Aquatics Update.** Amy Kay*; SOLitude Lake Management, Oakwoods Hills, FL
- 9:50 Aquatic Ecosystem Restoration Foundation Update.** Carlton Layne*; Executive Director, AERF, Marietta, GA
- 10:00 Aquatic Plant Management Society Update**
- 10:10 DC Update.** Lee Van Wychen*; WSSA - Executive Director of Science Policy, Alexandria, VA

- 10:30 Challenges and Adaptive Management Opportunities in Breaking the Exotic Annual-Grass Fire Cycle.** Matt Germino*; Supervisory Research Ecologist, US Geological Survey.
- 11:15 Facing Water Management Challenges Throughout the West - a Federal Perspective.** Roland Springer*, Deputy Regional Director, Columbia-Pacific Northwest Regional Office, Bureau of Reclamation

TUESDAY AFTERNOON FEBRUARY 28

Symposium: Water in the West: Implications for Weed Management

LOCATION: 100D
 TIME: 1:15 to 5:00 pm
 MODERATOR: Jane Mangold
 Montana State University
 Bozeman, MT
 CO-MODERATOR: Mirella Ortiz
 Utah State University
 Logan, UT

***SPEAKER**

- 1:15 PM Western U.S. Climate Change Trends and Spring Seasonal Outlook.** Sophia Adams*; National Weather Service, Boise, ID **(50)**
- 1:45 PM Evolving Water Resource Management in the Southwest.** Charles E. Ester, III*; Salt River Project, Phoenix, AZ **(51)**
- 2:15 PM Follow the Water—Invasive Plants and Global Change in a Dry Grassland.** Dana M. Blumenthal*; USDA-ARS Rangeland Resources & Systems Research Unit, Fort Collins, CO **(52)**
- 2:45 PM Traits That Confer Weediness Also Facilitate Adaptation to Climate Change.** Ian Burke*; Washington State University, Pullman, WA **(53)**
- 3:15 PM Coffee Break**

- 3:30 PM Predicting Plant Invasions Under Climate Change in Aquatic and Riparian Systems in the Pacific Northwest.** David R. Clements*¹, Emma Nikkel², Jennifer Williams²; ¹Trinity Western University, Langley, BC, Canada, ²University of British Columbia, Vancouver, BC, Canada (54)
- 4:00 PM Runaway Lakeshores and Widespread Plant Invasions: Insights on Revegetating Wetlands in the Arid West.** Jes Braun*, Karin Kettering; Utah State University, Logan, UT (55)
- 4:30 PM Water & Weeds: Supporting Idaho's Thriving Agricultural Economies.** Paul Arrington*; Idaho Water Users Association, Boise, ID (56)

TUESDAY AFTERNOON FEBRUARY 28

ORAL - WSWS Project 1-Weeds of Range, Forestry, and Natural Areas

LOCATION: 120C
 TIME: 1:15 to 5:00 pm
 CHAIR & MODERATOR: Lisa C. Jones
 University of Idaho
 Moscow, ID
 CHAIR-ELECT: Rachel H. Seedorf
 Aero Applicators, Inc.
 Fort Collins, CO

*SPEAKER † STUDENT CONTEST

- 1:15 PM Biodiversity and Geo-referenced Density Sampling Methods for Determining Native Specie's Responses to Long-term Cheatgrass Control with Indaziflam.** James R. Sebastian*¹, Joe Swanson¹, Derek J. Sebastian²; ¹Boulder County Parks and Open Space, Longmont, CO, ²Envu Vegetation Management, Greeley, CO (57)
- 1:30 PM †Cheatgrass (*Bromus tectorum*) Increases Perennial Grass Flammability—a Missing Component of Fire Behavior Models.** Georgia R. Harrison*, Lisa C. Jones, Eva K. Strand, Timothy S. Prather; University of Idaho, Moscow, ID (58)
- 1:45 PM Chemical and Bioherbicides for Control of Exotic Annual Grasses in Sagebrush Steppe Ecosystems: Evaluation of Efficacy, Longevity, and Non-target Effects.** Brynne E. Lazarus*, Matthew J. Germino; USGS, Boise, ID (59)

- 2:00 PM †Testing Ventenata Control Treatments on the Crow Reservation in Southeastern Montana.** Zach Fighter*¹, Scott Powell¹, Jane Mangold¹, Robert Demery², David Hopkins²; ¹Montana State University, Bozeman, MT, ²Bureau of Indian Affairs, Billings, MT (60)
- 2:15 PM Long-term Downy Brome (*Bromus tectorum* L.) Control with Indaziflam in Sagebrush-Grasslands in Sublette County Wyoming: Research Synthesis and Future Directions.** Jacob Courkamp*¹, Paul Meiman²; ¹Colorado State University, Fort Collins, CO, ²University of Nevada-Reno, Elko, NV (61)
- 2:30 PM †Effects of Grazing Deferment Following Invasive Annual Grass Control with Indaziflam in Northeast Wyoming.** Walker T. Billings*, Brian A. Meador; University of Wyoming, Sheridan, WY (62)
- 2:45 PM Three Years Later: Plant Community Resilience to Annual Grass Control in Sagebrush Steppe.** Lisa C. Jones*, Georgia R. Harrison, Timothy S. Prather; University of Idaho, Moscow, ID (63)
- 3:00 PM †Community Response to Dyer's Woad Control Efforts.** Erin Hettinger*¹, Corey V. Ransom¹, Tom Monaco²; ¹Utah State University, Logan, UT, ²USDA-ARS, Logan, UT (64)
- 3:15 PM Coffee Break**
- 3:30 PM Do Reduced Rates of Herbicide in Basal Bark Treatments of *Prunus padus* Decrease the Frequency of Non-target Impacts?** Gino Graziano*; UAF Cooperative Extension Service, Anchorage, AK (65)
- 3:45 PM †Long-term Plant Community Response to Cheatgrass Management in High-elevation Sagebrush Steppe.** Colter Mumford*, Jane Mangold, Catherine Zabinski, Mathew Lavin, Lisa J. Rew; Montana State University, Bozeman, MT (66)
- 4:00 PM Frequent Flyover: Using High-Frequency, Moderate-Resolution Multispectral Imagery to Map Invasive Annual Grasses.** Chloe M. Mattilio*, Brian A. Meador; University of Wyoming, Laramie, WY (67)
- 4:15 PM †Long-term Efficacy of Indaziflam to Suppress Ventenata and Response of Other Vegetation.** Lilly L. Sencenbaugh*, Jane Mangold, Lisa J. Rew; Montana State University, Bozeman, MT (68)

4:30 PM Recent Winter Annual Grass Control Trials in the Intermountain Region of California.
Thomas J. Getts*; University of California
Cooperative Extension, Susanville, CA (69)

4:45 PM †Impact of Native Vegetation on Cheatgrass Fitness: A Neighborhood Study. Erin B. Teichroew*, Bruce Maxwell, Lisa J. Rew; Montana State University, Bozeman, MT (70)

TUESDAY AFTERNOON FEBRUARY 28

ORAL - WSWS Project 3-Weeds of Agronomic Crops

LOCATION: 100E
TIME: 1:15 to 5:00 pm
CHAIR & MODERATOR: Stephen Valenti
Bayer CropScience
Fargo, ND
CHAIR-ELECT: Alix Whitener
FMC
Malaga, WA

***SPEAKER † STUDENT CONTEST**

1:15 PM Simulating Postemergence Optical Spot Spraying Applications Following Acuron Applied Preemergence. Jason W. Adams¹, R Joseph Wuerffel², Rob Lind³, Taylor Glenn⁴, David Belles⁵, Marty Schraer*⁶; ¹Syngenta Crop Protection, Vero Beach, FL, ²Syngenta Crop Protection, Gerald, MO, ³Syngenta Crop Protection, Jealotts Hill, United Kingdom, ⁴Syngenta Crop Protection, Orlando, FL, ⁵Syngenta Crop Protection, Greensboro, NC, ⁶Syngenta, Meridian, ID (71)

1:30 PM †Harvest Weed Seed Control: A Potential Non-Chemical Weed Management Tool for Cereal and Corn/Soybean Rotations in SE Montana. Het S. Desai*¹, Fabian Menalled¹, Tim Tim Seipel², Lovreet S. Shergill³; ¹Montana State University, Bozeman, MT, ²Montana State University, LRES, Bozeman, MT, ³Montana State University, Huntley, MT (72)

- 1:45 PM Field Testing of a Physical Impact Mill in Western Canada.** Breanne D. Tidemann*¹, K. Neil Harker¹, Hugh Beckie²; ¹Agriculture and Agri-Food Canada, Lacombe, AB, Canada, ²University of Western Australia, Perth, Australia (73)
- 2:00 PM A23980B: Corn Weed Control from Four Complimentary Active Ingredients.** Seth A. Strom¹, Mark J. Kitt², Thomas H. Beckett², Benjamin C. Westrich*³; ¹Syngenta Crop Protection, Monticello, IL, ²Syngenta Crop Protection, Greensboro, NC, ³Syngenta Crop Protection, Greeley, CO (74)
- 2:15 PM A23980B: A Step Change for Residual Weed Control in Corn.** Jafe Weems*¹, Scott Cully², Mark Kitt³, Thomas H. Beckett³; ¹Syngenta Crop Protection, Kennewick, WA, ²Syngenta Crop Protection, Marion, IL, ³Syngenta Crop Protection, Greensboro, NC (75)
- 2:30 PM Maverick Corn Herbicide™: Valent's New Herbicide for Broad-Spectrum Weed Control in Corn.** Garrison J. Gundy*¹, Rachel J. Zuger², Pat Clay³, Jonathon Kohrt⁴; ¹Valent USA, Mcpherson, KS, ²Valent USA, Uniontown, WA, ³Valent USA, Fresno, CA, ⁴Valent USA, West Des Moines, IA (76)
- 2:45 PM †Weed Control Benefits and Soil Response to Sweep Tillage.** Grace Flusche Ogden*¹, Jason G. Warren²; ¹Oklahoma State University, Lubbock, TX, ²Oklahoma State University, Stillwater, OK (77)
- 3:00 PM Impact of Kochia Size on Carfentrazone-ethyl Susceptibility.** Shaun M. Sharpe*; Agriculture and Agri-Food Canada, Saskatoon, SK, Canada (78)
- 3:15 PM Coffee Break**
- 3:30 PM Diflufenican: a Tool for Managing *Amaranthus* Species in Corn and Soybean Cropping Systems.** John Buol, Ryan Rapp*, Carl Coburn, Richard Leitz, Eric Riley, Ananda Datta; Bayer, St. Louis, MO (79)
- 3:45 PM Palmer Amaranth Yield Interference in North Dakota Corn and Soybean.** Quincy D. Law*, Joseph T. Ikley; North Dakota State University, Fargo, ND (80)

- 4:00 PM †Cover Crops and Herbicide Combinations for Season-Long Weed Control in Dry Beans.** Ryan Johnson*¹, Jenna Meeks², Jim Heitholt³, Nevin Lawrence⁴, Andrew R. Kniss¹; ¹University of Wyoming, Laramie, WY, ²University of Wyoming, Torrington, WY, ³University of Wyoming, Powell, WY, ⁴University of Nebraska, Scottsbluff, NE **(81)**
- 4:15 PM Safety of PPO-inhibiting Herbicides Applied Preemergence in Dry Bean.** Joseph T. Ikley*, Nathan H. Haugrud; North Dakota State University, Fargo, ND **(82)**
- 4:30 PM †Irrigation Timing Influenced Weed Control Efficacy and Dry Bean Response to Soil-Applied Herbicides.** Prayusha Bhattarai*¹, Albert T. Adjewor²; ¹University of Idaho, Moscow, ID, ²University of Idaho, Kimberly, ID **(83)**
- 4:45 PM Impacts of Herbicide and Application Timing on Hoary Cress Seed Viability.** Robert O. Finley*¹, Brian A. Mealar²; ¹University of Wyoming, Dubois, WY, ²University of Wyoming, Laramie, WY **(84)**

WEDNESDAY MORNING MARCH 1

New WSWS Officer Orientation

LOCATION: 120B
TIME: 9:00 to 9:30 am
MODERATOR: Eric Gustafson
WSWS
Westminster, CO

WEDNESDAY MORNING MARCH 1

**ORAL - WSWS Project 1-Weeds of Range,
Forestry, and Natural Areas**

LOCATION: 100D
TIME: 9:15 to 11:30 am
CHAIR & MODERATOR: Lisa C. Jones
University of Idaho
Moscow, ID
CHAIR-ELECT: Rachel H. Seedorf
Aero Applicators, Inc.
Fort Collins, CO

***SPEAKER † STUDENT CONTEST**

9:15 AM Exploring the Utility of Penoxsulam in Western U.S. Forestry Vegetation Management. William L. Hatler*¹, Byron B. Sleugh², Craig M. Alford³, Jodie A. Crose⁴, Scott Flynn⁵; ¹Corteva Agriscience, Meridian, ID, ²Corteva Agriscience, Carmel, IN, ³Corteva Agriscience, Ankeny, IA, ⁴Corteva Agriscience, Tulsa, OK, ⁵Corteva Agriscience, Lees Summit, MO **(85)**

9:30 AM †Surveying Resistance to ALS-inhibiting Herbicides in Intermountain West Kochia Populations. Weston Maughan*¹, Corey V. Ransom¹, Megan Nielson¹, Kimberly Thornsted², Shaun Bushman²; ¹Utah State University, Logan, UT, ²USDA, Logan, UT **(86)**

9:45 AM Western U.S. Forestry Site Preparation with Florpyrauxifen-benzyl + Aminopyralid. Jodie A. Crose*¹, William L. Hatler², Byron B. Sleugh³, Craig M. Alford⁴, Sam Ingram⁵, Scott Flynn⁶; ¹Corteva Agriscience, Tulsa, OK, ²Corteva Agriscience, Meridian, ID, ³Corteva Agriscience, Carmel, IN, ⁴Corteva Agriscience, Ankeny, IA, ⁵Corteva Agriscience, Savannah, GA, ⁶Corteva Agriscience, Lees Summit, MO **(87)**

10:00 AM †Integrated Management of Canada Thistle: Evaluating the Efficacy of the Rust Pathogen *Puccinia punctiformis*. Caitlin Henderson*¹, Kristi Gladem², Karen Rosen², Steve Young³, Dan Bean², Robert Schaeffer¹; ¹Utah State University, Logan, UT, ²Colorado Dept. of Agriculture, Palisade, CO, ³USDA-ARS, Beltsville, MD **(88)**

- 10:15 AM Micronutrient Fertilizer Impacts on Cheatgrass and Desirable Species.** Danielle B. Johnston¹, Kevin Gunnell*², Melissa L. Landeen²; ¹Colorado Parks and Wildlife, Grand Junction, CO, ²Utah Division of Wildlife Resources, Ephraim, UT (89)
- 10:45 AM New Weeds Arriving in the West: How Are We Keeping Track?** Kelsey C. Brock*; University of Wyoming, Laramie, WY (90)
- 11:00 AM Evaluating Bulbous Bluegrass Control by Various Herbicides.** Jaycie N. Arndt*¹, Brian A. Meador², Beth Fowers³; ¹University of Wyoming, Arvada, WY, ²University of Wyoming, Laramie, WY, ³University of Wyoming, Sheridan, WY (91)

WEDNESDAY MORNING MARCH 1

ORAL - WSWS Project 3-Weeds of Agronomic Crops

LOCATION: 100E
 TIME: 9:15 to 11:30 am

CHAIR & MODERATOR: Stephen Valenti
 Bayer CropScience
 Fargo, ND
 CHAIR-ELECT: Alix Whitener
 FMC
 Malaga, WA

***SPEAKER † STUDENT CONTEST**

- 9:15 AM Application Rates and Timings of Pyroxasulfone Containing Products at Carbon Seeding in Perennial Ryegrass.** Kyle Roerig*; Pratum Co-op, Salem, OR (92)
- 9:30 AM †Dissipation of Three Pendimethalin Formulations in Water After an Application Onto a Water-Seeded Rice System.** Aaron Becerra-Alvarez*, Kassim Al-Khatib; University of California, Davis, Davis, CA (93)
- 9:45 AM Italian Ryegrass Seed Shatter in Winter and Spring Wheat.** Mark E. Thorne*, Drew J. Lyon; Washington State University, Pullman, WA (94)

- 10:00 AM †Herbicide Resistance in Downy Brome from Winter Wheat Fields in Eastern Oregon.** Victor Ribeiro*¹, Caio A. Brunharo², Carol Mallory-Smith¹, Judit Barroso³; ¹Oregon State University, Corvallis, OR, ²Pennsylvania State University, University Park, PA, ³Oregon State University, Adams, OR (95)
- 10:15 AM Evaluation of Dichlorprop-p Plus Bromoxynil for Management of Kochia in Small Grains.** Daniel Beran*¹, Bob Bruss²; ¹Nufarm, Eldora, IA, ²Nufarm, Morrisville, NC (96)
- 10:30 AM †Smooth Scouringrush Control with Glyphosate is Affected by Surfactant Choice and Application Time.** Marija Savic*, Mark E. Thorne, Drew J. Lyon; Washington State University, Pullman, WA (97)
- 10:45 AM Fall Pyroxasulfone for Wild Oat Control.** Kirk A. Howatt*¹, Joseph Mettler¹, Ken J. Deibert²; ¹North Dakota State University, Fargo, ND, ²BASF Corporation, West Fargo, ND (98)
- 11:00 AM Fluxofenim Safens Wheat to Group 15 Herbicides.** Joan Campbell*, Traci A. Rauch; University of Idaho, Moscow, ID (99)
- 11:15 AM Weed Efficacy of a Novel Cereal Herbicide Mixture of Tolpyralate and Bromoxynil.** Joe Yenish*¹, Dave Johnson², Ryan Humann³, Kevin Falk⁴, Cody J. Chytk⁵, Jeff Krumm⁶, Rory Degenhardt⁷; ¹Corteva Agriscience, Billings, MT, ²Corteva Agriscience, St. Paul, MN, ³Corteva Agriscience, Fargo, ND, ⁴Corteva Agriscience, Winnipeg, MB, Canada, ⁵Corteva Agriscience, Saskatoon, SK, Canada, ⁶Corteva Agriscience, Hastings, NE, ⁷Corteva Agriscience, Edmonton, AB, Canada (100)

WEDNESDAY MORNING MARCH 1

ORAL - WSWs Project 5-Basic Biology and Ecology

LOCATION: 120C
TIME: 9:15 to 11:00 am
CHAIR & MODERATOR: Rui Liu
Washington State
University
Prosser, WA
CHAIR-ELECT: Alex Ceseki
Wilbur-Ellis
Agribusiness
Rio Linda, CA

*SPEAKER † STUDENT CONTEST

- 9:15 AM Uncovering Mechanisms Conferring Metribuzin Resistance in Winter Wheat (*Triticum Aestivum*) Under Field Conditions in the Inland Pacific Northwest (PNW).** Samuel R. Revolinski*, Tara L. Burke, Arron H. Carter, Ian Burke; Washington State University, Pullman, WA (101)
- 9:30 AM †Melatonin as a Safener Against 2,4-D Injury in Cotton.** Josiane C. Argenta*; Mississippi State University, Starkville, MS (102)
- 9:45 AM IWGC Progress in Genomic Sequencing of Western Weeds Including Russian Thistle and Kochia.** Philip Westra*¹, Todd A. Gaines¹, Eric L. Patterson², Jacob S. Montgomery¹, Nick A. Johnson², John Cmp Lemas¹; ¹Colorado State University, Fort Collins, CO, ²Michigan State University, East Lansing, MI (103)
- 10:00 AM †Common Lambsquarters Seed Germination in Response to Far-red Light.** Jonah Zubil Ziyaaba*¹, David A. Claypool¹, Albert T. Adjesiwor², Andrew R. Kniss¹; ¹University of Wyoming, Laramie, WY, ²University of Idaho, Kimberly, ID (104)
- 10:15 AM Renovating Crested Wheatgrass Monocultures into Functional Rangeland by Integrating Herbicide and Seeding.** Peter T. Bugoni*¹, Jane Mangold²; ¹Confederated Salish and Kootenai Tribes, Pablo, MT, ²Montana State University, Bozeman, MT (105)

10:30 AM †Genetic Mapping to Understand Quantitative Metabolic Resistance to Tembotrione in Palmer Amaranth. Carlos Alberto G. Rigon*¹, Jacob S. Montgomery¹, Roland S. Beffa², Anita Küpper³, Franck E. Dayan¹, Todd A. Gaines¹; ¹Colorado State University, Fort Collins, CO, ²Senior Scientist Consultant, Frankfurt, Germany, ³Bayer AG, Frankfurt, Germany (106)

10:45 AM Application of Thermal Requirements for California Weedy Rice (*Oryza sativa f. spontanea*) Seedling Emergence: a 2-year Field Study. Liberty B. Galvin*¹, Whitney Brim-DeForest², Kassim Al-Khatib¹; ¹University of California, Davis, Davis, CA, ²University of California Cooperative Extension, Yuba City, CA (107)

WEDNESDAY MORNING MARCH 1

WSWS - WAPMS Awards Luncheon

LOCATION: 100B
TIME: 11:30 am to 2:00 pm
MODERATOR: Joel Felix
Oregon State University
Ontario, OR

WEDNESDAY AFTERNOON MARCH 1

**ORAL - WSWS Project 1-Weeds of Range,
Forestry, and Natural Areas**

LOCATION: 100D
TIME: 2:15 to 3:15 pm
CHAIR & MODERATOR: Lisa C. Jones
University of Idaho
Moscow, ID
CHAIR-ELECT: Rachel H. Seedorf
Aero Applicators, Inc.
Fort Collins, CO

*SPEAKER † STUDENT CONTEST

- 2:15 PM Partnering Throughout the Watershed to Restore Critical Habitat with Indazaflam Herbicide Along the Front Range of Colorado.** Casey Cisneros*¹, Derek J. Sebastian²; ¹Larimer County, Fort Collins, CO, ²Bayer, Greeley, CO (108)
- 2:30 PM Monitoring Biodiversity Response to Invasive Annual Grass Control Across Several Western Ecoregions.** Shannon Clark*¹, James R. Sebastian², Rachel Mealar³; ¹Envu Vegetation Management, Sheridan, WY, ²Boulder County Parks and Open Space, Longmont, CO, ³Private contractor, Sheridan, WY (109)
- 2:45 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 (110)
- 3:00 PM *Phragmites* Control and Wetlands Restoration: the Struggle to Increase Plant Community Diversity in Metal-Contaminated Ecosystems.** Stephen G. Hayes*¹, David J. Leptich², David Van de Riet², Steve Sluka²; ¹Alta Science and Engineering, Spokane Valley, WA, ²Idaho Fish and Game, Coeur D'alene, ID (111)

WEDNESDAY AFTERNOON MARCH 1

ORAL - WSWS Project 2-Weeds of Horticultural Crops

LOCATION: 120C
TIME: 2:15 to 5:00 pm
CHAIR & MODERATOR: Elizabeth G. Mosqueda
Madera Community
College
Madera, CA
CHAIR-ELECT: Jose Luiz Carvalho De
Souza Dias
University of Arizona
Maricopa, AZ

*SPEAKER † STUDENT CONTEST

2:15 PM Weed Control in Desert Turfgrass Has Been Effective and Successful So Far, How Long Can it Last? Kai Umeda*; University of Arizona, Phoenix, AZ (112)

2:30 PM †Evaluation of Weed Control Efficacy and Crop Safety of the New PPO-inhibiting Herbicide, Tiafenacil in California Orchard Cropping Systems. Guelta Laguerre*; University of California, Davis, Davis, CA (113)

2:45 PM Herbicide Injury in Hazelnut – Risk and Prevention. Ryan J. Hill*; Oregon State University, Corvallis, OR (114)

3:00 PM †European Hazelnut (*Corylus avellana* L.) and Canada Thistle (*Cirsium arvense* L.) Response to Florpyrauxifen-benzyl. Joshua W. Miranda*, Marcelo L. Moretti; Oregon State University, Corvallis, OR (115)

3:15 PM Coffee Break

3:30 PM Liquid-applied Cellulosic Mulches for Weed Suppression in Day-neutral Strawberry. Greta G. Gramig*¹, Waqas Ahmad¹, Dilpreet Bajwa², Lisa DeVetter³, Andrew Durado², Alice Formiga⁴, Suzette Galinato⁵, Sharon Weyers⁶; ¹North Dakota State University, Fargo, ND, ²Montana State University, Bozeman, MT, ³Washington State University, Mount Vernon, WA, ⁴Oregon State University, Corvallis, OR, ⁵Washington State University, Pullman, WA, ⁶USDA-ARS, Morris, MN (116)

- 3:45 PM Novel Weed Control with Low Doses of Electricity.** Erik A. Lehnhoff*, Paul Neher, Andres Indacochea; New Mexico State University, Las Cruces, NM (117)
- 4:00 PM Efficacy of Preemergence Herbicides for Puncturevine Control Between Plastic Mulch Rows in Cucurbits.Cucurbits.** Cody D. Zesiger*¹, Corey V. Ransom², Cody J. Beckley², Dan Drost²; ¹Utah State University, Ogden, UT, ²Utah State University, Logan, UT (118)
- 4:15 PM Pendimethalin Integration into Onion Early Season Weed Management.** Harlene M. Hatterman-Valenti*, Avery Shikanai, Collin Auwarter; North Dakota State University, Fargo, ND (119)
- 4:30 PM Metobromuron Potato Crop Safety and Weed Control.** Pamela J.S. Hutchinson*¹, Joel Felix², Brent Beutler¹; ¹University of Idaho, Aberdeen, ID, ²Oregon State University, Ontario, OR (120)
- 4:45 PM Cover Crops for Pest Suppression in Chile Pepper.** Brian Schutte*¹, Akash Bajagain¹, Asmita Nagila², Caroline Toth¹; ¹New Mexico State University, Las Cruces, NM, ²Texas A&M University, Uvalde, TX (121)

WEDNESDAY AFTERNOON MARCH 1

ORAL - WSWS Project 3-Weeds of Agronomic Crops

LOCATION: 100E
 TIME: 2:15 to 3:15 pm
 CHAIR & MODERATOR: Stephen Valenti
 Bayer CropScience
 Fargo, ND
 CHAIR-ELECT: Alix Whitener
 FMC
 Malaga, WA

***SPEAKER † STUDENT CONTEST**

- 2:15 PM Jointed Goatgrass Control with Imazamox and Quizalofop-p-ethyl.** Cody F. Creech*¹, Amanda C. Easterly²; ¹University of Nebraska, Scottsbluff, NE, ²University of Nebraska, Sidney, NE (122)

2:30 PM POST Applied Residual Herbicide Options for Wild Oat (*Avena fatua* L.) Control in Spring Wheat. Clint W. Beiermann*; Montana State University, Kalispell, MT (123)

2:45 PM Introducing Florpyrauxifen-benzyl (Rinskor) Herbicide: Development of A New Postemergence Tool for Managing Weeds in Sugarbeet. Craig M. Alford*¹, Kelly A. Backscheider², Ryan Humann³, David Johnson⁴, Marisa Salas⁵; ¹Corteva Agriscience, Ankeny, IA, ²Corteva Agriscience, Franklin, IN, ³Corteva Agriscience, Fargo, ND, ⁴Corteva Agriscience, St. Paul, MN, ⁵Corteva Agriscience, Guyancourt, France (124)

3:00 PM Winter Cereal Cover Crops and Herbicide Programs for Weed Control in Sugarbeet. Albert T. Adjesiwor*; University of Idaho, Kimberly, ID (125)

3:15 PM Coffee Break

WEDNESDAY AFTERNOON MARCH 1

Discussion Session- WSWS Project 1-Weeds of Range, Forestry, and Natural Areas

LOCATION: 100D
TIME: 3:30 to 5:00 pm
CHAIR & MODERATOR: Lisa C. Jones
University of Idaho
Moscow, ID
CHAIR-ELECT: Rachel H. Seedorf
Aero Applicators, Inc.
Fort Collins, CO

“Opportunities for Projects that Would Benefit from Private-Public Partnerships”

WEDNESDAY AFTERNOON MARCH 1

**ORAL - WSWS Project 4-Teaching and
Technology**

LOCATION: 100E
TIME: 3:30 to 4:15 pm
CHAIR & MODERATOR: Jeanne Falk Jones
Kansas State University
Colby, KS
CHAIR-ELECT: Kirk A. Howatt
North Dakota State
University
Fargo, ND

***SPEAKER**

- 3:30 PM Exploring New Research Methods at the Winfield United Innovation Center.** Gregory K. Dahl*¹, Ryan J. Edwards², Joshua J. Skelton³, Steven A. Fredericks², Kassi Kosnicki⁴, Eric P. Spandl², Elizabeth R. Alonzi², Elizabeth Buescher², Cody Hoerning², Derick Jiwan²; ¹Winfield United, Eagan, MN, ²WinField United, River Falls, WI, ³WinField United, Saint Paul, MN, ⁴Land O' Lakes - Winfield United, River Falls, WI (126)
- 3:45 PM The Resistant Wild Oat Action Committee.** Eric N. Johnson¹, Breanne D. Tidemann*², Nathan Eshpeter³; ¹University of Saskatchewan, Saskatoon, SK, Canada, ²Agriculture and Agri-Food Canada, Lacombe, AB, Canada, ³Resistant Wild Oat Action Committee, Daysland, AB, Canada (127)
- 4:00 PM Engaging Our Extension Clientele on Weedy Topics.** Jeanne Falk Jones*; Kansas State University - NW Area Office, Colby, KS (128)

WEDNESDAY AFTERNOON MARCH 1

**Discussion Session - WSWS Project 4-Teaching
and Technology**

LOCATION: 100E
TIME: 4:15 to 5:00 pm
CHAIR & MODERATOR: Jeanne Falk Jones
Kansas State University
Colby, KS
CHAIR-ELECT: Kirk A. Howatt
North Dakota State
University
Fargo, ND

**“Delivering Information to Where our Clientele
Already Interact”**

THURSDAY MORNING MARCH 2

WSWS Business Breakfast

LOCATION: 100B
TIME: 6:30 to 9:15 am
MODERATOR: Joel Felix
Oregon State University
Ontario, OR

THURSDAY MORNING MARCH 2

WAPMS Business Breakfast

LOCATION: 110AB
TIME: 8:00 to 9:15 am
MODERATOR: Doug Kleweno
Cygnet Enterprises, Inc.
Camas, WA

THURSDAY MORNING MARCH 2

Discussion Session- WSWS Project 2-Weeds of Horticultural Crops

LOCATION: 100D
TIME: 9:30 to 10:30 am
CHAIR & MODERATOR: Elizabeth G. Mosqueda
Madera Community
College
Madera, CA
CHAIR-ELECT: Jose Luiz Carvalho De
Souza Dias
University of Arizona
Maricopa, AZ

“The Future of On-Line Extension Resources”

THURSDAY MORNING MARCH 2

Discussion Session - WSWS Project 3-Weeds of Agronomic Crops

LOCATION: 100E
TIME: 9:30 to 10:30 am
CHAIR & MODERATOR: Stephen Valenti
Bayer CropScience
Fargo, ND
CHAIR-ELECT: Alix Whitener
FMC
Malaga, WA

“Use of Precision Technology in Research”

THURSDAY MORNING MARCH 2

**Discussion Session - WSWS Project 5-Basic
Biology and Ecology**

LOCATION: 120C
TIME: 10:30 to 11:30 am

CHAIR &
MODERATOR: Rui Liu
Washington State
University
Prosser, WA

CHAIR-ELECT: Alex Ceseki
Wilbur-Ellis Agribusiness
Rio Linda, CA

**“Impact of Changing Climate on Weed
Adaptation in Western US”**

THURSDAY MORNING MARCH 2

**Discussion Session - WSWS - Education and
Regulatory**

LOCATION: 120B
TIME: 10:30 to 11:30 am

CHAIR &
MODERATOR: Jane Mangold
Montana State University
Bozeman, MT

CHAIR-ELECT: Nevin Lawrence
University of Nebraska,
Scottsbluff, NE

**“Communicating the complexities of Weed
Science and Management in an age of
information snippets”**

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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
		2022	Sandra McDonald

HONORARY MEMBERS

1976	Dick Beeler
1978	Dale W. Bohmont
19821	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
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

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	2022	Andrew Kniss Richard Zollinger
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 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 Vandecoeveering [‡]	2022	Charles Geddes [‡]
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
2020	Steve Sauer	Weed Manager
2022	Julie Kraft	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

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 2022-23

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

<p>Awards <i>President</i> Rich Zollinger (2023) Tim Prather, Chair (2024) Harry Quicke (2025) Het Desai, Student Rep (2024)</p>	<p>Legislative <i>WSSA Representative</i> John Vickery (2023) Slade Franklin, Chair (2024) Ryan Edwards (2025) Lee Van Wychen, Ex-officio</p>
<p>Fellows and Honorary Membership <i>Past President</i> Drew Lyon (2023) Ed Peachey, Chair (2024) Rich Zollinger (2025)</p>	<p>Local Arrangements <i>President-Elect</i> Sonia Rios (2023) George Newberry, Chair (2024) Albert Adjesiwor (2024) Eric Westra (2025)</p>
<p>Finance <i>Member-at-Large Public</i> Nevin Lawrence (2023) Phil Banks, Chair (2024) (Treasurer) Ryan Rapp (2024) Scott Cook (2025)</p>	<p>Necrology <i>Secretary</i> Ryan Rapp (2023) Rachel Seedorf, Chair (2024) Lesley Beckworth (2025)</p>
<p>Herbicide Resistant Plants <i>Member-at-Large Private</i> Misha Manuchehri (2023) Lovreet Shergill, Chair (2024) Stephen Valenti (2025) Ednaldo Borgato, Student Rep (2024)</p>	<p>Nominations <i>Past President</i> Vipam Kumar (2023) Brian Schutte, Chair (2024) Pat Clay (2025) Sandra McDonald (Past-President)</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> Caleb Dalley (2023) Rui Liu, Chair (2024) Lovreet Shergill (2025)</p>
<p>Publications <i>President-Elect</i> Curtis Rainbolt, Chair (President-Elect) Carl Libbey, Proceedings & Newsletter Traci Rauch, Research Prog. Report Kala Travis, Website Editor</p>	<p>Public Relations <i>Ed. & Reg. Section Chair</i> Breanne Tidemann (2023) Albert Adjesiwor, Chair (2024) Mirella Ortiz (2025) Joshua Miranda, Student Rep (2024)</p>
<p>Student Paper Judging <i>President-Elect</i> Josh Adkins (2023) Clint Beiermann, Chair (2024) Alix Whitener (2025) Georgia Harrison, Student Rep (2023)</p>	<p>Site Selection <i>Past President</i> Byron Sleugh (2023) Ryan Bryant-Schlobohm, Chair (2024) Kyle Roerig (2025)</p>
<p>Sustaining Membership <i>Past President</i> Stephen Valenti (2023) Rachel Zuger, Chair (2024) Carl Cobum (2025)</p>	<p>Ad-Hoc Committees <i>President</i> Diversity and Inclusion; Elizabeth Mosqueda, Chair Invasive Species; Brian Mealor and Chad Cummings Needs of Agency Members; Julie Kraft, Chair</p>

NOTES

NOTES

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.

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2023 WSWS Sustaining Members

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R&D Sprayers
Syngenta Crop Protection
UPL- Ltd.
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Winfield United



FUTURE MEETING DATES AND SITES

March 4-7, 2024 The Grand Hyatt Denver Denver, CO	2025 TBD
---------------------------------------------------------	-------------

TIME	TUESDAY	WEDNESDAY	THURSDAY
6:30			WSWS Business Breakfast and Student Awards 100B
7:00			
7:15	Poster Session Odd # Authors Present 130	Poster Session Even # Authors Present 130	
7:30			
7:45			
8:00			
8:15			
8:30			
8:45			
9:00	General Session 100B		
9:15			
9:30			
9:45			
10:00			
10:15			
10:30			
10:45			
11:00			
11:15			
11:30		WSWS- WAPMS Awards Luncheon 100B	
11:45			
12:00			
1:15			
1:30			
1:45			
2:00			
2:15			
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3:00			
3:15			
3:30			
3:45			
4:00			
4:15			
4:30			
4:45			
5:00		What's New in Industry 100D	
5:15			
5:30			
5:45			
6:00			