

# **WSSA**

**2026 Annual Meeting  
February 23-26, 2026  
Raleigh, NC**

# **CWSS**

**2025 Annual Meeting  
November 2-7, 2025  
Hilton Lac-Leamy  
Gatineau, Québec**

# **WEED SCIENCE SOCIETY OF AMERICA – CANADIAN WEED SCIENCE SOCIETY JOINT MEETING**

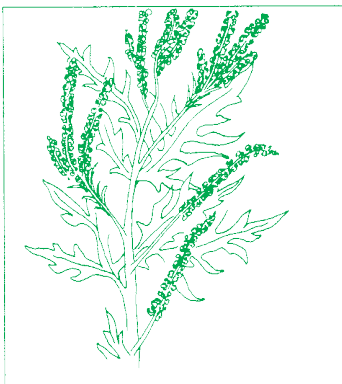
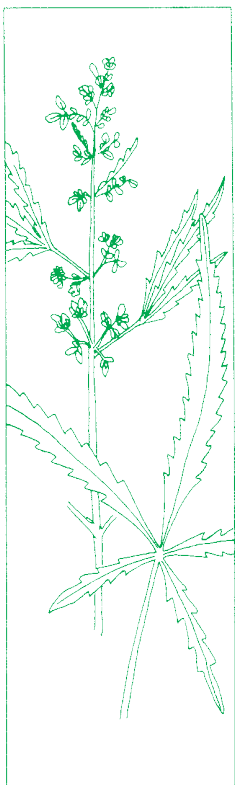
**65th Meeting**

## **2025 MEETING PROGRAM**

**Sheraton Vancouver Wall  
Centre**

**Vancouver, BC**

**February 24-27, 2025**



# **WSSA Sustaining Members**

## **PRESIDENTIAL**

BASF Corporation  
Bayer Crop Science  
Syngenta Crop Protection

## **LEADERS**

Corteva Agrisciences  
UPL NA Inc  
Valent USA  
Winfield United

## **PATRONS**

Blue River Technology  
Gowan  
Gylling Data Management  
Lehigh Agri & Bio Services, Inc.  
Nufarm Americas Inc  
Nichino America Inc.  
Precision Laboratories

## **CONTRIBUTORS**

ABG Ag Services  
AMVAC Chemical Corp  
Application Insight LLC  
Frontier Precision Software and Services  
Nippon Soda Ltd  
Phenospex  
R & D Sprayers  
TeeJet Technologies

# **CWSS Sustaining Members**

## **DIAMOND**

Bayer Crop Science  
Corteva Agrisciences

## **PLATINUM**

FMC Corporation  
Syngenta Crop Protection

## **GOLD**

Gowan  
NuFarm/Valent  
UPL  
Winfield

## **SILVER**

A Horizon AgResearch  
Adama  
AgQuest  
Belchim  
Small Plot, Inc.

**65th Meeting**  
**Weed Science Society of America and**  
**Canadian Weed Science Society**

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**Local Arrangements Committee 2025 – Vancouver**

Co-Chairs ..... David Clements, Victoria Brookes,  
Alida Janmaat, and Breanne Tidemann

## **The WSSA/CWSS 2025 Program**

Welcome to the 2025 joint Weed Science Society of America (WSSA) and Canadian Weed Science Society (CWSS) annual meeting held at the Sheraton Wall Centre in Vancouver, British Columbia. Located in downtown Vancouver, BC on Burrard Street, the hotel offers modern venues and rooms with city centre views. It is close to shopping, restaurants, museums and many great local and regional attractions, such as Stanley Park and Whistler Mountain. Our Pre-Conference tour is a walking tour to Granville Market, scheduled for Monday 9 am-Noon. Two Post-Conference tours are 1) a bus trip to several craft breweries including the agricultural highlights of the Fraser Valley and 2) a harbor boat tour that ends with a comedy show featuring weed science; both are Thursday 12:30-5 pm.

The General Session will begin at 4:15 pm Monday February 24, 2025. We are proud to announce that our Keynote Speaker will be Dr. Jennifer Grenz. She is an Indigenous Scholar (Nlaka'mux, mixed ancestry) in the Department of Forest Resources Management at the University of British Columbia. Her presentation is entitled, "Are They Rising from the Ashes? Re-learning Invasive Species Management on Post-Wildfire Landscapes in British Columbia". Please plan to visit with Dr. Grenz after the General Session where she will be offering her newly published book, "Medicine Wheel for the Planet: A Journey Toward Personal and Ecological Healing", a book based on her doctoral work. Presidents Greg Dahl (WSSA) and Robert Nurse (CWSS) will collaborate on the Presidential Address followed by the presentation of our annual awards. A food-and-drink reception will follow to celebrate our award winners. Tuesday night dinner options will feature a CWSS tradition called "Dine Arounds"; sign up at the Registration Desk. A general reception for both CWSS and WSSA members will be held Wednesday night.

As always, our meeting is geared towards our students. Students are invited to join in a night of bowling at Splitsville (Richmond) on Sunday from 7 to 9 pm; pre-registration is required and transport is on your own. On Monday from Noon to 2 pm, we will host a Student Lunch followed by a Business Meeting, which will feature a presentation on "Stand Out in the Crowd: Job Search and Interview Strategies". Nearly 50 students have entered to compete in either the Single Slide Talk (SST) contest, offered by WSSA, or the 15-minute oral contest offered by CWSS. The contests will start on Tuesday morning with the SST finals to be held on Wednesday morning at 9 AM. A special workshop on "Protein Modeling of Herbicide Resistance: From Mutation to Resistance" is open to all students and will be held on Tuesday starting at 4:45 PM. Announcements of the contest winners will be made at the CWSS/Student/Photos Awards Ceremony on Wednesday starting at 5:15 PM.

The Women in Weed Science Networking Event will be held on Monday from 2-3:30 pm. We hope you will join us early Tuesday morning for a 5K Puff Run/Walk through downtown Vancouver and local parks (there is an impressive inuksuk at the halfway point). Please assemble at 6:45 AM; the run/walk will start at 7 AM. Join us for our Poster Sessions; authors will be with their posters on either Tuesday (odd numbers) or Wednesday (even numbers) morning. We will be offering four symposia during the annual meeting. Things kick off on Tuesday afternoon (1-5 pm) with “Contribution of Genomics to Nontarget Site Resistance Knowledge and Management” organized by Roland Beffa and Caio Brunharo. On Wednesday morning (9:30 am-Noon), we will offer “Not your Old Professor’s Journals: Rapid Change in Academic Publishing”, organized by Sarah Ward and Chris Willenborg; Wednesday afternoon (1-5 pm) will feature, “Endangered Species Act: Description of the EPA’s Herbicide Strategy, Communication Resources, and Scientific Information Useful to Regulators”, organized by Bill Chism and a team of colleagues. We will conclude our symposia offerings on Thursday morning (8-10 am) with “Experiences and Insights from Recently Funded Weed Scientists in NIFA’s Competitive Grant Programs”, organized by Jim Kells and Vijay Nandula.

Special thanks to our local arrangements personnel, Dave Clements, Alida Janmaat, Victoria Brookes, and Breanne Tidemann, and the WSSA Executive Secretary, Eric Gustafson, for keeping both program chairs on course and organizing numerous events. We acknowledge guidance from WSSA Executive board members Greg Dahl, Carroll Moseley, and Ian Burke; their input has been crucial in the development of the program. We thank our Poster Chairs Lovreet Shergill, Vanessa Jones and Virginia Oeggerli, our student representatives Isabel Schlegel Werle and William Kramer, our Contest Chairs Darrin Dodds and Breanne Tidemann, Award Coordinators Marty Schraer and Leonardo Galindo Gonzolez, along with all those who stepped up to be Section Chairs, Moderators, and Judges. We could not do it without you!!

Welcome to Vancouver and have a great meeting!!

Hilary Sandler, WSSA Program Chair and President-Elect  
Rob Nurse, CWSS Program Chair and President

## 2025 Program Committee

General Program Chair.....	Hilary Sandler
Vice Chair.....	Ian Burke
01. Agronomic Crops.....	Scott Nolte and Laura Smith
02. Horticultural Crops.....	Thierry Besançon and Jichul Bae
03. Turf and Ornamentals.....	Hannah Wright
04. Pastures, Rangelands,..... Forests, and Rights of Way	Zachary Howard
05. Wildland and Aquatic ..... Invasives	Andrew Howell and David Clements
06. Regulatory Aspects.....	Bianca Martins and Leonardo Galindo- Gonzalez
07. Teaching and Extension.....	Joe Ikley
08. Formulation, Adjuvant, ..... and Application Technology	Peter Berry and Cody Chytyk
09. Weed Biology and Ecology....	Sarah Kezar and Marie- Josée Simard
10. Biocontrol of Weeds.....	Marcelo Moretti and Alida Janmaat
11. Physiology.....	Carlos Rigon and Eric Page
12. Soil and Environmental Aspects.....	Bill Chism
13. Integrated Weed..... Management	Ian Burke and Dilshan Benaragama
14. Targeted and Autonomous... Weed Control Technologies	Lauren Lazaro and Shaun Sharpe
15. Genomics.....	Jake Montgomery and Martin LaForest
16. Sustaining Member Exhibits...	Kyle Kepner
17. Poster Sessions.....	Lovreet Shergill, Vanessa Jones, and Virginia Oeggerli



18. Student Contest.....	Darrin Dodds, Breanne Tidemann, and Leonardo Galinda Gonzalez
Student Travel Enrichment..... Experience	Cara McCauley
Graduate Student Liaison.....	Isabel Schlegel Werle And William Kramer
Local Arrangements.....	Dave Clements, Victoria Brookes, Alida Janmaat, and Breanne Tidemann

### Program Booklet and Abstracts

Please use the link below to access the digital program. Take a few minutes to view the schedule ahead of time and build your own program.

<https://vmx.m-anage.com/home/us/wssa2025/en-US>

### Posters and Sustaining Member Exhibits

All posters and Sustaining Member Exhibits will be on display from Tuesday at 7 am to Thursday at 8 am. The times will not be replicated daily throughout the program.

### MEETING ROOM LOCATIONS

- Junior Ballroom, Parksville:** North Tower, 3<sup>rd</sup> Floor
- Pavillion Ballroom:** Concourse, 3<sup>rd</sup> Floor
- Grand Ballroom:** Grand Ballroom Level
- Port McNeil, Port Alberni:** North Tower, 4<sup>th</sup> Floor
- Constellation:** South Tower, 34<sup>th</sup> Floor

# CONDENSED PROGRAM

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## *SUNDAY FEBRUARY 23*

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WSSA Board of Directors Meeting	7:30 AM-5:00 PM	Constellation
Student Bowling	7:00-9:00 PM	Preregistration Required.
Transport on your own.	Splitsville 14200 Entertainment Blvd, Richmond, BC V6W1K3	

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## *MONDAY FEBRUARY 24*

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GROW	8:00 AM-12:00 PM	Port McNeil (4 <sup>th</sup> Floor)
Granville Walking Tour	9:00 AM-12:00 PM	Lobby
IWSS Board of Directors	9:00 AM-12:00 PM	Pavillion Ballroom AB
Poster Set-up	12:00-4:00 PM	Junior Ballroom ABCD/Foyer
Science Policy Committee	12:00-2:00 PM	Port McNeil (4 <sup>th</sup> Floor)
Student Lunch Business Meeting	12:00-1:00 PM 1:00-2:00 PM	Pavillion Ballroom D
Registration	1:00-4:00 PM	Junior Ballroom Foyer

U.S.-HRAC	1:00-3:00 PM	Pavillion Ballroom C
Publications	1:00-2:00 PM	Pavillion Ballroom AB
Women in Weed Science <i>Sponsored by Corteva Agrisciences</i>	2:00-3:30 PM	Grand Ballroom CD
Resistance Terminology Special Committee	2:00-4:00 PM	Port McNeil (4 <sup>th</sup> Floor)
General Session	4:15-7:00 PM	Grand Ballroom AB
WSSA/CWSS Awards Reception <i>Sponsored by Syngenta Crop Protection</i>	7:00-9:00 PM	Grand Ballroom CD

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***TUESDAY FEBRUARY 25***

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Judges Breakfast	6:00-7:00 AM	Pavillion Ballroom D
Registration	7:00 AM-4:00 PM	Jr. Ballroom Foyer
Puff 5K Run/Walk	6:45-8:00 AM	Assemble in Lobby at 6:45 AM
WSSA Finance Committee	7:00-9:00 AM	Constellation (South Tower 34 <sup>th</sup> Floor)

IWGC Board of Directors	7:00-8:00 AM	Port Alberni (4 <sup>th</sup> Floor)
Herbicide- Resistant Plants Committee	8:00-9:00 AM	Parksville
Judges Work Room	9:00 AM-4:00 PM	Constellation (South Tower 34 <sup>th</sup> Floor)
Poster Session (Odd-number authors present)	7:00-9:00 AM	Junior Ballroom ABCD/Foyer

POSTER 00. Committee Reports; *In Memoriam*

POSTER 01. Agronomic Crops

POSTER 02. Horticultural Crops

POSTER 03. Turf and Ornamentals

POSTER 04. Pasture, Rangelands, Forests, and  
Rights of Way

POSTER 05. Wildland and Aquatic Invasives

POSTER 07. Teaching and Extension

POSTER 08. Formulation, Adjuvants, and  
Application Technology

POSTER 09. Weed Biology and Ecology

POSTER 10. Biocontrol of Weeds

POSTER 11. Physiology

POSTER 12. Soil and Environmental Aspects

POSTER 13. Integrated Weed Management

## POSTER 14. Targeted and Autonomous Weed Control Technologies

## POSTER 15. Genomics

ORAL 18. WSSA-SST Contest	9:00-11:15 AM	Pavillion Ballroom AB
ORAL 18. CWSS 15-minute Contest	9:00 AM-3:00 PM	Port McNeil (4 <sup>th</sup> Floor)
ORAL 01. Agronomic Crops	9:00 AM-5:00 PM	Pavillion Ballroom D
ORAL 09. Weed Biology and Ecology	9:00 AM-2:30 PM	Pavillion Ballroom C
Coffee Break	10:00-10:15 AM	Jr. Ballroom ABCD/Foyer
SYMPOSIUM-01. Contribution of Genomics to Nontarget Site Resistance Knowledge and Management	1:00-5:00 PM	Pavillion Ballroom AB
ORAL 06. Regulatory Aspects	2:30-3:00 PM	Parksville
CWSS Annual General Meeting	3:00-3:30 PM	Port McNeil (4 <sup>th</sup> Floor)
Coffee Break	3:00-3:15 PM	Jr. Ballroom ABCD/Foyer
ORAL 08. Formulation, Adjuvants, and Application Technology	3:15-4:30 PM	Parksville

GRADUATE. STUDENT WORKSHOP: Protein Modeling of Herbicide Resistance: From Mutation to Resistance	4:45-6:15 PM	Pavillion Ballroom C
Saskatchewan Pulse Growers	5:00-6:00 PM	Port Alberni (4 <sup>th</sup> Floor)
IWGC Member Meeting	5:00-6:00 PM	Parksville
Targeted and Autonomous Weed Control Technologies Committee	5:00-6:00 PM	Port Hardy
Dine-Around Events	7:00 PM	Meet in Lobby; Sign up at Registration

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***WEDNESDAY FEBRUARY 26***

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Presidents' Breakfast	6:30-8:00 AM	Constellation (South Tower 34 <sup>th</sup> Floor)
Poster Session (Even-number authors present)	7:00-9:00 AM	Junior Ballroom ABCD/Foyer
Registration	7:00 AM-4:00 PM	Jr. Ballroom Foyer
MRSPC- Herbicide Resistance Monitoring Network	8:00-9:00 AM	Port Alberni (4 <sup>th</sup> Floor)
ORAL 18. WSSA-SST	9:00-9:30AM	Pavillion Ballroom AB

## Finals

SYMPOSIUM-02. 9:30 AM-12 PM Not your Old Professor's Journals: Rapid Change in Academic Publishing	Pavillion Ballroom D
ORAL 13. 9:00 AM-3:00 PM Integrated Weed Management	Pavillion Ballroom C
ORAL 11. 9:00-11:15 AM Physiology	Port McNeil (4 <sup>th</sup> Floor)
Coffee Break 10:00-10:15 AM	Jr. Ballroom ABCD/Foyer
ORAL 10. 11:15 AM-12 PM Biocontrol	Port McNeil (4 <sup>th</sup> Floor)
SYMPOSIUM-03. 1:00-5:00 PM Description of the EPA's Herbicide Strategy, Communication Resources, and Scientific Scientific Information Useful to Regulators	Pavillion Ballroom D
ORAL 14. 1:00-4:45 PM Targeted and Autonomous Weed Control Technologies	Pavillion Ballroom AB
ORAL 15. 1:00-5:00 PM Genomics	Port McNeil (4 <sup>th</sup> Floor)
Coffee Break 3:00-3:15 PM	Jr. Ballroom ABCD/Foyer
ORAL 18. 3:15-5:00 PM Travel Enrichment Experience and Science Policy Fellows	Pavillion Ballroom C
AWARDS: 5:15-7:00 PM CWSS, Student, Photo	Pavillion Ballroom D

WSSA/CWSS SOCIETY RECEPTION	7:00-9:00 PM	Pavillion Foyer
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*Sponsored by BASF Corporation*

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***THURSDAY FEBRUARY 27***

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WSSA Business Breakfast	6:30-8:00 AM	Pavillion Ballroom D
Registration	8:00 AM-12 PM	Jr. Ballroom Foyer
Poster Take-Down	8:00 AM-12 PM	Jr. Ballroom ABCD/Foyer
SYMPOSIUM-0.4 Experiences and Insights From Recently Funded Weed Scientists in NIFA's Competitive Grants Program	8:00-10:00 AM	Pavillion Ballroom C
ORAL 02. Horticultural Crops	8:00-11:45 AM	Pavillion Ballroom AB
ORAL 05. Wildland and Aquatic Invasives	8:00-10:00 AM	Port McNeil (4 <sup>th</sup> Floor)
ORAL 03. Turf and Ornamentals	8:00-9:45 AM	Parksville
Coffee Break	10:00-10:15 AM	Junior Ballroom Foyer
ORAL 07.	10:15-11:15 AM	Parksville



## Teaching and Extension

ORAL 12. Soil and Environmental Aspects	10:15-11:30 AM	Port McNeil (4 <sup>th</sup> Floor)
ORAL 04. Pastures, Rangelands, Forests, and Rights of Way	10:15-11:45 AM	Pavillion Ballroom C
TOUR Craft Beers and Fraser Valley	12:30-5:00 PM	Lobby
TOUR Harbor Boat Trip and Weed Science Comedy Show	12:30-5:00 PM	Lobby

# PROGRAM

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*SUNDAY FEBRUARY 23*

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## **WSSA Board of Directors Meeting**

LOCATION: Constellation  
34<sup>th</sup> Floor, South Tower

TIME: 7:30 AM-5:00 PM Pacific

MODERATOR: Greg Dahl  
Retired, Winfield United  
Eagan, MN

CO-MODERATOR: Hilary A. Sandler  
UMass Cranberry Station  
East Wareham, MA

## **Student Bowling**

PRE-REGISTRATION REQUIRED

LOCATION: Splitsville  
14200 Entertainment Blvd.  
Richmond, BC V6W 1K3  
Transport on your own.

TIME: 7:00-9:00 PM Pacific

MODERATORS: William Kramer  
Colorado State University  
Fort Collins, CO  
Isabel Schlegel Werle  
University of Illinois  
Urbana-Champaign, IL

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***MONDAY MORNING FEBRUARY 24***

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**All Meeting Rooms on 3<sup>rd</sup> Floor**  
**unless otherwise noted**

**GROW Meeting**

LOCATION: Port McNeil  
4<sup>th</sup> Floor, North Tower  
TIME: 8:00 AM-12:00 PM Pacific  
MODERATOR: Emily Ungelsbee  
Virginia Tech  
Rockville, MD

**TOUR-Granville Market**

LOCATION: Meet in Lobby  
TIME: 9:00 AM-12:00 PM Pacific  
MODERATOR: David Clements  
Trinity Western University  
Langley, BC

Small fee is required to take the Aquabus across to the market (\$8 CAN, roundtrip).

**IWSS Board of Directors Meeting**

LOCATION: Pavillion Ballroom AB  
TIME: 9:00 AM-12:00 PM Pacific  
MODERATOR: Samunder Singh  
President, IWSS  
Hisar (Haryana), India

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***MONDAY AFTERNOON FEBRUARY 24***

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**Science Policy Committee Meeting**

LOCATION: Port McNeil  
4<sup>th</sup> Floor, North Tower  
TIME: 12:00-2:00 PM Pacific  
MODERATOR: Lee Van Wychen  
WSSA  
Alexandria, VA

**Graduate Student Lunch/Business Meeting**

LOCATION: Pavillion Ballroom D  
TIME: 12:00-2:00 PM Pacific  
MODERATORS: Isabel Schlegel Werle  
University of Illinois  
Urbana-Champaign, IL  
William Kramer  
Colorado State University  
Fort Collins, CO

**Featured Talk:** Stand out in the Crowd: Job Search and Interview Strategies.

**Featured Speakers:** Crystal Sparks, Enko Chem; Jacob Montgomery, University of Chicago; Olivia Landau, USDA-ARS; Tasha Valente BASF Corporation; and Victor Ribeiro, Oregon State University.

**WSSA Publications Committee Meeting**

LOCATION: Pavillion Ballroom AB  
TIME: 1:00-2:00 PM Pacific  
MODERATOR: Chris Willenborg  
University of Saskatchewan  
Saskatoon, SK, Canada

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***MONDAY AFTERNOON FEBRUARY 24***

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**US-HRAC Committee Meeting**

LOCATION: Pavillion Ballroom C  
TIME: 1:00-3:00 PM Pacific  
MODERATOR: Craig Alford  
Corteva Agriscience  
Ankeny, IA

**Registration**

LOCATION: Junior Ballroom Foyer  
TIME: 1:00-4:00 PM Pacific  
MODERATOR: Eric Gustafson  
IMI Group

**Resistance Terminology Special  
Committee Meeting**

LOCATION: Port McNeil  
4<sup>th</sup> Floor, North Tower  
TIME: 2:00-4:00 PM Pacific  
MODERATOR: Caio Brunharo  
Pennsylvania State University  
University Park, PA

**Women in Weed Science**

LOCATION: Grand Ballroom CD  
Grand Ballroom Level  
TIME: 2:00-3:30 PM Pacific  
MODERATOR: Cara McCauley  
Corteva Agriscience  
Indianapolis, IN

*Sponsored by Corteva Agriscience*

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## ***MONDAY AFTERNOON FEBRUARY 24***

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### **General Session**

LOCATION: Grand Ballroom AB  
Grand Ballroom Level  
TIME: 4:15-7:00 PM Pacific  
CHAIR: Greg Dahl  
Retired, Winfield United  
Eagan, MN  
MODERATORS: Greg Dahl  
Retired, Winfield United  
Eagan, MN, and  
Robert Nurse  
Agriculture and Agri-Food  
Canada, Harrow, ON

\*SPEAKER

- 4:15 PM Welcome to the 2025 WSSA/CWSS Joint Annual Meeting.** Hilary A. Sandler\*<sup>1</sup> and Robert Nurse<sup>2</sup>. <sup>1</sup>University of Massachusetts Cranberry Station, E. Wareham, MA, <sup>2</sup>Agriculture and Agri-Food Canada, Harrow, ON.
- 4:20 PM Welcome to Vancouver.**
- 4:30 PM Keynote: Are They Rising from the Ashes? Re-Learning Invasive Species Management on Post-Wildfire Landscapes in British Columbia.** Jennifer Grenz\*, University of British Columbia, BC.
- 5:10 PM WSSA Presidential Address.** Greg Dahl\*, Retired, Winfield United, Eagan, MN
- 5:20 PM CWSS Presidential Address.** Robert Nurse\*, Agriculture and Agri-Food Canada, Harrow, ON.
- 5:30 PM Washington, DC Update.** Lee Van Wychen\*, WSSA, Alexandria, VA
- 5:45 PM IWSS Update,** Samunder Singh\*, IWSS, Hisar (Haryana), India.

**5:50 PM     Awards Presentations.** Scott Senseman\*, Oklahoma State University, Stillwater, OK and Leonardo Galindo Gonzalez\*, Canadian Food Inspection Agency, Ottawa, ON.

**6:30 PM     Presentation of Honorary Members and Fellows.** Scott Senseman\*, Oklahoma State University, Stillwater, OK.

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***MONDAY EVENING FEBRUARY 24***

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**Awards Reception**

LOCATION:     Grand Ballroom CD  
                  Grand Ballroom Level

TIME:           7:00-9:00 PM Pacific

*Sponsored by Syngenta Crop Protection*

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***TUESDAY MORNING FEBRUARY 25***

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**Judges Breakfast**

LOCATION:           Pavillion Ballroom D

TIME:               6:00-7:00 AM Pacific

MODERATORS:     Darrin Dodds  
                          Mississippi State University  
                          Mississippi State, MS

Marty Schraer  
Syngenta Crop Protection  
Meridian, ID

Breanne Tidemann  
Agriculture and Agri-Food  
Canada, Lacombe, AB

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***TUESDAY MORNING FEBRUARY 25***

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**Registration**

LOCATION: Junior Ballroom Foyer  
TIME: 7:00-4:00 PM Pacific  
MODERATOR: Eric Gustafson  
IMI Group

**Puff 5K Walk/Run**

LOCATION: Meet in Lobby  
TIME: Assemble: 6:45 AM  
7:00-8:00 AM Pacific  
MODERATOR: David Clements  
Trinity Western University  
Langley, BC

**WSSA Finance Committee Meeting**

LOCATION: Constellation  
34<sup>th</sup> Floor, South Tower  
TIME: 7:00-9:00 AM Pacific  
MODERATOR: Lauren Lazaro  
Blue River Technology  
Sunnyvale, CA

**IWGC Board of Directors Meeting**

LOCATION: Port Alberni  
4<sup>th</sup> Floor, North Tower  
TIME: 7:00-8:00 AM Pacific  
MODERATOR: Todd A. Gaines  
Colorado State University  
Fort Collins, CO



**Herbicide-Resistant Plants**  
**Committee Meeting**

LOCATION: Parksville  
TIME: 8:00-9:00 AM Pacific  
MODERATOR: Caio Brunharo  
Pennsylvania State University  
University Park, PA

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***TUESDAY MORNING FEBRUARY 25***

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**Judges Work Room**

LOCATION: Constellation  
34<sup>th</sup> Floor, South tower  
TIME: 9:00 AM-4:00 PM Pacific

**Poster Session-Odd Numbers**

LOCATION: Junior Ballroom  
ABCD/Foyer

TIME: 7:00-9:00 AM Pacific

MODERATORS: Darrin Dodds  
Mississippi State University  
Mississippi State, MS

Marty Schraer  
Syngenta Crop Protection,  
Meridian, ID

Lovreet Shergill  
Colorado State University  
Fort Collins, CO

Vanessa Jones  
University of British Columbia  
Vancouver, BC

Virginia Oeggerli  
University of British Columbia  
Vancouver, BC

**All Competition Posters will be judged on Tuesday.**

**Authors with odd-numbered posters will be present on Tuesday. Authors with even-numbered posters will be present on Wednesday.**

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## **POSTER PRESENTATIONS**

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**\*PRESENTING AUTHOR**

**► WSSA STUDENT CONTEST**

**🍁 CWSS COMPETITION**

### **POSTER - 01. Agronomic Crops**

**Very Long Chain Fatty Acid-Inhibiting Herbicides: Past, Present, And Future.** Amit J. Jhala<sup>1</sup>, Mandeep Singh<sup>1</sup>, Alex Chmielewski<sup>1\*</sup>, Lovreet Shergill<sup>2</sup>, Rishabh Singh<sup>3</sup>, Mithila Jugulam<sup>3</sup>, Dean E. Riechers<sup>4</sup>, Zahoor A. Ganie<sup>5</sup>, Thomas P. Selby<sup>5</sup>, Rodrigo Werle<sup>6</sup>, and Jason K. Norsworthy<sup>7</sup>. <sup>1</sup>University of Nebraska, Lincoln, NE; <sup>2</sup>Montana State University, Huntley, MT; <sup>3</sup>Kansas State University, Manhattan, KS; <sup>4</sup>University of Illinois, Urbana, IL; <sup>5</sup>Stine Research Center, FMC Corporation, Newark, DE; <sup>6</sup>University of Wisconsin, Madison, WI; <sup>7</sup>University of Arkansas, Fayetteville, AR. (1)

**Screening the Louisiana Sugarcane Germplasm for Clethodim Tolerance.** Alice Wright<sup>\*1</sup>, Matthew Foster<sup>2</sup>, Albert Orgeron<sup>2</sup>, James Todd<sup>1</sup>. <sup>1</sup>USDA-ARS, Houma, LA; <sup>2</sup>Louisiana State University, AgCenter, Baton Rouge, LA. (2)

**► Reduced Plant-back Burndown Programs in Rice Using ALS-inhibiting Herbicides.** Eve Williams\*, Connor Webster, Ronnie Levy, Gavin Sparks, Maranda Hains, Ben Stoker, Wesley Carr. Louisiana State University AgCenter, Baton Rouge, LA. (3)

**Assessing Herbicide Injury in Cotton Using UAV-based Thermal and Multispectral Imagery.** Bismark Anokye<sup>\*1</sup>, Ubaldo Torres<sup>1</sup>, Bholuram Gurjar<sup>1</sup>, Chenghai Yang<sup>2</sup>, Muthu Bagavathiannan<sup>1</sup>. <sup>1</sup>Texas A&M University, College Station, TX; <sup>2</sup>USDA-ARS, College Station, TX. (4)

**Synergizing Cover Crops and Herbicides for Enhanced Weed Control in Peanut.** Gourav Chahal<sup>\*1</sup>, Carter Bonnell<sup>2</sup>, Andrew Price<sup>2</sup>, Audrey Gamble<sup>1</sup>, Steve Li<sup>1</sup>.

<sup>1</sup>Auburn University, Auburn, AL; <sup>2</sup>USDA-NSDL, Auburn, AL. (5)

**Early-Season Fall Panicum (*Panicum dichotomiflorum* Michx.) Control and Sugarcane Tolerance to a Premix of Atrazine, Mesotrione, and S-Metolachlor.** Calvin Odero\*. University of Florida, Belle Glade, FL. (6)

**Mapping the Distribution of Troublesome U.S. Agricultural Weeds with EDDMapS.** Cameron Douglass<sup>\*1</sup>, Rodrigo Werle<sup>2</sup>, Joe LaForest<sup>3</sup>, Allison Jones<sup>4</sup>, Steve Hoffman<sup>5</sup>. <sup>1</sup>USDA-Office of Pest Management Policy, Washington, DC; <sup>2</sup>University of Wisconsin, Madison, WI; <sup>3</sup>University of Georgia, Tifton, GA; <sup>4</sup>National Association of Independent Crop Consultants (NAICC), Vonore, TN; <sup>5</sup>InDepthAgronomy, Manitowoc, WI. (7)

► **Development of a Rapid Throughput Screen Bioassay for Quizalofop Tolerance to Experimental CoAxium Wheat Seed Lines.** Amber Pelon\*, Franck Dayan, Todd Gaines. Colorado State University, Fort Collins, CO. (8)

**Simulated Herbicide Mixtures Delay Both Monogenic and Polygenic Resistance Evolution in Weeds.** Chandrashekar Aradhya<sup>\*1</sup>, Michael Renton<sup>2</sup>, Alan Willse<sup>3</sup>, Andrew Tyre<sup>4</sup>, Graham Head<sup>1</sup>. Bayer Crop Science, Chesterfield, MO; <sup>2</sup>University of Western Australia, Perth, Australia; <sup>3</sup>Bayer Crop Science, Des Moines, IA; <sup>4</sup>Bayer Crop Science, Lincoln, NE. (9)

🌸 **Survey Reveals the Frequency and Distribution of Herbicide-Resistant Weeds in Alberta.** Charles Geddes<sup>\*1</sup>, Mattea Pittman<sup>1</sup>, Breanne Tidemann<sup>2</sup>, Julia Leeson<sup>3</sup>. <sup>1</sup>Agriculture and Agri-Food Canada, Lethbridge, AB; <sup>2</sup>Agriculture and Agri-Food Canada, Lacombe, AB; <sup>3</sup>Agriculture and Agri-Food Canada, Saskatoon, SK. (10)

► **Corn Tolerance to an Amicarbazone-Metribuzin Premixture: Exploring the Impact of Application Timing.** Michael Dodde<sup>\*1</sup>, Jason Norsworthy<sup>1</sup>, Ryan Henry<sup>2</sup>, Pamela Carvalho-Moore<sup>1</sup>, Maria Carolina Souza<sup>1</sup>, Rhet Baxley<sup>1</sup>. <sup>1</sup>University of Arkansas, Fayetteville, AR; <sup>2</sup>UPL-Ltd. Fort Wayne, IN. (11)

**Using Fall Residual Herbicides and Cover Crop to Mitigate Herbicide-Resistant Italian Ryegrass (*Lolium perenne* L. ssp. *multiflorum*) Seedbank.** Connor McKoin\*, Donnie Miller, Prashant Jha, Ashley Barfield, Bhupesh Dhaka. Louisiana State University AgCenter, Baton Rouge, LA. (12)

**Saflufenacil + Trifludimoxazin in Canada and the USA: Next Generation Burn Down.** Dallas Taylor<sup>\*1</sup>, Brendan Metzger<sup>2</sup>, Misha Rose Manuchehri Byrd<sup>1</sup>. <sup>1</sup>BASF Corporation, Raleigh, NC; <sup>2</sup>BASF-Canada, Winkler, MB. (13)

► **Long-Term Implications of Targeted Herbicides in Soybean with See & Spray™.** Tristen Avent\*<sup>1</sup>, Jason Norsworthy<sup>1</sup>, Michael Dodde<sup>1</sup>, Lane Pierce<sup>1</sup>, Lauren Lazaro<sup>2</sup>. <sup>1</sup>University of Arkansas, Fayetteville, AR; <sup>2</sup>Blue River Technology, Sunnyvale, CA. (14)

**Kochia (*Bassia scoparia*) Management with Dichlorprop-p Based Herbicide Mixtures in Fallow and Small Grains.** Daniel Beran\* and Joe Vassios. Nufarm, Morrisville, NC. (15)

► **Weed Management in a Reduced Tillage Organic Cotton System.** Megan Singletary\*<sup>1</sup>, Peter Dotray<sup>1</sup>, Katie Lewis<sup>1</sup>, Joseph Burke<sup>2</sup>, Muthu Bagavathiannan<sup>2</sup>, Matthew Woolard<sup>1</sup>, Bobby Rodriguez<sup>2</sup>. <sup>1</sup>Texas Tech University, Lubbock, TX; <sup>2</sup>Texas A&M University, College Station, TX. (16)

**Extending Weed Suppression in Soybeans with Cover Crops and Preemergent Herbicides.** Forrest Davis\* and David Russell. Auburn University, Auburn, AL. (17)

**Distribution of Target Site PPO-Inhibiting Herbicide Resistance Mutations in Waterhemp (*Amaranthus tuberculatus*) and Palmer Amaranth (*A. palmeri*) and Association of Epyrifencil Efficacy with PPX2 Target Site Variants.** Jake Montgomery<sup>1</sup>, Daljit Singh<sup>2</sup>, Andrew Tyre<sup>3</sup>, Jaishree Chittoor<sup>2</sup>, Clifford Wollam<sup>2</sup>, Brandi Chiapelli<sup>2</sup>, Chandrashekar Aradhya<sup>2</sup>, Pat Clay<sup>4</sup>, John Pawlak<sup>4</sup>, Alejandro Perez-Jones\*<sup>2</sup>. <sup>1</sup>Colorado State University, Fort Collins, CO; <sup>2</sup>Bayer Crop Science, Chesterfield, MO; <sup>3</sup>Bayer Crop Science, Lincoln, NE; <sup>4</sup>Valent USA, Fresno, CA. (18)

► **Does Cover Crop Resource Preemption Affect *Amaranthus tuberculatus* (Waterhemp) Size Asymmetry and Survivorship to POST Herbicides?** Laurel Wellman\* and John Wallace. Pennsylvania State University, University Park, PA. (19)

**Evaluating Desiccants for Crop Dry Down and Weed Management in Garbanzos and Lentils.** Laura Berrios\*<sup>1</sup>, Het Samir Desai<sup>1</sup>, Devanshi Het Desai<sup>1</sup>, Lovreet Shergill<sup>2</sup>, Fabian Menalled<sup>1</sup>. <sup>1</sup>Montana State University, Bozeman, MT; <sup>2</sup>Colorado State University, Fort Collins. CO. (20)

**Evaluating the Efficacy of Tetflupyrolimet Mixtures in Louisiana Rice.** Maranda Hains\*, Connor Webster, Ben Stoker, Wesley Carr, Gavin Sparks, Eve Williams, Ronnie Levy. Louisiana State University AgCenter, Baton Rouge, LA. (21)

► **Termination Strategies of Grass Cover Crops in Dry Bean Production Systems.** Jacob Felsman\*, Brian Stiles II, Christy Sprague. Michigan State University, East Lansing, MI. (22)

**Herbicide Resistance Screening in Russian Thistle (*Salsola tragus*) in Washington Reveals Glyphosate-Resistant Biotypes.** Marija Savic\*<sup>1</sup>, Jessica Kalin<sup>1</sup>, Samuel Revolinski<sup>2</sup>, Ian Burke<sup>1</sup>. <sup>1</sup>Washington State University, Pullman, WA; <sup>2</sup>University of Kentucky, Lexington, KY. (23)

**Combine Performance Metrics While Using Seed Impact Mills.** Michael Flessner\*<sup>1</sup>, Eli Russell<sup>1</sup>, Muthu Bagavathiannan<sup>2</sup>, Kreshnik Bejleri<sup>3</sup>, Sarah Chu<sup>2</sup>, Walker Crane<sup>3</sup>, Eugene Law<sup>4</sup>, Steven Mirsky<sup>3</sup>, Debalin Sarangi<sup>5</sup>, Lovreet Shergill<sup>6</sup>, Mark VanGessel<sup>7</sup>. <sup>1</sup>Virginia Tech, Blacksburg, VA; <sup>2</sup>Texas A&M University, College Station, TX; <sup>3</sup>USDA-ARS, Beltsville, MD; <sup>4</sup>Ohio State University, Columbus, OH; <sup>5</sup>University of Minnesota, St. Paul, MN; <sup>6</sup>Colorado State University, Fort Collins, CO; <sup>7</sup>University of Delaware, Georgetown, DE. (24)


**► Characterizing Herbicide Resistance in a Giant Ragweed (*Ambrosia trifida*) Population from Illinois.** Cristiana Bernardi Rankrape\*<sup>1</sup>, Eric Miller<sup>1</sup>, Isabel Schlegel Werle<sup>2</sup>, Patrick Tranel<sup>2</sup>, Karla Gage<sup>1</sup>. <sup>1</sup>Southern Illinois University, Carbondale, IL; <sup>2</sup>University of Illinois, Urbana, IL. (25)

 **Control of Volunteer Corn in Soybean with Clethodim Plus Adjuvants.** Nader Soltani\*, Christy Shropshire, Peter Sikkema. University of Guelph, Guelph, ON. (26)

**Double-Crop Soybean Response to Simulated Carryover from HPPD Herbicides.** Nicholas Shay\* and Eric Prostko. University of Georgia, Tifton, GA. (27)

**► Developing Soybean Desiccation Strategies in the Northern U.S.** Ian Waldecker\*, Maninder Singh, Christy Sprague. Michigan State University, East Lansing, MI. (28)

**Pollen-Mediated Gene Flow from Herbicide-Resistant Grain Sorghum (*Sorghum bicolor*) to Johnsongrass (*S. halepense*).** Nithya Subramanian\*, Bilal Ahmad Khan, Varnika Kalaichelvan, George Hodnett, William Rooney, Muthukumar Bagavathiannan. Texas A&M University, College Station, TX. (29)

 **Efficacy of Diflufenican for Controlling Multiple Herbicide-Resistant Waterhemp in Corn.** Peter Sikkema\*, Christian Willemse, Nader Soltani. University of Guelph, Guelph, ON. (30)

**► Fall Versus Spring Herbicide Applications in Early and Late Planted Winter Wheat.** Kaddi Gewirtz\* and Christy Sprague. Michigan State University, East Lansing, MI. (31)

**Characterization of Newly Evolved Glyphosate-Resistant Grasses in Louisiana Cropping Systems.**

Prashant Jha\*<sup>1</sup>, Matthew Foster<sup>1</sup>, Connor Webster<sup>1</sup>, Donnie Miller<sup>1</sup>, Daniel Stephenson<sup>1</sup>, Jason Norsworthy<sup>2</sup>, Bhupesh Dhaka<sup>1</sup>, Giulia Bortolon<sup>1</sup>, Connor McKoin<sup>1</sup>.

<sup>1</sup>Louisiana State University AgCenter, Baton Rouge, LA;

<sup>2</sup>University of Arkansas, Fayetteville, AR. (32)

**Strategies to overcome Weed Management Challenges in Organic Cropping Systems.**

Qasim Khan\*<sup>1</sup>, Vipan Kumar<sup>2</sup>, Michael Ostlie<sup>1</sup>. <sup>1</sup>University of North Dakota, Fargo, ND; <sup>2</sup>Cornell University, Ithaca, NY. (33)

**►Evaluating the Effect of Sweep Tillage on Weed**

**Control in Soybean.** Karishma Khanal\*<sup>1</sup>, Carter Bonnell<sup>2</sup>, Gourav Chahal<sup>1</sup>, Andrew Price<sup>2</sup>, Scott McElroy<sup>1</sup>. <sup>1</sup>Auburn University, Auburn, AL; <sup>2</sup>USDA-ARS-NSDL, Auburn, AL. (34)

**Surtain™ Herbicide: A New Residual Herbicide for Weed Control in Corn from BASF.** Sanjeev Bangarwa\*, Josh Putman, Sandra Ethridge. BASF Corporation, Research Triangle Park, NC. (35)


***Amaranthus palmeri* Management in Cotton Using an Integrated Approach: A Multi-State Study.**

Sarah Kezar\*<sup>1</sup>, Jason Norsworthy<sup>2</sup>, Ramon Leon<sup>3</sup>, Peter Dotray<sup>4</sup>, Gaylon Morgan<sup>5</sup>, Gustavo Camargo Silva<sup>6</sup>, Muthu Bagavathiannan<sup>6</sup>. <sup>1</sup>Cornell University, Ithaca, NY; <sup>2</sup>University of Arkansas, Fayetteville, AR; <sup>3</sup>North Carolina State University, Raleigh, NC; <sup>4</sup>Texas Tech University, Lubbock, TX; <sup>5</sup>Cotton Incorporated, Cary, NC; <sup>6</sup>Texas A&M University, College Station, TX. (36)

**Control of Global *Parthenium hysterophorus***

**Populations with POST Herbicides.** Sarah Kezar\*, Vipan Kumar, Antonio DiTommaso. Cornell University, Ithaca, NY. (37)

**►Investigating Short-Statured Corn Management Strategies for Weed Control in Michigan.** Kyle Elizalde\*, Nash Hart, Erin Burns. Michigan State University, East Lansing, MI. (38)

 **Herbicide Tank Mixes as a Possible Alternative to Pre-Harvest Glyphosate.** Shane Collins\*<sup>1</sup>, Guillermo Hernandez Ramirez<sup>1</sup>, Robert Gulden<sup>2</sup>. <sup>1</sup>University of Alberta, Edmonton, AB; <sup>2</sup>University of Manitoba, Winnipeg, MB. (39)

**Efficacy of Herbicides in Controlling Virginia Pepperweed (*Lepidium virginicum* L.) Population from Mississippi at Three Different Growth Stages.** Vijay Varanasi\*, Taghi Bararpour, Partson Mubvumba, Reginald Fletcher, Krishna Reddy. USDA-ARS, Stoneville, MS. (40)

► **Rice (*Oryza sativa* L.) Varietal Responses to Imazethapyr Carryover in Louisiana.** Ben Stoker\*, Connor Webster, Ronnie Levy, Maranda Hains, Gavin Sparks, Wesley Carr, Eve Williams. Louisiana State University AgCenter, Baton Rouge, LA. (41)

**Confirmation of Glyphosate-Resistant Annual Ryegrass (*Lolium multiflorum*) from New York.** Vipin Kumar<sup>1</sup>, Mike Stanyard<sup>1</sup>, Antonio DiTommaso<sup>1</sup>, Jason Norsworthy<sup>2</sup>. <sup>1</sup>Cornell University, Ithaca, NY; <sup>2</sup>University of Arkansas, Fayetteville, AR. (42)

**Fluridone Application Rates and Timing in Louisiana Rice Varieties.** Wesley Carr\*, Connor Webster, Maranda Hains, Ben Stoker, Gavin Sparks, Eve Williams, Ronnie Levy. Louisiana State University AgCenter, Baton Rouge, LA. (43)

## **POSTER - 02. Horticultural Crops**

**\*PRESENTING AUTHOR**

► **WSSA STUDENT CONTEST**

**Herbicide Evaluations on *Muhlenbergia capillaris* Reveal Phytotoxic Effects and Potential Landscape Applications.** Chanz Robbins\*. New Mexico State University, Las Cruces, NM. (44)

► **Tackling Italian Ryegrass: The Power of Herbicide Mixtures for Long-Term Management.** Joshua Miranda\* and Marcelo Moretti. Oregon State University, Corvallis, OR. (45)

**Use of Spot Spray Technology in Highbush Blueberries and Red Raspberries.** Christopher Benedict\*, Ian Burke, Suzette Galinato, Gwen Hoheisel. Washington State University, Pullman, WA. (46)

**Control Options for Glyphosate-tolerant Common Ragweed in Fraser Fir Christmas Tree Production.** Christopher Harlow\* and Joseph Neal. North Carolina State University, Raleigh, NC. (47)

**Tetflupyrolimet Simulated Drift Treatments on Almond, Grape, Peach, Pistachio, Plum, and Walnut.** Deniz Inci\*, Bradley Hanson, Kassim Al-Khatib. University of California, Davis, CA. (48)

**Residual Weed Control in Utah Tart Cherries.** Eric Westra\* and Mirella Ortiz. Utah State University, Logan UT. (49)

**Development of Robust Floral-Dip Transformation Protocol of Weedy and Domesticated Proso Millet (*Panicum miliaceum*).** Leigh Schwinden\* and Acer

VanWallendael. North Carolina State University, Raleigh, NC. (50)

**IR-4 Project: Success and Benefits to Specialty Crop Growers.** Roger Batts\*. North Carolina State University, Raleigh, NC. (51)

**Establishing Pollinator Habitat on the Farm to Support Sensitive Species and Preserve Pesticide Use.** Taylor Randell-Singleton\*<sup>1</sup>, Nick McGhee<sup>2</sup>, Richard Barrett<sup>2</sup>.

<sup>1</sup>University of Georgia, Tifton, GA; <sup>2</sup>USDA-NRCS, Americus, GA. (52)

**Crop Tolerance and Weed Control Response to Metamitron Applied Pre- and Post-Emergence in Table Beets.** Thierry Besançon\*<sup>1</sup>, and Lynn Sosnoskie<sup>2</sup>.

<sup>1</sup>Rutgers University, Chatsworth, NJ; <sup>2</sup>Cornell University, Geneva, NY. (53)

**Khakiweed (*Alternanthera pungens*) Biology and Control.** Timothy Grey\*<sup>1</sup>, Annabelle McEachin<sup>2</sup>, Kayla Eason<sup>2</sup>. <sup>1</sup>University of Georgia, Tifton, GA; <sup>2</sup>USDA-ARS, Tifton, GA. (54)

## **POSTER - 03. Turf and Ornamentals**

**\*PRESENTING AUTHOR**

**► WSSA STUDENT CONTEST**

**Downslope Lateral Movement of Tetflupyrolimet and Pronamide in Turfgrass.** Benjamin Pritchard\*<sup>1</sup>, Travis Gannon<sup>2</sup>, Ronald Rogers<sup>2</sup>, Tyler Carr<sup>3</sup>, Jim Brosnan<sup>1</sup>.

<sup>1</sup>University of Tennessee, Knoxville, TN; <sup>2</sup>North Carolina State University, Raleigh, NC; <sup>3</sup>Ohio State University, Columbus, OH. (55)

**► Understanding N Mineralization in Putting Green Rootzones: Can this Aid with Weed Suppression?**

Maureen Kahiu\*<sup>1</sup>, Micah Woods<sup>1</sup>, Brandon Horvath<sup>1</sup>, Jordan Booth<sup>2</sup>, Jim Brosnan<sup>1</sup>. <sup>1</sup>University of Tennessee, Knoxville, TN; <sup>2</sup>United States Golf Association, Pinehurst, NC. (56)

**Initial Evaluation of Flumioxazin Applied as a Granular to Turfgrass.** Gracie Cotter\* and Scott McElroy. Auburn University, Auburn, AL. (57)

**Preemergence Herbicide Safety to Field Grown Dahlias from Cuttings vs. Tubers.** Joseph Neal\* and Christopher Harlow. North Carolina State University, Raleigh, NC. (58)

**Estimating Weed Cover in Turfgrass Research Using Artificial Intelligence.** Mikerly Mistral Joseph\*, Katarzyna Gawron, Pawel Petelewicz. University of Florida, Gainesville, FL. (59)



**Persistence and Relocation of Glyphosate Residue within Dormant Zoysiagrass Canopies.** Navdeep Godara\*, Clebson Goncalves, Shawn Askew. Virginia Tech, Blacksburg, VA. (60)

**Pyridate Combinations for False Green Kyllinga (*Kyllinga gracillima*) Control in Cool-Season Turfgrass.** Shawn Askew\*, Bret Corbett, Suzannah Hale, Juan Romero. Virginia Tech, Blacksburg, VA. (61)

**Gene Expression Dynamics Under Safener Treatment in Zoysiagrass and Bermudagrass Using RNA-Seq.** Sri Mounika Daruvuri<sup>1</sup>, Jinesh Patel<sup>1</sup>, Claudia Ann Rutland<sup>1</sup>, Bert Wagemans<sup>2</sup>, Lukas Dant<sup>2</sup>, Scott McElroy<sup>1</sup>. <sup>1</sup>Auburn University, Auburn, AL; <sup>2</sup>Syngenta Crop Protection, Greensboro, NC. (62)

**Characterizing Ultraviolet Floral Patterns of Urban Weeds and Their Implications for Pollinator Behavior.** Suzannah Hale\*, Navdeep Godara, Shawn Askew. Virginia Tech, Blacksburg, VA. (63)

**Semi-Supervised Learning Methods for Weed Detection in Turfgrass.** Teng Liu and Jialin Yu\*. Peking University-IAAS, Weifang, China. (64)

## **POSTER - 04. Pastures, Rangelands, Forests, and Rights of Ways**

**\*PRESENTING AUTHOR**

**► WSSA STUDENT CONTEST**

**🍁 CWSS COMPETITION**

**Evaluation of Some Non-Systemic Alternatives to Glyphosate.** Joe Omielan\*. University of Kentucky, Lexington, KY. (65)

**► Developmental Stages of Knotroot Foxtail (*Setaria parviflora*) from Seed to Rhizome Formation and its Morphological Comparison with Yellow Foxtail.** Tunde Akanbi\*, Debra Smitherman, Forrest Davis, David Russell. Auburn University, Auburn, AL. (66)

**🍁 Integrated Management of Some Alien Invasive Weeds in Forestry in Victoria, Canada.** Raj Prasad\*. Pacific Forestry Centre, Victoria, BC. (67)

## **POSTER - 05. Wildland and Aquatic Invasives**

**\*PRESENTING AUTHOR**

**► WSSA STUDENT CONTEST**

**Screening and Demonstration of U.S. EPA Registered Aquatic Herbicides on *Hottonia palustris*.** Andrew Howell\*<sup>1</sup>, Kara Foley<sup>1</sup>, Erika Haug<sup>2</sup>, Amy Smagula<sup>3</sup>, and Rob Richardson<sup>1</sup>. <sup>1</sup>North Carolina State University, Raleigh, NC; <sup>2</sup>North Carolina Department of Environmental Quality, Raleigh NC; <sup>3</sup>New Hampshire Department of Environmental Services, Concord NH. (68)

**69-Withdrawn (Scatena)**

**National Weed Survey: Aquatic, Right of Ways, and Public Land 2024 Results.** Sarah Chu\*<sup>1</sup>, Joshua Miranda<sup>2</sup>, Lee Van Wychen<sup>3</sup>. <sup>1</sup>Texas A&M University, College Station, TX; <sup>2</sup>Oregon State University, Corvallis, OR; <sup>3</sup>WSSA, Alexandria, VA. (70)

## **POSTER - 07. Teaching and Extension**

**\*PRESENTING AUTHOR**

**► WSSA STUDENT CONTEST**

**Results from the 2024 WSSA Membership Survey.** Ian Burke\*<sup>1</sup>, Hilary Sandler<sup>2</sup>, Gregory Dahl<sup>3</sup>, Carroll Moseley<sup>4</sup>. <sup>1</sup>Washington State University, Pullman, WA; <sup>2</sup>University of Massachusetts Cranberry Station, East Wareham, MA; <sup>3</sup>Winfield United, Retired, Eagan, MN; <sup>4</sup>Syngenta Crop Protection, Greensboro, NC. (71)

**► Introduction of a New Sedge in Louisiana Rice, *Fimbristylis littoralis*.** Gavin Sparks\*, Connor Webster, Ronnie Levy, Ben Stoker, Wesley Carr, Maranda Hains, Eve Williams. Louisiana State University AgCenter, Baton Rouge, LA. (72)

**Intelligent System Software for Plant Density Analysis, Weed Coverage Assessment, Leaf and Seed Phenotyping, Seed Counting, and Peanut Shell Evaluation.** Jialin Yu\*. Peking University-IAAS Weifang, China. (73)

**Electric, Portable Precision Pesticide Experiment Sprayer.** Jialin Yu\*. Peking University-IAAS Weifang, China. (74)

**► Palmer Amaranth Herbicide Resistance Survey in the Texas High Plains.** Luke Schmitz\*<sup>1</sup>, Ryan Hamberg<sup>1</sup>, Scott Nolte<sup>1</sup>, Peter Dotray<sup>2</sup>, Muthukumar Bagavathiannan<sup>1</sup>. <sup>1</sup>Texas A&M University, College Station, TX; <sup>2</sup>Texas Tech University, Lubbock, TX. (75)

**Agroecology is GOOD. A Horizon Europe Project: Preliminary Results on Agroecological Weed Control in Maize and Soybean Living Labs.** Milan Brankov\*<sup>1</sup>, Milena Simić<sup>1</sup>, Vesna Dragičević<sup>1</sup>, Alexandros Tataridas<sup>2</sup>.

<sup>1</sup>Maize Research Institute, Zemun Polje, Belgrade, Serbia;  
<sup>2</sup>University of Coimbra, Coimbra, Portugal. (76)

**Rapid In-Season Tests for Detecting Herbicide Resistance in Weeds.** Yosra Menchari<sup>\*1</sup>, Anne Marion<sup>1</sup>, Andréa Duclos<sup>1</sup>, David Miville<sup>2</sup>, Martin Laforest<sup>3</sup>. <sup>1</sup>Laval University, Québec City, QC; <sup>2</sup>Laboratoire d'expertise et de diagnostic en phytoprotection, MAPAQ, Québec, QC; <sup>3</sup>Agriculture and Agri-Food Canada, Saint-Jean-sur-Richelieu, QC. (77)

## **POSTER - 08. Formulation, Adjuvant, & Application Technology**

**\*PRESENTING AUTHOR**

**► WSSA STUDENT CONTEST**

**► Axant™ Flex Cotton Response to Topramezone + Liberty Ultra when using Different Spray Adjuvants.** Matthew Woolard<sup>\*1</sup>, Peter Dotray<sup>1</sup>, Adam Hixson<sup>2</sup>, Megan Singletary<sup>1</sup>, John Guice<sup>3</sup>, Bobby Rodriguez<sup>4</sup>. <sup>1</sup>Texas Tech University, Lubbock, TX; <sup>2</sup>BASF Corporation, Lubbock, TX; <sup>3</sup>BASF, Winnsboro, LA; <sup>4</sup>Texas A&M University, College Station, TX. (78)

**UAV Application Volume and Speed Comparisons for Waterhemp Control (*Amaranthus tuberculatus*) in Soybean.** Christy Sprague<sup>\*</sup> and Brian Stiles II. Michigan State University, East Lansing, MI. (79)

**Evaluation of Poaceae Species and Suppression Application Methods for Permanent Groundcover in Corn.** Hallie Sandeen<sup>\*1</sup>, Erin Haramoto<sup>1</sup>, Tim Stombaugh<sup>1</sup>, Travis Legleiter<sup>1</sup>, Brandon Schlautman<sup>2</sup>, Shui-zhang Fei<sup>3</sup>, Sara Lira<sup>4</sup>, Tim Phillips<sup>1</sup>, Matthew Allen<sup>1</sup>. <sup>1</sup>University of Kentucky, Lexington, KY; <sup>2</sup>The Land Institute, Salina, KS; <sup>3</sup>Iowa State University, Ames, IA; <sup>4</sup>Corteva Agriscience, Johnston, IA. (80)

**► How Weather and Flight Height Influence Pesticide Drift in Drone Applications.** Antonio Augusto Tavares<sup>\*</sup>, Luis de Avila, Darrin Dodds. Mississippi State University, Starkville, MS. (81)

**Adjuvant Effects on Canola Desiccation with Diquat.** Jim Daniel<sup>\*1</sup>, Kirk Howatt<sup>2</sup>, Joseph Mettler<sup>2</sup>. <sup>1</sup>Daniel Ag Consulting, Keenesburg, CO; <sup>2</sup>North Dakota State University, Fargo, ND. (82)

**► Potential Safeners to Protect Conventional Rice from Select Soil-Applied HPPD Herbicides.** Cory Ketchum<sup>\*</sup>, Jason Norsworthy, Rhet Baxley, Pamela Carvalho-Moore, Michael Dodde, Lane Pierce. University of Arkansas, Fayetteville, AR. (83)

**Utilizing a Fluorescent Pigment to Measure the Influence of Adjuvants on Spray Solution Coverage.**

Joshua Skelton\* and Anderson Weber. WinField United, River Falls, WI. (84)

**Impact of Adjuvants and Nozzles on Palmer Amaranth (*Amaranthus palmeri* S. Watson) and Waterhemp (*Amaranthus tuberculatus* (Moq.) J. D. Sauer) Control using Mesotrione and Rimsulfuron + Thifensulfuron-methyl.**

Milan Brankov\*<sup>1</sup>, Milos Zaric<sup>2</sup>, Bruno Canella Vieira<sup>2</sup>, Guilherme Sousa Alves<sup>2</sup>, Greg Kruger<sup>2</sup>. <sup>1</sup>Maize Research Institute, Zemun Polje, Belgrade, Serbia; <sup>2</sup>University of Nebraska, North Platte, NE. (85)

► **The Impact of Fumigants on Weed Seedbanks and Nutsedges (*Cyperus* spp.): A 3-Year Study.** Julio Peres\* and Nathan Boyd. University of Florida, Gulf Coast and Education Center, Wimauma, FL. (86)

**POSTER - 09. Weed Biology and Ecology**

**\*PRESENTING AUTHOR**

► **WSSA STUDENT CONTEST**

🍁 **CWSS COMPETITION**

🍁 **The Importance of Species Selection in Cover Crop Mixture Design.** Andrew McKenzie-Gopsill\* and Aaron Mills. Agriculture and Agri-Food Canada, Charlottetown, PEI. (87)

**Influence of Herbicides Applied at Different Inflorescence Stages on Reproductive Traits of Glyphosate-Resistant Italian Ryegrass (*Lolium perenne* L. ssp. *multiflorum*).** Bhupesh Dhaka\*, Prashant Jha, Donnie Miller, Connor McKoin. Louisiana State University AgCenter, Baton Rouge, LA. (88)

► **Weed Differentiation Limits of YOLO Models at Varying Purple Nutsedge (*Cyperus rotundus* L.) Density and Size.** Alex Rodriguez\*<sup>1</sup>, Julio Peres<sup>1</sup>, Arnold W. Schumann<sup>2</sup>, Nathan Boyd<sup>1</sup>. <sup>1</sup>Gulf Coast Research and Education Center, University of Florida, Wimauma, FL; <sup>2</sup>Citrus Research and Education Center, University of Florida, Lake Alfred, FL. (89)

**Deep Learning-Based Classification of Weed Seeds from Digital Images.** Bismark Anokye\* and Muthu Bagavathiannan. Texas A&M University, College Station, TX. (90)

🍁 **False Cleavers (*Galium spurium*) Biology: Understanding the Biology and the Populations.** Breanne Tidemann\*<sup>1</sup>, Charles Geddes<sup>2</sup>, Sara Martin<sup>3</sup>, Shaun Sharpe<sup>4</sup>. <sup>1</sup>Agriculture and Agri-Food Canada,

Lacombe, AB; <sup>2</sup>Agriculture and Agri-Food Canada, Lethbridge, AB; <sup>3</sup>Agriculture and Agri-Food Canada, Ottawa, ON; <sup>4</sup>Agriculture and Agri-Food Canada, Saskatoon, SK. (91)

► **Inheritance of Paraquat Resistance in Sumatran fleabane (*Conyza sumatrensis*): Genetic Analysis and Identification of a Major Quantitative Trait Locus.**

Andre Araujo\*<sup>1</sup>, Ana Beatriz Amaral<sup>2</sup>, Jessica Leal<sup>3</sup>, Camila Ferreira de Pinho<sup>2</sup>, Todd Gaines<sup>1</sup>. <sup>1</sup>Colorado State University, Fort Collins, CO; <sup>2</sup>Universidade Federal Rural do Rio de Janeiro, Seropedica, Brazil; <sup>3</sup>United Phosphorus Limited, Moema, Brazil. (92)

🌸 **Signals of Rotational Crop Life History and Fertilizer Source in the Soil Seedbank of a Century-Old Long-Term Experiment.** Brendan Alexander, Benjamin Ellert, Paul DeMaere, Charles Geddes\*. Agriculture and Agri-Food Canada, Lethbridge, AB. (93)

**The Biology of Invasive Plants Series Provides Critical Information on Global Invasion Pathways and Risks.**

David Clements\*<sup>1</sup>, Darren Kriticos<sup>2</sup>, Antonio DiTommaso<sup>3</sup>. <sup>1</sup>Trinity Western University, Langley, BC; <sup>2</sup>Cervantes Agritech, Weetangera, Australia; <sup>3</sup>Cornell University, Ithaca, NY. (94)

🌸 **Influence of Natural and Planted Shelterbelts on Weed Communities in Saskatchewan.** Julia Leeson\* and Shane Hladun. Agriculture and Agri-Food Canada, Saskatoon, SK. (95)

**Impact of Weather, Soil, and Size on Horseweed Winter Survival.** Erin Haramoto\*<sup>1</sup>, Christopher Shepard<sup>1</sup>, Anita Dille<sup>2</sup>, Karla Gage<sup>3</sup>, Reid J Smeda<sup>4</sup>. <sup>1</sup>University of Kentucky, Lexington, KY; <sup>2</sup>Kansas State University, Manhattan, KS; <sup>3</sup>Southern Illinois University, Carbondale, IL; <sup>4</sup>Missouri State University, Columbia, MO. (96)

**Impact of Soil Microbiota Abundance on the Intensity and Importance of Competition for Wheat and Weed Plants.** Fernando Bastida<sup>1</sup>, Jordi Izquierdo<sup>2</sup>, Fátima Martínez<sup>1</sup>, Irene Monterde<sup>1</sup>, José Luis González-Andújar\*<sup>3</sup>. <sup>1</sup>University of Huelva, Huelva, Spain; Universidad Politécnica de Cataluña, Barcelona, Spain; <sup>3</sup>Institute for Sustainable Agriculture (CSIC), Cordoba, Spain. (97)

🌸 **Residual Weed Population Shifts in the Prairie Provinces - 1973-2023.** Julia Leeson\*<sup>1</sup>, Shane Hladun<sup>1</sup>, Charles Geddes<sup>2</sup>. <sup>1</sup>Agriculture and Agri-Food Canada, Saskatoon, SK; <sup>2</sup>Agriculture and Agri-Food Canada, Lethbridge, AB. (98)

**Predictive Modeling of Downy Brome (*Bromus tectorum* L.) Emergence and Reproductive Stage.**

Fernando Oreja, Vhuthu Ndou, Judit Barroso\*. Oregon State University, Corvallis, OR. (99)


**Cereal Rye Cover Crop and Herbicide Interactions on Palmer Amaranth (*Amaranthus palmeri*)**

**Demographics in Enlist E3™ Soybean.** Giulia Bortolon\*, Prashant Jha, Daniel Stephenson. Louisiana State University AgCenter, Baton Rouge, LA. (100)

**► Exploring Biological Nitrification Inhibition Potential of Different Cereal Rye Genotypes Grown in the US.**

Kapil Chobhe\*, Nithya Rajan, Megan Schill, Nithya Subramanian, Sanjay Antony-Babu, Muthukumar Bagavathiannan. Texas A&M University, College Station, TX. (101)

**Locoweed (*Oxytropis sericea*) Pollinator and Non-Structural Carbohydrate Responses with and Without its Fungal Endophyte: A Common Garden Study.** Laura Burkle, Sean Hoy-Skubik, Ryan Lawson, Danielle Ulrich, Rosie Wallander, Tracy M. Sterling\*. Montana State University, Bozeman, MT. (102)

 **Genetic Tests Accelerate Detection and Mitigate the Risk Of Herbicide-Resistant Weeds in Canada.** Martin Laforest\*<sup>1</sup>, Marie-Josée Simard<sup>1</sup>, Eric Page<sup>2</sup>, Charles Geddes<sup>3</sup>, Gaganpreet Dhariwal<sup>1</sup>, Amélie Picard<sup>4</sup>, David Miville<sup>4</sup>, Hayley Brackenridge<sup>1</sup>, Chris Grainger<sup>5</sup>, Cezarina Kora<sup>1</sup>, Rob Nurse<sup>2</sup>, Kristin Obeid<sup>6</sup>. <sup>1</sup>Agriculture and Agri-Food Canada, Saint-Jean-sur-Richelieu, QC; <sup>2</sup>Agriculture and Agri-Food Canada, Harrow, ON; <sup>3</sup>Agriculture and Agri-Food Canada, Harrow, Lethbridge, AB; <sup>4</sup>MAPAQ, Québec; <sup>5</sup>Turnkey Genomics, Guelph, ON; <sup>6</sup>OMAFRA, Harrow, ON. (103)


**► Utilization of Satellite Imagery for Elucidating Weed Dynamics at Large Spatial Scales.** Pavle Pavlovic\* and Muthukumar Bagavathiannan. Texas A&M University, College Station, TX. (104)

**Weed-Crop Competition Through the Lens of Computer Vision.** Pavle Pavlovic\*, Purushottam Gyawali, Muthukumar Bagavathiannan. Texas A&M University, College Station, TX. (105)

**Adaptation of Palmer Amaranth (*Amaranthus palmeri*) to the Changing Climate of the Upper Midwest.** Sachin Dhanda\*, Sithin Mathew, Roger Becker, Vasudha Sharma, Gregg Johnson, Debalin Sarangi. University of Minnesota, St. Paul, MN. (106)


**► Influence of Tillage and Cereal Rye on Waterhemp Seedling Emergence Patterns Across Different Latitudes.** Purushottam Gyawali\*<sup>1</sup>, Pavle Pavlovic<sup>1</sup>, Dylan R. Kerr<sup>2</sup>, Ahmadreza Mobli<sup>3</sup>, Rodrigo Werle<sup>3</sup>, Jason Norsworthy<sup>4</sup>, Martin Williams<sup>4</sup>, Muthukumar Bagavathiannan<sup>1</sup>. <sup>1</sup>Texas A&M University, College Station,

TX; <sup>2</sup>University of Illinois, Urbana, IL; <sup>3</sup>University of Wisconsin, Madison, WI; <sup>4</sup>USDA-ARS, Urbana, IL. (107)

 **Portrait of the Dominant Weeds by Crop Type in the Montérégie Region of Québec.** Sandra Flores-Mejia\*<sup>1</sup>, Gabriel Verret<sup>1</sup>, Firmo Sousa<sup>1</sup>, David Miville<sup>2</sup>, Amélie Picard<sup>2</sup>, Annie Marcoux<sup>2</sup>, Béranger Bourgeois<sup>3</sup>, Yosra Menchari<sup>3</sup>. <sup>1</sup>Centre de Recherche sur les Grains (CÉROM), Saint-Mathieu-de-Beloeil, QC; <sup>2</sup>Laboratoire d'expertise et de diagnostic en phytoprotection (LEDP-MAPAQ), Québec, QC; <sup>3</sup>University of Laval, Québec, QC. (108)

► **Root Architecture and Morphology of Palmer Amaranth (*Amaranthus palmeri*) and Waterhemp (*Amaranthus tuberculatus*).** Sai Suvidh Maddela\* and Amit Jhala. University of Nebraska. Lincoln, NE. (109)

**EPSPS Gene Amplification in Glyphosate-Resistant Cheatgrass (*Bromus tectorum*) from Washington.** Shahbaz Ahmed\*, Marija Savic, Olivia Landau, Ian Burke. Washington State University, Pullman, WA. (110)

 **Morphological and Genetic Responses of Waterhemp (*Amaranthus tuberculatus* var. *rudis* and *A. tuberculatus* var. *tuberculatus*) to Environmental Conditions Related to Climate Change.** Sreedevi Ramachandran\*, Rene Van Acker, François Tardif. University of Guelph, Guelph, ON. (111)

► **Characterization of Carrot Resistance to Swamp Dodder (*Cuscuta gronovii*).** Sukhmanpreet Kaur\*<sup>1</sup>, Philipp Simon<sup>2</sup>, Dorothea Tholl<sup>1</sup>, James Westwood<sup>1</sup>. <sup>1</sup>Virginia Tech, Blacksburg, VA; <sup>2</sup>USDA-ARS, Madison, WI. (112)

**Characterization of ALS-inhibitor resistance in a Barnyardgrass (*Echinochloa crus-galli*) Population from Texas Rice.** Varnika Kalaichelvan\*, Nithya Subramanian, Fidel Gonzalez Torralva, Hazal Hamzi Arik. Texas A&M University, College Station, TX. (113)

**Impact of Elevated Temperature and CO<sub>2</sub> on the Vegetative and Reproductive Traits of Rice and Weedy Rice.** Vikas Tyagi\*<sup>1</sup>, Virender Kumar<sup>2</sup>, Vijayakumar Shanmugam, Nithya Subramanian<sup>3</sup>, Muthukumar Bagavathiannan<sup>1</sup>. <sup>1</sup>Texas A&M University, College Station, TX; <sup>2</sup>International Rice Research Institute, Los Baños, Philippines; <sup>3</sup>ICAR- Indian Institute of Rice Research, Hyderabad, India. (114)

► **Confirmation of Glyphosate- and Atrazine-Resistant Palmer Amaranth (*Amaranthus palmeri*) Populations in New York and New Jersey and Responses to Alternative Chemistries.** Aleah Butler-Jones\*<sup>1</sup>, Elizabeth Maloney<sup>1</sup>, William Kramer<sup>2</sup>, Sarah Morran<sup>2</sup>, Todd Gaines<sup>2</sup>, Thierry Besançon<sup>3</sup>, Lynn Sosnoskie<sup>1</sup>. <sup>1</sup>Cornell University,

Geneva, NY; <sup>2</sup>Colorado State University, Fort Collins, CO;  
<sup>3</sup>Rutgers University, Chatsworth, NJ. (115)

## **POSTER - 10. Biocontrol of Weeds**

**\*PRESENTING AUTHOR**

**► WSSA STUDENT CONTEST**

**► Rooted Potential: Exploring Weed Suppression Abilities in *Sorghum bicolor* with High Sorgoleone Production.** Megan Schill\*, Nithya Rajan, William Rooney, Sakiko Okumoto, Muthukumar Bagavathiannan. Texas A&M University, College Station, TX. (116)

**Utilizing Cover Crops as a Weed Management Tool for Combatting *Amaranthus* spp. Resistance.** Debra Smitherman\*, David Russell, Eros Francisco, Scott McElroy. Auburn University, Auburn, AL. (117)

**A Water Soluble  $\beta$ -Triketone Enriched Extract of Manuka Oil: Increased Weed Control Efficacy Compared to Two Organic Non-Selective Herbicides.** T. Casey Barickman\*, Charles Cantrell, Amber Reichley. USDA-Natural Products Utilization Research Unit (NPURU), University, MS. (118)

**Evaluating the Efficacy of Organic Acids Wiping Applications for Controlling Major Weeds in Organic Cranberry Production.** Yosra Menchari\*<sup>1</sup>, Marie-Josée Duval<sup>2</sup>, Gabriel Ayotte Breton<sup>2</sup>, Alice De Donder<sup>2</sup>, Didier Labarre<sup>2</sup>. <sup>1</sup>Laval University, Québec City, QC; <sup>2</sup>CETAQ, Notre-Dame du-Lourdes, QC. (119)

## **POSTER – 11 Physiology**

**\*PRESENTING AUTHOR**

**► WSSA STUDENT CONTEST**

**🍁 CWSS COMPETITION**

**► Machine Learning of Plant Image Data to Diagnose Herbicide Modes of Action.** Tae-Kyeong Noh\* and Do-Soon Kim. Seoul National University, Seoul, South Korea. (120)

**🍁 Transgressive Segregation and the Inheritance of Paraquat Resistance in Canada Fleabane (*Conyza canadensis*).** Hayley Hickmott<sup>1</sup>, François Tardif<sup>2</sup>, Martin Laforest<sup>3</sup>, Istvan Rajcan<sup>2</sup>, Sydney Meloche<sup>4</sup>, Alyssa Thibodeau<sup>4</sup>, Emma Beda<sup>4</sup>, Eric Page<sup>\*4</sup>. <sup>1</sup>Health Canada, Pest Management Regulatory Agency, Ottawa, ON; <sup>2</sup>University of Guelph, Guelph, ON; <sup>3</sup>Agriculture and Agri-



Food Canada, Saint-Jean-sur Richelieu, ON; <sup>4</sup>Agriculture and Agri-Food Canada, Harrow, ON. (121)

► **Investigating the Role of Catalase in Herbicide Activity.** Catherine Traxler\*, Todd Gaines, Franck Dayan. Colorado State University, Fort Collins, CO. (122)

**Safening Potential of Melatonin in Conventional Cotton Exposed to Sublethal Rates of 2,4-D.** Josiane Argenta<sup>1</sup>, Antonio Rodrigues da Cunha Neto<sup>2</sup>, Sandipan Sil<sup>1</sup>, Te Ming Tseng\*<sup>1</sup>. <sup>1</sup>Mississippi State University, Mississippi State, MS; <sup>2</sup>Universidade Federal de Alfenas, Alfenas, Brazil. (123)

► **Investigating Resistance in Johnsongrass (*Sorghum halepense*) Across the United States: Target and Non-target Site Mechanisms.** Connor Purvis\* and Erin Burns. Michigan State University, East Lansing, MI. (124)

**Herbicidal Activity of Hydroxychalcones.** Raphael Mota Garrido\*<sup>1</sup>, Patrick Rômbola Ozanique<sup>2</sup>, Luis Octávio Regasini<sup>2</sup>, Rosana Marta Kolb<sup>1</sup>. <sup>1</sup>São Paulo State University, Assis, Brazil; <sup>2</sup>São Paulo State University, São José do Rio Preto, Brazil. (125)

► **In Silico Molecular Docking and Dynamic Simulation Study to Evaluate the Inhibitory Potential of Phytochemicals from *Ganoderma lucidum* Against NS5B of HCV to Treat Hepatitis C Virus.** Shilpi R. Sindhu\*. CCS Haryana Agricultural University, Hisar, India. (126)

## **POSTER - 12. Soil and Environmental Aspects**

**\*PRESENTING AUTHOR**

► **WSSA STUDENT CONTEST**

**Influence of Environmental Factors on the Efficacy of Phosphite for Weed Control.** Kapil Chobhe\*, Shilpa Singh, Keerti Rathore, Gaylon Morgan, Muthukumar Bagavathiannan. Texas A&M University, College Station, TX. (127)

**Understanding the Biochar-Herbicide Interactions Governing Weed Control Efficiency in the Light Textured Soil of Alabama.** Rakesh Ghosh\*<sup>1</sup>, Aniruddha Maity<sup>1</sup>, Andrew Price<sup>2</sup>, Nisith Nishank Purohit<sup>1</sup>. <sup>1</sup>Auburn University, Auburn, AL; <sup>2</sup>USDA-ARS-NSDL, Auburn, AL. (128)

► **Soil Moisture and Texture Effects on Herbicide Resistance Expression in Italian Ryegrass (*Lolium perenne* ssp. *multiflorum*).** Andrew Ahlersmeyer\*<sup>1</sup>, Andrew Price<sup>2</sup>, Aniruddha Maity<sup>1</sup>. <sup>1</sup>Auburn University, Auburn, AL; <sup>2</sup>USDA-ARS-NSDL, Auburn, AL. (129)

**Are Vegetative Vigor Endpoints Predictive of Plant Injury Due to Herbicides in Runoff?** Sandra Ethridge\*, Daniel Edwards, Matthew Jeffries. BASF Corporation, Research Triangle Park, NC. (130)

## **POSTER - 13. Integrated Weed Management**

**\*PRESENTING AUTHOR**

**► WSSA STUDENT CONTEST**

**🍁 CWSS COMPETITION**

**Integrated Weed Management Affects the Critical Period for Weed Control.** Andrew Price\*<sup>1</sup>, Gourav Chahal<sup>2</sup>, Carter Bonnell<sup>1</sup>. <sup>1</sup>USDA-ARS-NSDL, Auburn, AL; <sup>2</sup>Auburn University, Auburn, AL. (131)

**► Weed Suppression in Tomato Fields: The Role of Cover Crop Varieties and Soil Types.** Akashdeep Singh\*<sup>1</sup>, David Russell<sup>1</sup>, Andrew Price<sup>2</sup>, Ted Kornecki<sup>2</sup>, Aniruddha Maity<sup>1</sup>. Auburn University, Auburn, AL; <sup>2</sup>USDA-ARS-NSDL, Auburn, AL. (132)

**NeutraWeed: An International Integrated Weed Management Project Merging Functional Ecology with AI and Robotics.** Antonio DiTommaso\*<sup>1</sup>, Stefano Carlesi<sup>2</sup>, Anna Camilla Moonen<sup>2</sup>, Paolo Barberi<sup>2</sup>, Marco Esposito<sup>2</sup>. <sup>1</sup>Cornell University, Ithaca, NY; Agroecology of the Institute of Plant Sciences, <sup>2</sup>Sant'Anna School of Advanced Studies, Pisa, Italy. (133)

**Fate of Weed Seeds in the Combine with Seed Impact Mills During Wheat and Soybean Harvest.** Eli Russell\*<sup>1</sup>, Kevin Bamber<sup>1</sup>, Michael Flessner<sup>1</sup>, Sarah Chu<sup>2</sup>, Muthukumar Bagavathiannan<sup>2</sup>, Steven Mirsky<sup>3</sup>, Kreshnik Bejleri<sup>3</sup>, Eugene Law<sup>4</sup>, Walker Crane<sup>3</sup>, Mark VanGessel<sup>5</sup>. <sup>1</sup>Virginia Tech, Blacksburg, VA; <sup>2</sup>Texas A&M University, College Station, TX; <sup>3</sup>USDA-ARS, Beltsville, MD; <sup>4</sup>Ohio State University, Columbus, OH; <sup>5</sup>University of Delaware, Georgetown, DE. (134)

**► Weed Control in Cotton with Pyroxasulfone + Carfentrazone Coated Fertilizer Applications.** Caroline Wayhs Backes\*, Zachary Howard, Scott Nolte. Texas A&M University, College Station, TX. (135)


**Weed Suppression and Regrowth Potential of Mown Cereal Cover Crops.** Gustavo Camargo Silva\* and Muthukumar Bagavathiannan. Texas A&M University, College Station, TX. (136)

**► Planting Green and Residual Herbicide Interactions in No-Till Soybeans.** Grant Hoffer\*<sup>1</sup>, John Wallace<sup>1</sup>, Mark VanGessel<sup>2</sup>, Nicholas Basinger<sup>3</sup>, Aaron Hager<sup>4</sup>, Erin Haramoto<sup>5</sup>, Wesley Everman<sup>6</sup>, Eugene Law<sup>7</sup>, Karla Gage<sup>8</sup>,


Eric Miller<sup>8</sup>. <sup>1</sup>Pennsylvania State University, University Park, PA; <sup>2</sup>University of Delaware, Georgetown, DE; <sup>3</sup>University of Georgia, Athens, GA; <sup>4</sup>University of Illinois, Urbana, IL; <sup>5</sup>University of Kentucky, Lexington, KY; <sup>6</sup>Iowa State University, Ames, IA; <sup>7</sup>Ohio State University, Columbus, OH; <sup>8</sup>Southern Illinois University, Carbondale, IL. (137)

**Integrated Management of Key Pests in Corn-Potato Systems.** Hannah Johnson\* and Erin Burns. Michigan State University, East Lansing, MI. (138)

**On-Farm Insights: Farmer Perspectives on Harvest Weed Seed Control in Minnesota Corn and Soybeans Production.** Isidor Ceperkovic, Debalin Sarangi, David Nicolai, Seth Naeve. University of Minnesota, St. Paul, MN. Presenter TBD. (139)

 **Evaluating Pulse Companions for Camelina Intercropping.** Shaun Sharpe\*<sup>1</sup>, Christina Eynck<sup>1</sup>, Michelle Hubbard<sup>2</sup>, Leonard Chester<sup>1</sup>, Kyle Rosvold<sup>1</sup>, Shaelyn St. Jacques<sup>1</sup>, Lana Shaw<sup>3</sup>. <sup>1</sup>Agriculture and Agri-Food Canada, Saskatoon, SK; <sup>2</sup>Agriculture and Agri-Food Canada, Swift River, SK; <sup>3</sup>South East Research Farm, Redvers, SK. (140)

**Intermediate Crops: A New Tool for Integrated Weed Management.** James Anderson\*, Jinita Sthapit Kandel, David Horvath. USDA-ARS-ETSARC, Fargo, ND. (141)

 **Impact of Allelopathic Cover Crops and its Termination Method in Cash Crops Grown Subsequent Season.** Maria Angelica Ouellette\*. Lakeland Agricultural Research Association, Fort Kent, AB. (142)

► **Weed Species Detection and Classification Using Seed Images and Machine Learning Algorithms.** Akhilesh Sharma\*, Vipin Kumar, Antonio DiTommaso, Magdalena Julkowska. Cornell University, Ithaca, NY. (143)

**The Interactions between Drought Tolerant Corn Hybrids and Plant Water Stress on Weeds and their Host Capability for Spider Mites.** Mercy Odemba\*<sup>1</sup>, Earl Creech<sup>2</sup>, Corey Ransom<sup>2</sup>, Matt Yost<sup>2</sup>, Ricardo Ramirez<sup>3</sup>. <sup>1</sup>Ohio State University, Columbus, OH; <sup>2</sup>Utah State University, Logan, UT; <sup>3</sup>New Mexico State University, Las Cruces, NM. (144)

**Electric Weed Management in Wild Lowbush Blueberries in Québec.** Paulina Cholango Martinez\*<sup>1</sup>, Pierre-Olivier Martel<sup>2</sup>, Charles-A Déry-Bouchard<sup>3</sup>, Gérard Bouchard<sup>4</sup>, Élise Smedbol<sup>1</sup>. <sup>1</sup>Institut de Recherche et de Développement en Agroenvironnement (IRDA), Saint-Bruno-de-Montarville, QC; <sup>2</sup>Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec (MAPAQ), Alma,

QC; <sup>3</sup>Club Conseil Bleu et, Dolbeau-Mistassini, QC; <sup>4</sup>Ferme des Chutes Inc., St-Félicien, QC. (145)

► **Short Corn: A Cultural Tool for Weed Seedbank Management?** Noelle Connors\*, Heather Karsten, John Wallace. Pennsylvania State University, University Park, PA. (146)

**Influence of Weed Management on Spring Maize Growth, Yield and Profitability in Mid-Hills of Nepal.** Salina Raila\*<sup>1</sup>, Sarah Lancaster<sup>1</sup>, Suman Dhakal<sup>2</sup>, Manita Thapa<sup>3</sup>, Suraj Laudari<sup>2</sup>, Puja Joshi<sup>2</sup>. <sup>1</sup>Kansas State University, Manhattan, KS; <sup>2</sup>Agriculture and Forestry University, Chitwan, Nepal; <sup>3</sup>Ministry of Agriculture and Livestock Development, Parbat, Nepal. (147)

**Catching Weed Seeds with Cotton Harvesters.** Sarah Chu\*<sup>1</sup>, Michael Walsh<sup>2</sup>, Robert Hardin<sup>1</sup>, Peter Dotray<sup>3</sup>, Gaylon Morgan<sup>4</sup>, Muthukumar Bagavathiannan<sup>1</sup>. <sup>1</sup>Texas A&M University, College Station, TX; <sup>2</sup>Charles Sturt University, Wagga Wagga, NSW, Australia; <sup>3</sup>Texas Tech University, Lubbock, TX; <sup>4</sup>Cotton Incorporated, Cary, NC. (148)

► **Confirmation of Herbicide Resistance and its Association with Seed Morpho-Physiological Traits in Alabama Italian Ryegrass (*Lolium perenne* L. ssp. *multiflorum*) Populations.** Ankit Yadav\*<sup>1</sup>, David Russell<sup>2</sup>, Zahoor Ganie<sup>3</sup>, Jinesh Patel<sup>2</sup>, Andrew Price<sup>4</sup>, Aniruddha Maity<sup>2</sup>. <sup>1</sup>University of Nebraska, Lincoln, NE; <sup>2</sup>Auburn University, Auburn, AL; <sup>3</sup>FMC Corporation, Newark, DE; <sup>4</sup>USDA-ARS-NSDL, Auburn, AL. (149)

**Using Organic Herbicides and Steam for Weed Control in Vineyards.** Tian Tian and Mandeep Riar\*. University of California Agriculture and Natural Resources, Bakersfield, CA. (150)

**Integrated Weed Management using Cover Crop and Herbicide in Alabama Cotton Production Systems.** Wilfried Ouedraogo\* and Aniruddha Maity. Auburn University, Auburn, AL. (151)

► **Integration of Cereal Rye, Herbicides, and Seed Impact Mill for Weed Control in Soybean.** Preetaman Bajwa\*<sup>1</sup>, Vipin Kumar<sup>1</sup>, Henrique Scatena<sup>1</sup>, Prashant Jha<sup>2</sup>, Jason Norsworthy<sup>3</sup>. <sup>1</sup>Cornell University, Ithaca, NY; <sup>2</sup>Louisiana State University AgCenter, Baton Rouge, LA; <sup>3</sup>University of Arkansas, Fayetteville, AR. (152)

**Enhancing Weed Control Post-Planting through Modified Stale Seedbeds with Dormancy-Breaking Chemicals.** Nisith Nishank Purohit\* and Aniruddha Maity. Auburn University, Auburn, AL. (153)

**Comparison of Cover Crop Biomass Predictions to Summer Annual Weed Escapes Using Spatial Analysis**

**Techniques.** Avi Goldsmith\*<sup>1</sup>, April Dobbs<sup>2</sup>, Ramon Leon<sup>1</sup>.  
<sup>1</sup>North Carolina State University, Raleigh, NC; <sup>2</sup>BASF Corporation, Durham, NC. (154)

**Complementary Activity of Trifludimoxazin and its Saflufenacil Combination for Postemergence and Residual Weed Control.** Lilian Parra Rapado\*<sup>1</sup>, Aimone Porri<sup>1</sup>, Douglass Findley<sup>2</sup>, Hernan Ghiglione<sup>2</sup>. <sup>1</sup>BASF Corporation SE, Limburgerhof, Germany; <sup>2</sup>BASF Corporation, Research Triangle Park, NC. (155)

## **POSTER - 14. Targeted and Autonomous Weed Control Strategies**

**\*PRESENTING AUTHOR**

**► WSSA STUDENT CONTEST**

**🍁 CWSS COMPETITION**

**► Enhancing Weed Control Using Light-Activated Sensors and Mapping in Chem-fallow.** Devanshi Het Desai\*<sup>1</sup>, Paul Nugent<sup>1</sup>, Tim Seipel<sup>1</sup>, Lovreet Shergill<sup>2</sup>.  
<sup>1</sup>Montana State University, Bozeman, MT; <sup>2</sup>Colorado State University, Fort Collins, CO. (156)

**Analysis of Herbicide Spray Patterns from Different Application Methods using Machine Learning.** Arunkarthikeyan Muthukumar\*<sup>1</sup>, Christina Ward<sup>2</sup>, Navjot Singh<sup>2</sup>, Zach Howard<sup>2</sup>, Scott Nolte<sup>2</sup>. <sup>1</sup>College Station High School, College Station, TX; <sup>2</sup>Texas A&M University, College Station, TX. (157)

**► Energy Thresholds for Weed Seed Death Using Mid-Infrared Radiation.** Ryan Hamberg\*, Sarah Chu, Muthukumar Bagavathiannan. Texas A&M University, College Station, TX. (158)

**Identification of *Orobanche minor* Parasitism Using Hyperspectral Remote Sensing in Red Clover Seed Production in the Willamette Valley, OR.** Iram Mujahid Iqbal\*, Jing Zhou, Carol Mallory-Smith, Pete Berry. Oregon State University, Corvallis, OR. (159)

**A Learning-Based Approach to Estimate Leaf Area Index in Weed-Crop Mixes Using Multi-View 3D Reconstruction.** Joe Johnson\*, Purushottam Gyawali, Muthu Bagavathiannan. Texas A&M University, College Station, TX. (160)

**► Development and Evaluation of a Micro-Jet Sprayer for Precision Weed Control Using Ground Robots.** Bholuram Gurjar\*<sup>1</sup>, Joe Johnson<sup>1</sup>, Søren Kelstrup Skovsen<sup>2</sup>, Robert Hardin<sup>1</sup>, Steven Mirsky<sup>3</sup>, Muthu Bagavathiannan<sup>1</sup>. <sup>1</sup>Texas A&M University, College Station,

TX; <sup>2</sup>Aarhus University, Aarhus centrum, Denmark;  
<sup>3</sup>USDA-ARS, Beltsville, MD. (161)

**Performance of Optically Guided Spray Technology for Weed and Sucker Control in Grapes.** Lynn Sosnoskie\*<sup>1</sup> and Thierry Besançon<sup>2</sup>. <sup>1</sup>Cornell University, Geneva, NY; <sup>2</sup>Rutgers University, Marucci Center, Chatsworth, NJ. (162)


**Recognition of Italian Ryegrass (*Lolium perenne* ssp. *multiflorum*) in Wheat (*Triticum aestivum*) using Machine Learning.** Navjot Singh\*. Texas A&M University. College Station, TX. (163)

► **Investigation on Multiple Herbicide Resistance to Photosystem II and HPPD inhibitors in Redroot Pigweed (*Amaranthus retroflexus* L.).** Isabelle Aicklen, Malavika Nair\*, François Tardif. University of Guelph, Guelph, ON. (164)

**165 – Withdrawn (Peters)**

**Targeted Weed Management of Palmer Amaranth Using Robotics and Deep Learning.** Amlan Balabantaray\*, Shaswati Behera, Chee Town Liew, Nipuna Chamara, Mandeep Singh, Amit Jhala, Santosh Pitla. University of Nebraska, Lincoln, NE. (165b-moved from SST)

**Weed Size Impacts on Postemergent Application Coverage using See & Spray™ in Soybean.** Wyatt Stutzman\*<sup>1</sup>, Tristen Avent<sup>2</sup>, Jared Buck<sup>3</sup>, Diego Contreras<sup>4</sup>, Wesley Everman<sup>5</sup>, Jason Norsworthy<sup>2</sup>, Octavio Ransenberg<sup>3</sup>, Lawrence Steckel<sup>3</sup>, Bryan Young<sup>6</sup>, Marcelo Zimmer<sup>6</sup>, Michael Houston<sup>7</sup>, Lauren Lazaro<sup>7</sup>, William Patzoldt<sup>8</sup>, Michael Flessner<sup>1</sup>. <sup>1</sup>Virginia Tech, Blacksburg, VA; <sup>2</sup>University of Arkansas, Fayetteville, AR; <sup>3</sup>University of Tennessee, Knoxville, TN; <sup>4</sup>North Carolina State University, Raleigh, NC; <sup>5</sup>Iowa State University, Ames, IA; <sup>6</sup>Purdue University, West Lafayette, IN; <sup>7</sup>Blue River Technology, Sunnyvale, CA; <sup>8</sup>BRT, Santa Clara, CA. (166)

 **Estimating Soybean Yield Loss to Weed Interference using Remote-Sensing Tools.** Robert Gulden\*, Christopher Henry, Nasem Badreldin, Dilshan Benaragama. University of Manitoba, Winnipeg, MB. (167)

**Evaluating See & Spray™ Technology for Improving Crop Health and Yield in Soybean Production.** William Patzoldt\*<sup>1</sup>, Michael Houston<sup>2</sup>, Lauren Lazaro<sup>2</sup>, Chad Lammers<sup>3</sup>, Jess Spotanski<sup>3</sup>, Tristen Avent<sup>4</sup>, Jason Norsworthy<sup>4</sup>, Marcelo Zimmer<sup>5</sup>, Bryan Young<sup>5</sup>, Diego Contreras<sup>6</sup>, Wesley Everman<sup>7</sup>, Wyatt Stutzman<sup>8</sup>, Michael Flessner<sup>8</sup>, Jared Buck<sup>9</sup>, Lawrence Steckel<sup>9</sup>. <sup>1</sup>Blue River Technology, Santa Clara, CA; <sup>2</sup>BRT, Sunnyvale, CA; <sup>3</sup>Midwest Research, York, NE; <sup>4</sup>University of Arkansas, Fayetteville, AR; <sup>5</sup>Purdue University, West Lafayette, IN

<sup>6</sup>North Carolina State University, Raleigh, NC; <sup>7</sup>Iowa State University, Ames, IA; <sup>8</sup>Virginia Tech, Blacksburg, VA; <sup>9</sup>University of Tennessee, Knoxville, TN. (168)

**Developing Novel Herbicides for Sustainable Agriculture: An AI-Driven Approach.** Dibyajyoti Das\*, Sarveswara Rao Vangala, Arijit Roy. Tata Consultancy Services (TCS), Hyderabad, India. (169)

**A Deep Learning Approach for Weed Classification, Detection, and Localization in Turfgrass.** Xiaojun Jin and Jialin Yu\*. Peking University-IAAS, Weifang, China. (170)

## **POSTER - 15. Genomics**

**\*PRESENTING AUTHOR**

**► WSSA STUDENT CONTEST**

**Comparative Analysis of Cytochrome P450 Genes in *Amaranthus* species.** Isabel Schlegel Werle<sup>\*1</sup>, Fatemeh Abdollahi<sup>2</sup>, Damilola Raiyemo<sup>1</sup>, Alexander Lopez<sup>1</sup>, David R. Nelson<sup>3</sup>, Todd Gaines<sup>2</sup>, Patrick Tranel<sup>1</sup>. <sup>1</sup>University of Illinois, Urbana, IL; <sup>2</sup>Colorado State University, Fort Collins, CO; <sup>3</sup>University of Tennessee, Memphis, TN. (171)

**► The Ser197 Mutation in the ALS gene is the Predominant Cause of Resistance to ALS Inhibitors in Sumatran (*Conyza sumatrensis*) and Hairy Fleabane (*Conyza bonariensis*) in Brazil.** Paula Angonese<sup>\*1</sup>, Guilherme Turra<sup>2</sup>, Eduardo Rudell<sup>1</sup>, Estéfani Sulzbach<sup>2</sup>, Vinicius Tasca<sup>2</sup>, Filipi Mesquita Machado<sup>2</sup>, Othon dos Santos<sup>2</sup>, Luiz Zobiole<sup>3</sup>, Gabriel Pereira<sup>3</sup>, Catarine Markus<sup>2</sup>, Todd Gaines<sup>1</sup>, Aldo Merotto<sup>2</sup>. <sup>1</sup>Colorado State University, Fort Collins, CO; <sup>2</sup>UFRGS, Porto Alegre, Brazil; <sup>3</sup>Corteva Agriscience, Mogi Miram, Brazil. (172)

**Expression Variability of Genes Related to Rapid Necrosis Induced by 2,4-D in Sumatran Fleabane (*Conyza sumatrensis*) Triggered by Different Auxinic Herbicides.** Paula Angonese<sup>\*1</sup>, Guilherme Turra<sup>2</sup>, Fernando Cappellari<sup>2</sup>, Fernanda Marques<sup>2</sup>, Gabriel Dias<sup>2</sup>, Leonardo Kroth<sup>2</sup>, William Kroth<sup>2</sup>, Luiz Zobiole<sup>3</sup>, Gabriel Pereira<sup>3</sup>, Todd Gaines<sup>1</sup>, Aldo Merotto<sup>2</sup>. <sup>1</sup>Colorado State University, Fort Collins, CO; <sup>2</sup>UFRGS, Porto Alegre, Brazil; <sup>3</sup>Corteva Agriscience, Mogi Miram, Brazil. (173)

**Applications of Next Generation Protein Folding and Docking Simulations to Study Herbicide Mode-of-Action.** Sara Álvarez Rodríguez\*, Mohit Mahey, Eric Patterson. Michigan State University, East Lansing, MI. (174)

**Transcriptomics analyses of host defense responses to parasitism by Egyptian broomrape (*Phelipanche***

*aegyptiaca*). Sukhmanpreet Kaur<sup>1</sup>, Soyon Park<sup>2</sup>, James Westwood\*<sup>1</sup>. <sup>1</sup>Virginia Tech, Blacksburg, VA; <sup>2</sup>University of Missouri, Columbia, MO. (175)

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## ***TUESDAY MORNING FEBRUARY 25***

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### **ORAL - WSSA - SST Student Contest**

LOCATION: Pavillion Ballroom AB  
TIME: 9:00-11:15 AM Pacific  
MODERATOR: Darrin Dodds  
Mississippi State University  
Mississippi State, MS

#### **\*SPEAKER**

**9:00 AM Overcast Weather in Relation to Quizalofop Applications in the Provisia Rice System.** Wesley Carr\*, Connor Webster, Gavin Sparks, Ben Stoker, Maranda Hains, Eve Williams, Ronnie Levy. Louisiana State University AgCenter, Baton Rouge, LA. (176)

**177-Withdrawn**

**9:04 AM OPEN**

**9:08 AM Volunteer Winter Wheat as a Cover Crop for Weed Suppression in Sugar Beet.** Adam Kennedy\* and Albert Adjesiwor. University of Idaho, Kimberly, ID. (178)

**179-Withdrawn**

**9:12 AM OPEN**

**9:16 AM Genetic Overlap in *Amaranthus tuberculatus* Resistance to Dicamba and 2,4-D: What's the Connection?** Isabel Schlegel Werle\*<sup>1</sup>, Lucas Bobadilla<sup>2</sup>, Damilola Raiyemo<sup>1</sup>, Alexander Lopez<sup>1</sup>, Filipi Mesquita Machado<sup>1</sup>, Patrick Tranel<sup>1</sup>. <sup>1</sup>University of Illinois, Urbana-Champaign, IL; <sup>2</sup>Corteva Agriscience, Indianapolis, IN. (180)

**9:20 AM OPEN**

**181-Withdrawn (Chiruvelli)**

**9:24 AM Cover Crops Effect on Weed Demography in Organic Tomatoes and Broccoli.** Charles



E. Smith III\*, Zachary M. Hirsch-Santagata, Hannah C. Lindell, Michael Bocz, Himani Ahlawat, Kate Cassity-Duffey, Nicholas Basinger. University of Georgia, Athens, GA. (182)

**9:28 AM Comparison of U-Net and Segment Anything Model (SAM) for Weed Image Segmentation.** Navjot Singh\*<sup>1</sup>, Matthew Kutugata<sup>1</sup>, Chris Reberg-Horton<sup>2</sup>, Steven Mirsky<sup>3</sup>, Muthukumar Bagavathiannan<sup>1</sup>.  
<sup>1</sup>Texas A&M University, College Station, TX; <sup>2</sup>University of North Carolina, Raleigh, NC; <sup>3</sup>USDA-ARS, Beltsville, MD. (183)

**9:32 AM Underground Warfare: Cereal Rye Cover Crop Suppresses Johnsongrass Rhizomes.** Gustavo Camargo Silva\* and Muthukumar Bagavathiannan. Texas A&M University, College Station, TX. (184)

**9:36 AM Evaluation of Drop Nozzles as a Drift Reduction Technology in Cotton and Soybeans.** Christina Ward\*<sup>1</sup>, Scott Nolte<sup>1</sup>, Gaylon Morgan<sup>2</sup>, Brad Fritz<sup>3</sup>, Justin Calhoun<sup>4</sup>, Peter Dotray<sup>5</sup>, Todd Baughman<sup>6</sup>, Maxwell Smith<sup>7</sup>. <sup>1</sup>Texas A&M University, College Station, TX; <sup>2</sup>Cotton Incorporated, Cary, NC; <sup>3</sup>USDA-ARS, College Station, TX; <sup>4</sup>University of Missouri, Portageville, MO; <sup>5</sup>Texas Tech University/Texas A&M Extension, Lubbock, TX; <sup>6</sup>Oklahoma State University, Ardmore, OK; <sup>7</sup>Oklahoma State University, Atlatia, OK. (185)

**9:40 AM A Natural Occurring Glutathione S-transferase Inhibitor for Improved Glufosinate Performance.** Pamela Carvalho-Moore\*<sup>1</sup>, Jason Norsworthy<sup>1</sup>, Jeong-In Hwang<sup>1</sup>, Arthur Yochim<sup>2</sup>, Lon Barber<sup>3</sup>, Tristen Avent<sup>1</sup>, Maria Carolina Souza<sup>4</sup>. <sup>1</sup>University of Arkansas, Fayetteville, AR; <sup>2</sup>UPL-Ltd., Durham, NC; <sup>3</sup>University of Arkansas Division of Agriculture, Lonoke, AR; <sup>4</sup>University of Arkansas Division of Agriculture, Fayetteville, AR. (186)

**9:44 AM An Epidemiological Study Identifies the Predominant Mechanisms of Resistance to ALS-Inhibitors in *Echinochloa crus-galli* in Southern Brazil.** Eduardo Rudell\*<sup>1</sup>, Guilherme Turra<sup>2</sup>, Paula Angonese<sup>2</sup>, Vinicius Tasca<sup>2</sup>, Leonardo Kroth<sup>2</sup>, Matheus Scherer<sup>3</sup>, Catarine Markus<sup>2</sup>, Eric Patterson<sup>1</sup>, Aldo Merotto<sup>2</sup>. <sup>1</sup>Michigan State University, East

Lansing, MI; <sup>2</sup>Federal University of Rio Grande do Sul (UFRGS), Porto Alegre, Brazil; <sup>3</sup>BASF Corporation, Porto Alegre, Brazil. (187)

- 9:48 AM Can Electricity Tackle Perennial Weeds? Insights from Canada Thistle and Yellow Nutsedge Control.** Luisa Baccin\* and Marcelo Moretti. Oregon State University, Corvallis, OR. (188)
- 9:52 AM A New Hope of Weed Management: Dissecting Palmer Amaranth's Demographic Trends with Cover Crops.** Hannah Lindell\*<sup>1</sup>, Gaylon Morgan<sup>2</sup>, Michael Bocz<sup>1</sup>, Charles Smith III<sup>1</sup>, Nicholas Basinger<sup>1</sup>. University of Georgia, Athens, GA; <sup>2</sup>Cotton Incorporated, Cary, NC. (189)
- 9:56 AM Developing IPM Strategies for Key Pests in Corn-Potato Systems.** Hannah Johnson\* and Erin Burns. Michigan State University, East Lansing, MI. (190)
- 10:00 AM BREAK**
- 10:15 AM Rapid Honeybee Deterrence in Herbicide-Treated White Clover: Exploring Causal Mechanisms.** Suzannah Hale\*, Navdeep Godara, Shawn Askew. Virginia Tech, Blacksburg, VA. (191)
- 10:19 AM Effects of Gathering Chain Modifications to Capture Weed Seeds During Corn Harvest.** Wyatt Stutzman\*<sup>1</sup>, Michael Flessner<sup>1</sup>, Michael Walsh<sup>2</sup>. <sup>1</sup>Virginia Tech, Blacksburg, VA; <sup>2</sup>Charles Sturt University, Wagga Wagga, NSW, Australia. (192)
- 10:23 AM Influence of Biochar-Herbicide Interactions on Weed Control Efficacy in Sandy Soils in Alabama.** Nisith Nishank Purohit\*, Rakesh Ghosh, Yucheng Feng, Aniruddha Maity. Auburn University, Auburn, AL. (193)
- 10:27 AM Detecting *Bassia scoparia* (Kochia) at Field Scale Using Multi-temporal UAV Imagery.** Japjyot Sandhu\*, Thuan Ha, Steve Shirliffe, Kwabena Nketia. University of Saskatchewan, Saskatoon, SK. (194)
- 10:31 AM Effectiveness of an Impact Mill for Weed Seed Destruction in Cotton Debris.** Sarah Chu\*<sup>1</sup>, Eli Russell<sup>2</sup>, Gaylon Morgan<sup>3</sup>, Benjamin McKnight<sup>1</sup>, Robert Hardin<sup>1</sup>, Peter Dotray<sup>4</sup>, Michael Flessner<sup>2</sup>, Muthukumar Bagavathiannan<sup>1</sup>. <sup>1</sup>Texas A&M University, College Station, TX; <sup>2</sup>Virginia Tech,

Blacksburg, VA; <sup>3</sup>Cotton Incorporated, Cary, NC; <sup>4</sup>Texas Tech University/Texas A&M Extension, Lubbock, TX. (195)

- 10:35 AM No Seeds, No Weeds: Making the Decisions at Right Time for Waterhemp (*Amaranthus tuberculatus*) Seedbank Management.** Navjot Singh\* and Debalin Sarangi. University of Minnesota, St. Paul, MN. (196)
- 197-Withdrawn
- 10:39 AM Measuring Honeybee Exposure to Fluorescent Pigment on Weedy Flowers Following Deterrent Treatments.** Navdeep Godara\*, Shawn Askew, Juan Romero. Virginia Tech, Blacksburg, VA. (198)
- 10:43 AM Harnessing the Power of the Crop Canopy for Weed Control.** Sithin Mathew\*, Henry Nelson, Aaron Lorenz, Debalin Sarangi. University of Minnesota, St. Paul, MN. (199)
- 10:47 AM Weed Control Using Tetflupyrolimet and Clomazone Mixtures in Rice.** Maranda Hains\*, Connor Webster, Wesley Carr, Gavin Sparks, Eve Williams, Ben Stoker, Ronnie Levy. Louisiana State University AgCenter, Baton Rouge, LA. (200)
- 10:51 AM Integrating Limiting Similarity Theory with a Trait-Based Approach to Analyze Crop-Weed Competition.** Het Samir Desai\*<sup>1</sup>, Fabian Menalled<sup>1</sup>, Lovreet Shergill<sup>2</sup>. <sup>1</sup>Montana State University, Bozeman, MT; <sup>2</sup>Colorado State University, Fort Collins, CO. (201)
- 10:55 AM Combining Early Flooding with a Pre-Emergence Herbicide for Weedy Rice Management in Wet-Direct Seeded Rice.** Vikas Tyagi\*<sup>1</sup>, Virender Kumar<sup>2</sup>, Vijayakumar Shanmugam<sup>3</sup>, Nithya Subramanian<sup>1</sup>, Muthukumar Bagavathiannan<sup>1</sup>. <sup>1</sup>Texas A&M University, College Station, TX; <sup>2</sup>International Rice Research Institute (IRRI), Los Banos, Laguna, Philippines; <sup>3</sup>IRRI, Hyderabad, India. (202)
- 10:59 AM Evaluating Integrated Weed Management Strategies for Soybean with Different Planting Dates.** Salina Raila\*, Sarah Lancaster, Kriag Roozeboom, Gregory Ibendahl. Kansas State University, Manhattan, KS. (203)

**11:03 AM No Pain with No Rye Grain. Evaluating Hairy Vetch Performance After Early, Selective Cereal Rye Termination.** Jenna Beville\* and Michael Flessner. Virginia Tech, Blacksburg, VA. (204)

**205-Withdrawn (Crawford)**

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***TUESDAY MORNING FEBRUARY 25***

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**ORAL – CWSS 15-Minute Student Contest**

**LOCATION:** Port McNeil  
4<sup>th</sup> Floor, North Tower

**TIME:** 9:00 AM-3:00 PM Pacific

**MODERATOR:** Breanne Tidemann  
Agriculture and Food Canada  
Lacombe, AB

**\*SPEAKER**

**9:00 AM Assessing Factors Driving Vegetation Trajectories and Plant Invasion Dynamics of Post-Wildfire Landscapes in the Interior of British Columbia, Canada.** Virginia Oeggerli\* and Jennifer Grenz. University of British Columbia, Vancouver, BC. (206)

**9:15 AM Documentation of Herbicide Resistance Evolution in Alabama *Amaranthus* spp.** Debra Smitherman\*, David Russell, Eros Francisco, Claudia Ann Rutland, Jinesh Patel, Scott McElroy. Auburn University, Auburn, AL. (207)

**9:30 AM Drone-based Inter-seeding of Cover Crop for Late Season and Post-harvest Weed Suppression in Southern Alabama Cotton Production Systems.** Wilfried Ouedraogo\* and Aniruddha Maity. Auburn University, Auburn, AL. (208)

**9:45 AM Revisiting the Critical Weed Free Period in Canola and Understanding how Agronomic Practices affect it.** Daniel Pouteau\* and Robert Gulden. University of Manitoba, Winnipeg, MB. (209)

**10:00 AM BREAK**

- 10:15 AM The Relationship Between Soybean Rooting Depth and Competitiveness with Weeds.** Joseph Zvomuya\* and Robert Gulden. University of Manitoba, Winnipeg, MB. (210)
- 10:30 AM Evaluation of Conservation Tillage with Cover Crop Residue for Weed Control in Soybean.** Gourav Chahal<sup>1</sup>, Carter Bonnell<sup>2</sup>, Andrew Price<sup>2</sup>, Steve Li<sup>1</sup>, Audrey Gamble<sup>1</sup>. <sup>1</sup>Auburn University, Auburn, AL; <sup>2</sup>USDA-ARS-NSDL, Auburn, AL. (211)
- 10:45 PM Enhancing Herbicide Metabolism in Winter Wheat with Cloquintocet-mexyl.** William Kramer\*; Todd Gaines, Franck Dayan. Colorado State University, Fort Collins, CO. (212)
- 11:00 PM Impact of Sulfentrazone and Chlorimuron On Soybean Development In Soils with Different Textures and pH.** Joana Schroeder de Souza\* and Anita Dille. Kansas State University, Manhattan, KS. (213)
- 11:15 PM Determining the Value of Common Turf Forbs as a Pollinator Resource in the Southeastern United States.** Sara Kirby\*, JoVonn Hill, Jeff Harris, Jay McCurdy. Mississippi State University, Mississippi State, MS. (214)
- 11:30 PM LiDAR in Precision Agriculture: An Emerging Tool for Weed and Crop Growth Monitoring?** MD Pantha Azad Sabbyashachi\*, Kristen MacMillan, Claudia Quilesfogel-Esparza, Brodie Erb, Dilshan Benaragama. University of Manitoba, Winnipeg, MB. (215)
- 11:45 PM Parallel Evolution of the Metabolism-based Broad-spectrum Herbicide Resistance in Late Watergrass (*Echinochloa oryzicola*).** Tomomi Kubo\*<sup>1</sup> Kentaro Yasuda<sup>2</sup>, Kazusa Nishimura<sup>3</sup>, Yuichiro Nakayama<sup>4</sup>, Kaoru Mori<sup>5</sup>, Kenta Shirasawa<sup>6</sup>, Shunji Kurokawa<sup>1</sup>, Akira Uchino<sup>7</sup>, Sumie Tanaka<sup>8</sup>, Masaya Ino<sup>9</sup> Satoshi Iwakami<sup>10</sup>. <sup>1</sup>University of Kyoto, Kyoto, Japan; <sup>2</sup>Akita Prefectural University, Minamiakita-Gun, Japan; <sup>3</sup>Okayama University, Okayama, Japan; <sup>4</sup>Osaka Metropolitan University, Sakai, Japan; <sup>5</sup>Osaka Prefecture University, Sakai, Japan; <sup>6</sup>Kazusa DNA Research Institute, Kisarazu, Japan; <sup>7</sup>NARO, Tsu City, Japan; <sup>8</sup>Ishikawa Ag and Forestry Research Center, Kanazawa, Japan; <sup>9</sup>Ishikawa Minamikaga

General Ag and Forestry Office, Komatsu, Japan; <sup>10</sup>Tokyo University of Agriculture and Technology, Tokyo, Japan. (216)

**12:00 PM LUNCH BREAK**

**1:00 PM Cover Crop Effects on Palmer Amaranth Weed Dynamics in Corn-Based Production Systems.** Himani Ahlawat\*, Hannah C. Lindell, Charles Smith III, Michael Bocz, Matthew Levi, Nandita Gaur, Nicholas Basinger. University of Georgia, Athens, GA. (217)

**1:15 PM Differentiation of Male and Female Plants of Palmer Amaranth (*Amaranthus palmeri*) Using an RGB Sensor and Machine Learning Models: Detection and Classification.** Bismark Anokye\*, Ubaldo Torres, Bholuram Gurjar, Navjot Singh, Muthu Bagavathiannan. Texas A&M University, College Station, TX. (218)

**1:30 PM Assessing Crop and Weed Management Impacts in Wheat Crop Through Drone-Based Remote Sensing.** Shirmith Nirmal Kuruppu Arachchige Don\*<sup>1</sup>, Robert Gulden<sup>1</sup>, Steve Shirliffe<sup>2</sup>, Dilshan Benaragama<sup>1</sup>, Christian Willenborg<sup>2</sup>. <sup>1</sup>University of Manitoba, Winnipeg, MB; <sup>2</sup>University of Saskatchewan, Saskatoon, SK. (219)

**1:45 PM Evaluation of *Brassica carinata* A. Braun Crop Safety to Potential Herbicide Programs.** Avi Goldsmith\*<sup>1</sup>, Edmilson Almeida<sup>2</sup>, April Dobbs<sup>3</sup>, Ramon Leon<sup>1</sup>. <sup>1</sup>North Carolina State University, Raleigh, NC; <sup>2</sup>Federal University of Maranhao – Chapadinha, Brazil; <sup>3</sup>BASF Corporation, Durham, NC. (220)

**2:00 PM The Effect of Integrated Crop Management on Weed Growth, Phenology, and Weed Seed Persistence in Spring Wheat (*Triticum aestivum* L.).** Uthpala Ekanayake\*<sup>1</sup>, Robert Gulden<sup>1</sup>, Chris Willenborg<sup>2</sup>, Jonathan Rosset<sup>1</sup>, Dilshan Benaragama<sup>1</sup>. <sup>1</sup>University of Manitoba, Winnipeg, MB; <sup>2</sup>University of Saskatchewan, Saskatoon, SK. (221)

**2:15 PM Characterizing and Comparing the Soil Microbiomes of Invasive and Native plant Species to Inform Ecological Restoration.** Vanessa Jones\* and Jennifer Grenz. University of British Columbia, Vancouver, BC. (222a)

- 2:30 PM**     **Kentucky Bluegrass (*Poa pratensis*) as a Perennial Cover Crop: Establishment and Weed Management in Corn.** Kiera Searcy\*<sup>1</sup>, Erin Haramoto<sup>1</sup>, Matthew Allen<sup>1</sup>, Travis Legleiter<sup>1</sup>, Brandon Schlautman<sup>2</sup>. <sup>1</sup>University of Kentucky, Lexington, KY; <sup>2</sup>The Land Institute, Salina, KS. (222b)
- 2:45 PM**     **Planting Green into Cereal Rye Reduces Weed Density but Increases Soil Moisture During the Soybean Growing Season.** Aleksandar Grujic\*<sup>1</sup>, Erin Haramoto<sup>1</sup>, Matthew Allen<sup>1</sup>, John Wallace<sup>2</sup>. <sup>1</sup>University of Kentucky, Lexington, KY; <sup>2</sup>Penn State University, University Park, PA. (222c)
- 3:00 PM**     **CWSS Annual General Meeting.** See more details on p. 63.

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***TUESDAY MORNING FEBRUARY 25***

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**ORAL - 01. Agronomic Crops**

LOCATION:                      Pavillion Ballroom D

TIME:                              9:00 AM-5:00 PM Pacific

MODERATORS:              Scott Nolte  
    Texas A&M  
    College Station, TX

Laura Smith  
    Corteva Agriscience  
    West Lorne, ON

**\*SPEAKER**

- 9:00 AM**     **Elucidating Competitive Interactions in a Multispecies Weed-Crop Mix.** Purushottam Gyawali\*, Christoph von Redwitz, Muthukumar Bagavathiannan. Texas A&M University, College Station, TX. (223)
- 9:15 AM**     **Effect of Planting Green on Weed Suppression and Ecosystem Services in Row Crop Production Systems.** Humberto Blanco-Canqui and Amit Jhala\*. University of Nebraska, Lincoln, NE. (224)

- 9:30 AM Weed Infestation in a Winter Wheat-Spring Pea Rotation: Insights from a Three-Year Study of Tillage Regimes in the Pacific Northwest.** Vhuthu Ndou\*<sup>1</sup>, Fernando Oreja<sup>2</sup>, Jennifer Gourlie<sup>1</sup>, Stephen Machado<sup>1</sup>, Larry Pritchett<sup>1</sup>, Francisco Calderon<sup>1</sup>, Judit Barroso<sup>1</sup>. <sup>1</sup>Oregon State University, Adams, OR; <sup>2</sup>Clemson University, Clemson, SC. (225)
- 9:45 AM Agricultural Practices and Social Perceptions Associated with the Presence of Wild Oat (*Avena fatua*) in the Bas-Saint-Laurent Region.** Sandra Flores-Mejia\*<sup>1</sup>, Firmo Sousa<sup>1</sup>, Gabriel Verret<sup>1</sup>, Ayitre Akpakouma<sup>2</sup>, Jalinets Navarro<sup>3</sup>, Marc Tétrault<sup>4</sup>, Yan Gosselin<sup>4</sup>, Eric Page<sup>5</sup>, Annie Marcoux<sup>6</sup>, Michel Dupuis<sup>7</sup>, Samuel Comtois<sup>8</sup>, Mario Handfield<sup>9</sup>. <sup>1</sup>CÉROM, Saint-Mathieu-de-Beloeil, QC; <sup>2</sup>Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec (MAPAQ), Rivière-du-Loup, Canada; <sup>3</sup>MAPAQ, Amqui, Canada; <sup>4</sup>Fédération de l'Union de producteurs agricoles du Bas-Saint-Laurent (FUPABSL), Rimouski, Canada; <sup>5</sup>Agriculture and Agri-Food Canada, Harrow, ON; <sup>6</sup>Laboratoire d'Expertise et de Diagnostic en Phytoprotection (LEDP-MAPAQ), Québec, Canada; <sup>7</sup>Coordination services-conseils (CSC), Longueuil, Canada; <sup>8</sup>Groupe Pleine-Terre, Napierville, Canada; <sup>9</sup>Université du Québec à Rimouski (UQAR), Rimouski, Canada. (226)
- 10:00 AM BREAK**
- 227-Withdrawn (Bajwa)**
- 10:30 AM Novel Weed Control Technologies for Australian Grain Production Systems.** Michael Walsh\*. Charles Sturt University, Wagga Wagga, NSW, Australia. (228)
- 10:45 AM Can Cotton Cover Crops be Integrated with Targeted Applications from See & Spray™?** Tristen Avent\*<sup>1</sup>, Jason Norsworthy<sup>1</sup>, Lane Pierce<sup>1</sup>, Michael Dodde<sup>1</sup>, Lauren Lazaro<sup>2</sup>. <sup>1</sup>University of Arkansas, Fayetteville, AR; <sup>2</sup>Blue River Technologies, Sunnyvale, CA. (229)
- 11:00 AM Dose-response Analysis Using Multispectral UAV Imagery to Phenotype Herbicide Tolerance in Lentil.** Brianna Zoerb\*<sup>1</sup>, Hema Duddu<sup>2</sup>, Steve Shirtliffe<sup>1</sup>, Eric



Johnson<sup>1</sup>, Anjika Attanayake<sup>3</sup>. <sup>1</sup>University of Saskatchewan, Saskatoon, SK; <sup>2</sup>Agriculture and Agri-Food Canada, Saskatoon, SK; <sup>3</sup>BASF Corporation, Saskatoon, SK. (230)

**231-Withdrawn (Kerr)**

**11:30 AM    HWSC as a Tool for Management of Herbicide-Resistant Weeds in Israel.** Baruch Rubin\*<sup>1</sup>, Idan S. Roth<sup>1</sup>, Yossi Kashti<sup>2</sup>, Moshe Sibony<sup>1</sup>, Ohaliav Keisar<sup>2</sup>, Eitan Goldshtein<sup>2</sup>, Meitav Maor<sup>3</sup>. <sup>1</sup>RH Smith Institute, Rehovot, Israel; <sup>2</sup>Institute of Agricultural and Biosystem Engineering, Volcani Center, Rishon L'eziyon, Israel; <sup>3</sup>Extenson Service, Ministry of Agriculture and Food Security, Bayit Dagan, Israel. (232)

**11:45 AM    Variable Response of Canadian Kochia (*Bassia scoparia*) Accessions to Dichlorprop-P.** Charles Geddes\* and Austin Jaster. Agriculture and Agri-Food Canada, Lethbridge, AB. (233)

**12:00 PM    LUNCH BREAK**

**234-Withdrawn (Bernards)**

**1:15 PM    Evolutionary Origins and Spread of Herbicide Resistance in Downy Brome (*Bromus tectorum*) in Oregon.** Victor Ribeiro\*<sup>1</sup>, Joseph Gallagher<sup>2</sup>, Carol Mallory-Smith<sup>1</sup>, Judit Barroso<sup>3</sup>, Caio Brunharo<sup>4</sup>. <sup>1</sup>Oregon State University, Corvallis, OR; <sup>2</sup>USDA-ARS, Corvallis, OR; <sup>3</sup>OSU Columbia Basin Research Center, Adams, OR; <sup>4</sup>Pennsylvania State University, University Park, PA. (235)

**1:30 PM    Palmer Amaranth and Waterhemp in the Pacific Northwest: Current Distribution and Herbicide Resistance Status.** Albert Adjesiwor\*<sup>1</sup>, Joel Felix<sup>2</sup>, Clarke Alder<sup>3</sup>, Olivia Landau<sup>4</sup>, Rui Liu<sup>5</sup>, Pamela Hutchinson<sup>6</sup>. <sup>1</sup>University of Idaho, Kimberly, ID; <sup>2</sup>Oregon State University, Ontario, OR; <sup>3</sup>Amalgamated Sugar, Boise, ID; <sup>4</sup>USDA Wheat Health, Genetics Quality Research Unit, Pullman, WA; <sup>5</sup>Washington State University, Prosser, WA; <sup>6</sup>University of Idaho, Aberdeen, ID. (236)

**1:45 PM    237-Withdrawn (Borgato)**

**2:00 PM    Can Preemergence Applications of Dicamba Improve Weed Control in Soybean?** Debalin Sarangi\*<sup>1</sup>, Sachin Dhanda<sup>1</sup>, Navjot Singh<sup>1</sup>, Joseph Ikley<sup>2</sup>, Ryan DeWerff<sup>3</sup>, Rodrigo Werle<sup>3</sup>.

<sup>1</sup>University of Minnesota, St. Paul, MN; <sup>2</sup>North Dakota State University, Fargo, ND; <sup>3</sup>University of Wisconsin, Madison, WI. (238)

**2:15 PM Optimizing ACCase-Inhibiting Herbicides and 2,4-D Tank Mixes for Volunteer Corn Control in Enlist® Soybean.** Sachin Dhanda\*<sup>1</sup>, Ryan Miller<sup>2</sup>, Lisa Behnken<sup>1</sup>, Thomas Hoverstad<sup>1</sup>, Debalin Sarangi<sup>1</sup>. <sup>1</sup>University of Minnesota, St. Paul, MN; <sup>2</sup>UMN, Rochester, MN. (239)

**2:30 PM Introducing INTERLINE® MEGA Powered by L-tek™ for Optimized L-glufosinate Applications to Glufosinate-tolerant Row and Specialty Crops.** Ryan Bryant-Schlobohm\*<sup>1</sup>, Ryan Henry<sup>2</sup>, Cody Gray<sup>3</sup>, Carlos Antonio Koury d'Arce Junior<sup>4</sup>. <sup>1</sup>UPL-Ltd, Amarillo TX; <sup>2</sup>UPL-Ltd, Fort Wayne, IN; <sup>3</sup>UPL-Ltd., Peyton, CO; <sup>4</sup>UPL-Ltd., Raleigh, NC. (240)

**2:45 PM Surtain™ Herbicide: Introduction of a New Residual Premix for Corn in Canada and USA.** Chris Budd\*<sup>1</sup> and Sanjeev Bangarwa<sup>2</sup>. <sup>1</sup>BASF Canada, London, ON; <sup>2</sup>BASF Corporation, Research Triangle Park, NC. (241)

**3:00 PM BREAK**

**3:15 PM Impact of Corn Residual Herbicides Containing Clopyralid on Alfalfa Establishment and Productivity in the Upper Midwest.** Arthur Franco Duarte, Mark Renz\*, Marta Kohmann. University of Wisconsin, Madison, WI. (242)

**3:30 PM Additive and Synergistic Interactions of Tolpyralate and Bromoxynil on Some Key Weeds in Cereals.** Seshadri Reddy\*, Ignacio Gonzalez, Rory Degenhardt, David Ouse, Norbert Satchevi, Laura Creemer. Corteva Agriscience, Indianapolis, IN. (243)

**3:45 PM Introducing CAZADO: A Novel Gr 1 + 2 Herbicide for the Canadian Grower.** Melissa Ostash\*. ADAMA Agricultural Solutions Canada, Onanole, MB. (244)

**4:00 PM Twenty-Two Years Later: The Development of Herbicide Resistance in Herbicide-Tolerant Rice.** Bob Scott\*<sup>1</sup>, Jason Norsworthy<sup>1</sup>, Lon Barber<sup>2</sup>. <sup>1</sup>University of Arkansas, Fayetteville, AR; <sup>2</sup>Division of Agriculture, Lonoke, AR. (245)

**4:15 PM Tetflupyrolimet-Coated Fertilizer at Planting in Rice.** Gavin Sparks\*, Connor Webster, Ronnie Levy, Maranda Hains, Ben Stoker,

Wesley Carr, Eve Williams. Louisiana State  
University AgCenter, Baton Rouge, LA. (246)

**247**-Withdrawn (Mattox)

**4:30 PM Business Meeting**

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## ***TUESDAY MORNING FEBRUARY 25***

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### **ORAL - 09. Weed Biology and Ecology**

LOCATION: Pavillion Ballroom C  
TIME: 9:15 AM-2:45 PM Pacific  
MODERATORS: Sarah Kezar  
Cornell University, Ithaca, NY  
Marie-Josée Simard  
Agriculture and Food Canada  
Saint-Jean-sur-Richelieu, QC

#### **\*SPEAKER**

**248-Withdrawn (Bajwa, A.)**

**9:15 AM Phenotypic Differentiation of the Global Invader *Parthenium hysterophorus*: Insights from a Multi-State Common Garden**

**Experiment.** Sarah Kezar<sup>\*1</sup>, Matthew Cutulle<sup>2</sup>, Liberty Galvin<sup>3</sup>, Jenny Kao-Kniffin<sup>1</sup>, Muthu Bagavathiannan<sup>4</sup>, Megan Schill<sup>4</sup>, Purushottam Gyawali<sup>1</sup>, Tyler Campbell<sup>2</sup>, Ty Shreve<sup>3</sup>, Antonio DiTommaso<sup>1</sup>. <sup>1</sup>Cornell University, Ithaca, NY; Clemson University, <sup>2</sup>Clemson, SC; <sup>3</sup>Oklahoma State University, Stillwater, OK; <sup>4</sup>Texas A&M University, College Station, TX. (249)

**9:30 AM Climate Change and the Spread of Knotweed (*Reynoutria* spp.) by Flooding.**

Sarah Demian\*, Aidan Anderson, David Clements, Jaylene Braithwaite, Lauren Mckenna, Hannah Munnalall. Trinity Western University, Langley, BC. (250)

**9:45 AM *Ambrosia grayi* as a New Alien Causal Species in Israel: Plant Biology and Chemical Management.**

Danielle Neta<sup>1\*</sup>, Jackline Abu-Nassar<sup>2</sup>, Nadav Ezra<sup>3</sup>, Daniella Cafri<sup>3</sup>, Izhak David<sup>3</sup>, Ilana Shtein<sup>4</sup>, Hanan Eizenberg<sup>2</sup>, Maor Matzrafi<sup>2</sup>. <sup>1</sup>The Faculty of Sciences, Tel-Hai College, Upper Galilee, Israel; <sup>2</sup>Newe Ya'ar Research Center, Agricultural Research Organization-Volcani Institute, Ramat Yishai, Israel; <sup>3</sup>Ministry of Agriculture and Rural Development, Rison Lezion, Israel; <sup>4</sup>Eastern R&D Center, Milken Campus, Ariel, Israel. (251)

**10:00 AM BREAK**

**10:15 AM Hybrids and BC Progeny Between Waterhemp (*Amaranthus tuberculatus*) and Green Pigweed (*A. powellii*) Often Look Like Waterhemp.** Marie-Josée Simard\*<sup>1</sup>, Martin Laforest<sup>1</sup>, Sara Martin<sup>2</sup>, Amélie Picard<sup>3</sup>, David Miville<sup>3</sup>. <sup>1</sup>Agriculture and Agri-Food Canada, St-Jean-Sur-Richelieu, QC; <sup>2</sup>Agriculture and Agri-Food Canada, Ottawa, ON; <sup>3</sup>Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec, Québec, QC. (252)

**10:30 AM Germination Moisture and Temperature Requirements of Italian Ryegrass (*Lolium multiflorum*).** Chandra Montgomery\*, Traci Rauch, Albert Adjesiwor, Joan Campbell. University of Idaho, Moscow, ID. (253)

**10:45 AM Can We Leverage Seed Microbiomes to Accelerate Weed Seed Mortality in the Soil Seedbank?** Kara Eckert, Sharifa Crandall, Eric Larson, Estelle Couradeau, Carolyn Lowry\*. Pennsylvania State University, University Park, PA. (254)

**11:00 AM Are Endophytes Associated with Development and Expression of Herbicide Resistance in Italian Ryegrass?** Aniruddha Maity\*<sup>1</sup>, Rakesh Ghosh<sup>1</sup>, Nisith Nishank Purohit<sup>1</sup>, Anthony Adesemoye<sup>2</sup>. <sup>1</sup>Auburn University, Auburn, AL; <sup>2</sup>USDA-ARS NSDL, Auburn, AL. (255)

**11:15 AM Indaziflam Resistance in *Poa annua*: Recent Findings and Next Steps.** Joshua Miranda\* and Marcelo Moretti. Oregon State University, Corvallis, OR. (256)

**11:30 AM Biological Nitrification Inhibition Potential in Johnsongrass: Insights into Rhizosphere Dynamics.** Megan Schill\*, Nithya Subramanian, Nithya Rajan, Muthukumar Bagavathiannan. Texas A&M University, College Station, TX. (257)

**11:45 AM Altering the Critical Time of Weed Removal in Soybean Using Residual Herbicides.** Ben Stoker\*, Daniel Stephenson, Connor Webster, James Villegas, Ronnie Levy, Maranda Hains, Gavin Sparks, Wesley Carr, Eve Williams. Louisiana State University AgCenter, Baton Rouge, LA. (258)

**12:00 PM LUNCH BREAK**

- 1:00 PM Managing Weed and Crop Competition to Optimize Production in the Perennial Grain *Kernza* (*Thinopyrum intermedium*).** Natasha Djuric<sup>\*1</sup>, Antonio DiTommaso<sup>1</sup>, Jake Jungers<sup>2</sup>, José Franco<sup>3</sup>, Laura van der Pol<sup>4</sup>, Timothy Crews<sup>4</sup>, Leonardo Deiss<sup>5</sup>, Steve Culman<sup>6</sup>, Matthew R. Ryan<sup>1</sup>. <sup>1</sup>Cornell University, Ithaca, NY; <sup>2</sup>University of Minnesota, St. Paul, MN; <sup>3</sup>Savannah Institute, Spring Green, WI; <sup>4</sup>The Land Institute, Salina, KS; <sup>5</sup>Colorado State University, Fort Collins, CO; <sup>6</sup>Oregon State University, Corvallis, OR. (259)
- 1:15 PM Kochia Ecology: Light and Density Considerations.** Shaun Sharpe<sup>\*</sup>, Kyle Rosvold, Leonard Chester, Shaelyn St. Jacques. Agriculture and Agri-Food Canada, Saskatoon, SK. (260)
- 1:30 PM Elucidating the Influence of Root Traits on Sorgoleone Production in Johnsongrass (*Sorghum halepense*).** Ainsley Graham<sup>\*</sup>, Megan Schill, Nithya Rajan, Sakiko Okumoto, Muthukumar Bagavathiannan. Texas A&M University, College Station, TX. (261)
- 1:45 PM Increasing Cropland Biodiversity Using a Novel Multi-Seed Pelletting System.** Linnea Smith, Antonio DiTommaso<sup>\*</sup>, John Losey, Alan Taylor, Michael Loos, Todd Ugine. Cornell University, Ithaca, NY. (262)
- 2:00 PM Establishing Flower Strips near Agricultural Fields with Minimal Weed Management.** Sophie Westbrook<sup>\*1</sup>, Rebecca Stup<sup>2</sup>, Scott Morris<sup>2</sup>, Todd Ugine<sup>2</sup>, Antonio DiTommaso<sup>2</sup>. <sup>1</sup>Kansas State University, Manhattan, KS; <sup>2</sup>Cornell University, Ithaca, NY. (263a)
- 2:15 PM Impact of Cattle Grazing on Weed Seed Viability and Dispersal.** Akashdeep Singh<sup>\*1</sup>, Brandon Smith<sup>1</sup>, David Russell<sup>1</sup>, Andrew Price<sup>2</sup>, Aniruddha Maity<sup>1</sup>. <sup>1</sup>Auburn University, Auburn, AL; <sup>2</sup>USDA-ARS, Auburn, AL (263b)
- 2:30 PM Business Meeting**

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***TUESDAY AFTERNOON FEBRUARY 25***

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**ORAL – 06. Regulatory Aspects**

LOCATION: Parksville  
TIME: 2:30-3:00 PM Pacific  
MODERATOR: Leonardo Galindo-Gonzalez  
Canadian Food Inspection  
Agency, Ottawa, ON

**\*SPEAKER**

**2:30 PM Summary of the Final Report of EPA's Pesticide Program Dialogue Committee (PPDC) Resistance Management Workgroup 2.0.** Cameron Douglass<sup>1</sup>, Nikhil Mallampalli<sup>2</sup>, Derek Berwald<sup>3</sup>, David Shaw<sup>4</sup>, Amy Asmus<sup>5</sup>, Jill Schroeder<sup>\*6</sup>, Elyssa Arnold<sup>1</sup>, Elizabeth 'Libby' Karn<sup>2</sup>, George Frisvold<sup>7</sup>. <sup>1</sup>USDA-OPMP, Washington, DC; <sup>2</sup>EPA-OPP, Washington, DC; <sup>3</sup>EPA, Washington, DC; <sup>4</sup>Mississippi State University, Mississippi State, MS; <sup>5</sup>Asmus Farm Supply, Inc., Rake, IA; <sup>6</sup>New Mexico State University, Las Cruces, NM; <sup>7</sup>University of Arizona, Tucson, AZ. (264)

**2:45 PM The Relative Importance of Herbicide Use for Conservation Tillage Adoption by U.S. Corn and Soybean Producers.** Cameron Douglass<sup>\*1</sup>, Fengxia Dong<sup>2</sup>, Ryan Olver<sup>3</sup>, Rebecca Nemec<sup>4</sup>, Michelle Ranville<sup>1</sup>. <sup>1</sup>USDA-OPMP, Washington, DC; <sup>2</sup>USDA-ERS, Kansas City, MO; <sup>3</sup>Tokyo International University, Tokyo, Japan; USDA, <sup>4</sup>Office of the Chief Economist, Washington, DC. (265)

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***TUESDAY AFTERNOON FEBRUARY 25***

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**ORAL – 08. Formulation, Adjuvants, and Application Technologies**

LOCATION: Parksville

TIME: 3:15-4:30 PM Pacific  
MODERATORS: Peter Berry  
Oregon State University  
Corvallis, OR  
Cody Chytk  
Corteva Agriscience  
Saskatoon, SK

**\*SPEAKER**

**3:15 PM Can We Enhance Glufosinate Efficacy in Low-Humidity Environments?** Het Samir Desai<sup>1</sup>, Franck Dayan<sup>2</sup>, Fabian Menalled<sup>1</sup>, Lovreet Shergill<sup>\*2</sup>. <sup>1</sup>Montana State University, Bozeman, MT; <sup>2</sup>Colorado State University, Fort Collins, CO. (266)

**267-Withdrawn**

**3:30 PM Does Tank Mixing Palisade with Axial Bold Reduce Wild Oat and Control Lodging in Wheat?** Hafiz Haider Ali\*, Jared Spackman, Macy Rankin, Tom Jacobsen, Pamela Hutchinson. University of Idaho, Moscow, ID. (268)

**3:45 PM Rotational Crop Response of OnDeck™ Herbicide (tolpyralate/bromoxynil) to Sugar Beet (*Beta vulgaris*) in Canada and Northern United States.** Cody Chytk<sup>\*1</sup>, Kevin Falk<sup>2</sup>, Rory Degenhardt<sup>3</sup>, Kris Guenette<sup>3</sup>, Joe Yenish<sup>4</sup>. <sup>1</sup>Corteva Agriscience, Saskatoon, SK; <sup>2</sup>Corteva, Winnipeg, MB; <sup>3</sup>Corteva, Edmonton, AB; <sup>4</sup>Corteva, Bozeman, MT. (269)

**4:00 PM Harnessing Machine Learning and Satellite Imagery to Combat Sub-Field Kochia Weed in Canada's Prairies.** Thuan Ha\*, Japjyot Sandhu Singh, Kwabena Nketia, Sarah van Steenberg, Hansanee Fernando, Steve Shirliffe. University of Saskatchewan, Saskatoon, SK. (270)

**4:15 Business Meeting**

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***TUESDAY AFTERNOON FEBRUARY 25***

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**SYMPOSIUM - 01. Contribution of Genomics to  
Nontarget Site Resistance Knowledge and  
Management**

LOCATION: Pavillion Ballroom AB

TIME: 1:00-5:00 PM Pacific

MODERATORS: Roland Beffa  
Independent Scientist  
Frankfurt, Germany  
Caio Brunharo  
Penn State University  
University Park, PA

**\*SPEAKER**

**1:00 PM Symposium Welcome.** Caio Brunharo and Roland Beffa. (271)

**1:15 PM Identification and Naming of Cytochrome P450 Genes in Weed Genomes.** Todd Gaines\*<sup>1</sup>, Fatemeh Abdollahi<sup>1</sup>, Eric Patterson<sup>2</sup>, David R. Nelson<sup>3</sup>. <sup>1</sup>Colorado State University, Fort Collins, CO; <sup>2</sup>Michigan State University, East Lansing, MI; <sup>3</sup>University of Tennessee, Memphis, TN. (272)

**1:30 PM Breaking the Weed Cycle: The Potential of Using AI and Genomics to Predict Metabolic Resistance.** Lucas Bobadilla\*. Corteva Agriscience, Indianapolis, IN. (273)

**1:45 PM Cytochrome P450s In Herbicide Detoxification: Functional Validation Strategies and Examples.** Satoshi Iwakami\*. Tokyo University of Agriculture and Technology, Fuchu, Japan. (274)

**2:00 PM Non-Target Site Resistance in Palmer Amaranth (*Amaranthus palmeri*) and P450 Reductase Functional Validation.** Carlos Rigon\*. Corteva Agriscience, Indianapolis, IN. (275)

**2:15 PM A Combined Transcriptomic and Metabolomic Approach to Understanding the Impact of Drought Stress on Glyphosate Resistance in Horseweed (*Erigeron canadensis* L.).** Michael Ozolins\*<sup>1</sup>, Eric Patterson<sup>1</sup>, Sara Álvarez Rodríguez<sup>1</sup>, Mohit Mahey<sup>1</sup>, Ahmed Tansel Serim<sup>2</sup>. <sup>1</sup>Michigan State University, East Lansing, MI; <sup>2</sup>Bilecik Şeyh

Edebali Üniversitesi, Bilecik Merkez, Turkey.  
(276)

- 2:30 PM Role of GSTome (Glutathione-S-Transferases) in Herbicide Detoxification. Example of Resistance to Group 15 in Grasses.** Roland Beffa\*. Frankfurt, Germany. (277)
- 2:45 PM Target Site and Non-Target Site Resistance Epidemiology: The Example of Black-Grass.** David Comont\*. Rothamsted Research, Harpenden, United Kingdom. (278)
- 3:00 PM BREAK**
- 3:15 PM The Importance of Polygenic Contributions to Herbicide Resistance Across the Landscape in *Amaranthus tuberculatus*.** Julia Kreiner\*. University of Chicago, Chicago, IL. (279)
- 3:30 PM How to Mitigate Non-Target Site Resistance Evolution Compared to Target Site Resistance.** Sarah Lancaster\*. Kansas State University, Manhattan, KS. (280)
- 3:45 PM Set Up of Genetic Marker Tests to Detect and Manage Herbicide Resistant Weeds.** Martin Laforest\*. Agriculture and Agri-Food Canada, Saint-Jean-sur-Richelieu, QC. (281)
- 4:00 PM Herbicide Multiple and Cross Resistance: How to Define and How Do They Occur?** Patrick Tranel\*. University of Illinois, Urbana, IL. (282)
- 4:15 PM Symposium Discussion.** Caio Brunharo and Roland Beffa. (283)

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***TUESDAY AFTERNOON FEBRUARY 25***

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**Canadian Weed Science Society**  
**Annual General Meeting**

LOCATION: Port McNeil  
4<sup>th</sup> Floor, North Tower  
TIME: 3:00-3:30 PM Pacific  
MODERATOR: Robert Nurse  
Agriculture and Agri-Food  
Canada, Harrow, ON

Videos from Travel Experience Awards Winners,  
Marinda DeGrier and Isabella Aicklen, will be  
available following the meeting.

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***TUESDAY AFTERNOON FEBRUARY 25***

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**Graduate Student Workshop: Protein Modeling of**  
**Herbicide Resistance: From Mutation to**  
**Resistance**

LOCATION: Pavillion Ballroom C  
TIME: 4:45-6:15 PM Pacific  
MODERATOR: William Kramer  
Colorado State University  
Fort Collins, CO  
Isabel Schlegel Werle  
University of Illinois  
Urbana-Champaign, IL

**Featured Speakers:** Crystal Sparks, Enko Chem and  
Jacob Montgomery, University of Chicago.

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***TUESDAY AFTERNOON FEBRUARY 25***

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**IWGC Membership Meeting**

LOCATION: Parksville  
TIME: 5:00-6:00 PM Pacific  
MODERATOR: Todd Gaines  
Colorado State University  
Fort Collins, CO

**Saskatchewan Pulse Growers**

LOCATION: Port Alberni  
4<sup>th</sup> Floor, North Tower  
TIME: 5:00-6:00 PM Pacific  
MODERATOR: Racquelle Peters  
University of Saskatchewan  
Saskatoon, SK

**Targeted and Autonomous Weed Control  
Technologies Committee**

LOCATION: Port Hardy  
4<sup>th</sup> Floor, North Tower  
TIME: 5:00-6:00 PM Pacific  
MODERATOR: Nathan Boyd  
University of Florida  
Wimauma, Florida

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***TUESDAY EVENING FEBRUARY 25***

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**Dine-Around Events: Sign-up sheets by  
Registration**

LOCATION: Meet in Lobby  
TIME: 7:00 PM Pacific  
MODERATOR: Jichul Bae  
Agriculture and Agri-Food  
Canada, Agassiz, BC

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***WEDNESDAY MORNING FEBRUARY 26***

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**Presidents' Breakfast**

LOCATION: Constellation  
34<sup>th</sup> Floor, South Tower  
TIME: 6:30-8:00 AM Pacific  
MODERATOR: Greg Dahl  
Retired, Winfield United  
Eagan, MN

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***WEDNESDAY MORNING FEBRUARY 26***

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**MRSPC- Herbicide Resistance  
Monitoring Network**

LOCATION: Port Alberni  
4<sup>th</sup> Floor, North Tower  
TIME: 8:00–9:00 AM Pacific  
MODERATOR: Eric Patterson  
Michigan State University  
East Lansing, MI

## **Judges Work Room**

LOCATION: Constellation  
34<sup>th</sup> Floor, South Tower  
TIME: 9:00 AM-5:00 PM Pacific

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***WEDNESDAY MORNING FEBRUARY 26***

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## **Poster Session - Even Numbers**

LOCATION: Junior Ballroom  
ABCD/Foyer  
TIME: 7:00-9:00 AM Pacific  
MODERATORS: Darrin Dodds  
Mississippi State University  
Mississippi State, MS  
Marty Schraer  
Syngenta Crop Protection,  
Meridian, ID  
Lovreet Shergill  
Colorado State University  
Fort Collins, CO  
Vanessa Jones  
University of British Columbia  
Vancouver, BC  
Virginia Oeggerli  
University of British Columbia  
Vancouver, BC

***All Competition Posters will be judged on Tuesday.***

***Authors with odd-numbered posters will be present on Tuesday. Authors with even-numbered posters will be present on Wednesday.***

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***WEDNESDAY MORNING FEBRUARY 26***

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**SST - SST PhD - Finals**

LOCATION: Pavillion Ballroom AB  
TIME: 9:00-9:30 AM Pacific  
MODERATOR: Darrin Dodds  
Mississippi State University  
Mississippi State, MS

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***WEDNESDAY MORNING FEBRUARY 26***

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**SYMPOSIUM - 02. Not your Old Professor's  
Journals: Rapid Change in Academic Publishing**

LOCATION: Pavillion Ballroom D  
TIME: 9:30 AM-12:00 PM Pacific  
MODERATORS: Sarah Ward  
Montana State University  
Bozeman, MT  
Christian Willenborg  
University of Saskatchewan  
Saskatoon, SK

**\*SPEAKER**

- 9:30 AM**    **Welcome.** Christian Willenborg\*. (284)
- 9:35 AM**    **The Evolving Publishing Landscape.**  
Catherine Hill\*. Cambridge University Press,  
Cambridge, England. (285)
- 10:15 AM**    **Publishing Your Research: How Not to Get  
Scammed.** Sarah Ward\*. (286)
- 11:00 AM**    **From Manuscript to Submission to Final  
Publication: What Happens?** Christian  
Willenborg\*. (287)
- 11:15 AM**    **The Role of the Editor-In-Chief.** William  
Vencill\*. University of Georgia, Athens, GA.  
(288)
- 11:25 AM**    **Vital Gatekeepers: Associate Editors and  
Reviewers.** Sarah Ward\*. (289)

**11:40 AM Ask the Experts-Panel.** Sarah Ward, Christian Willenborg, William Vencill, Jason Norsworthy<sup>1</sup>, Antonio DiTommaso<sup>2</sup>, Tracy Candelaria<sup>3</sup>, Catherine Hill. <sup>1</sup>University of Arkansas, Fayetteville, AR; <sup>2</sup>Cornell University, Ithaca, NY; <sup>3</sup>WSSA Journal Managing Editor, Denver, CO. (290)

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***WEDNESDAY MORNING FEBRUARY 26***

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**Oral 13. Integrated Weed Management**

LOCATION: Pavillion Ballroom C  
TIME: 9:15 AM-3:00 PM Pacific  
MODERATORS: Ian Burke  
Washington State University  
Pullman, WA  
Dilshan Benaragama  
University of Manitoba  
Winnipeg, MB

**\*SPEAKER**

**9:15 AM Species and Growth Stage Influence the Efficacy of Thermal Weed Control with Mid-Infrared Radiation.** Ryan Hamberg\* and Muthukumar Bagavathiannan. Texas A&M University, College Station, TX. (291)

**292-Withdrawn (Sharma)**

**9:30 AM Harnessing Remote Sensing and Machine Learning Tools for Oat Cultivar Selection: Optimizing Yields Under Weed Competition.** Dilshan Benaragama\*<sup>1</sup>, Breanna Senetza<sup>2</sup>, Steve Shirliffe<sup>2</sup>, Christian Willenborg<sup>2</sup>. <sup>1</sup>University of Manitoba, Winnipeg, MB; <sup>2</sup>University of Saskatchewan, Saskatoon, SK. (293)

**9:45 AM Comparing Interrow Mower, Electric Weeder, and Herbicides for Weed Control in Soybean.** Preetaman Bajwa\*, Vipin Kumar, Henrique Scatena, Christopher Pelzer, Matthew R. Ryan, Antonio DiTommaso. Cornell University, Ithaca, NY. (294)



**10:00 AM BREAK**

**10:15 AM Weed and Soil Biological Responses to Zasso Electrical Weeding.** Aleah Butler-Jones<sup>\*1</sup>, Elizabeth Maloney<sup>1</sup>, John Owens<sup>2</sup>, Gregory Peck<sup>2</sup>, Kyle Wickings<sup>1</sup>, Bradley Hanson<sup>3</sup>, Marcelo Moretti<sup>4</sup>, Lynn Sosnoskie<sup>1</sup>. <sup>1</sup>Cornell University, Geneva, NY; <sup>2</sup>Cornell University, Ithaca, NY; <sup>3</sup>University of California, Davis, CA; <sup>4</sup>Oregon State University, Corvallis, OR. (295)

**10:30 AM Weed Between the Lines: Inter-row Mowing for Weed Control in Organic Reduced-tillage Corn and Soybean.** Matthew R. Ryan<sup>\*1</sup>, Erin Silva<sup>2</sup>, Ben Brockmueller<sup>2</sup>, Antonio DiTommaso<sup>1</sup>, Emily G. McFadden<sup>1</sup>, Uriel D. Menalled<sup>1</sup>, Christopher J. Pelzer<sup>1</sup>, Annika V. Rowland<sup>1</sup>, Nazir Adam Sharifi<sup>1</sup>, Lynn Sosnoskie<sup>3</sup>, Sam Wallace<sup>1</sup>, Eric Youngerman<sup>1</sup>. <sup>1</sup>Cornell University, Ithaca, NY; <sup>2</sup>University of Wisconsin, Madison, WI; <sup>3</sup>Cornell University, Geneva, NY. (296)

**10:45 AM Ecological Impact of Weed Management Programs Using a Targeted Sprayer in Corn and Soybean in Kansas.** Anita Dille<sup>\*1</sup>, Joaquin Enrria<sup>1</sup>, Maxwell Oliveira<sup>2</sup>. <sup>1</sup>Kansas State University, Manhattan, KS; <sup>2</sup>BASF Digital Farming GmbH, Koeln, Germany. (297)

**11:00 AM Suitability of Chaff Lining in Western Canada.** Breanne Tidemann<sup>\*1</sup>, Charles Geddes<sup>2</sup>, Brett Mollison<sup>3</sup>, Jeff Schoenau<sup>4</sup>, Joy Agnew<sup>5</sup>, Michael Walsh<sup>6</sup>. <sup>1</sup>Agriculture and Agri-Food Canada, Lacombe, AB; <sup>2</sup>Agriculture and Agri-Food Canada, Lethbridge, AB; <sup>3</sup>Agriculture and Agri-Food Canada, Melfort, SK; <sup>4</sup>University of Saskatchewan, Saskatoon, SK; <sup>5</sup>Red Deer Polytechnic, Red Deer, AB; <sup>6</sup>Charles Sturt University, Wagga Wagga, Australia. (298)

**299-Withdrawn**

**11:15 AM Advancing Sustainable Weed Management in Oklahoma Wheat Production: Current Strategies and Future Directions.** Swati Shrestha<sup>\*</sup>, Amna Dar, Itunuoluwa Adegbite, Liberty Galvin, Connor Cox. Oklahoma State University, Stillwater, OK. (300)

**301-Withdrawn (Chiruvelli)**

**11:30 AM LUNCH BREAK**

**1:00 PM Implications of Cover Crop Management Decisions on *Amaranthus* Species Density**

**and Biomass in Temperate Cropping Systems: A Meta-analysis.** Vipin Kumar<sup>1</sup>, Mandeep Singh<sup>1</sup>, Resham Thapa<sup>2</sup>, Ankit Yadav<sup>\*1</sup>, Humberto Blanco-Canqui<sup>1</sup>, Samuel Wortman<sup>1</sup>, Saleh Taghvaeian<sup>1</sup>, Amit Jhala<sup>1</sup>.  
<sup>1</sup>University of Nebraska, Lincoln, NE;  
<sup>2</sup>Tennessee State University, Nashville, TN.  
 (302)

- 1:15 PM Palmer Amaranth (*Amaranthus palmeri*) Flowering Timing Adaptation May be a Threat to Harvest Weed Seed Control.** Eli Russell\*, Michael Flessner, James Westwood, David Haak. Virginia Tech, Blacksburg, VA. (303)
- 1:30 PM Palmer Amaranth Emergence After 5 Years of Integrated Weed Management in Cotton.** Cory Ketchum<sup>\*1</sup>, Jason Norsworthy<sup>1</sup>, Lon Barber<sup>2</sup>, Amar Godar<sup>1</sup>, Rodger Farr<sup>3</sup>, Ty Smith<sup>1</sup>, Tristen Avent<sup>1</sup>. <sup>1</sup>University of Arkansas, Fayetteville, AR; <sup>2</sup>University of Arkansas Division of Agriculture, Lonoke, AR; <sup>3</sup>Bayer Crop Science, Wellfleet, NE. (304)
- 1:45 PM Evaluating Reduced Herbicide Inputs in Corn Following Hairy Vetch, Hairy Vetch + Cereal Rye, or Winter Fallow.** Jenna Beville\* and Michael Flessner. Virginia Tech, Blacksburg, VA. (305)
- 2:00 PM Straight Coulters Improve Seed Placement and Lower Weed Populations in Organic No-Till Soybeans.** Erin Silva\*, Ben Brockmueller, Brian Luck. University of Wisconsin, Madison, WI. (306)
- 2:15 PM Soybean Growth and Yield as Impacted by Row Spacing and Layered Residual Herbicide Program.** Sithin Mathew\*, Aaron Lorenz, Seth Naeve, Vasudha Sharma, Debalin Sarangi. University of Minnesota, St. Paul, MN. (307)
- 2:30 PM Why Should We Rotate Crops? A Case Study of Maize and Winter Wheat.** Milan Brankov<sup>\*1</sup>, Milena Simić<sup>1</sup>, Milos Zaric<sup>2</sup>. <sup>1</sup>Maize Research Institute, Zemun Polje, Belgrade, Serbia; <sup>2</sup>University of Nebraska, North Platte, NB. (308)
- 2:45 PM Business Meeting**

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## WEDNESDAY MORNING FEBRUARY 26

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### ORAL - 11. Physiology

LOCATION: Port McNeil  
4<sup>th</sup> Floor, North Tower  
TIME: 9:00-11:15 AM Pacific  
MODERATORS: Carlos Rigon  
Corteva Agriscience  
Indianapolis, IN  
Eric Page  
Agriculture and Agri-Food  
Canada, Harrow, ON

#### \*SPEAKER

**9:00 AM Effects of Mevalocidin, an Herbicidal Fungal Metabolite, on the Plant Mevalonic Acid Pathway.** Stephen Duke\*<sup>1</sup>, Joanna Bajsa-Hirsch<sup>2</sup>, Hemant Lata<sup>1</sup>, Mei Wang<sup>2</sup>, Joseph Lee<sup>1</sup>, Amar Chittiboyina<sup>2</sup>, Pankaj Pandey<sup>1</sup>, Cedric Pearce<sup>3</sup>. <sup>1</sup>National Center for Natural Products Research, Oxford, MS; <sup>2</sup>USDA-ARS, Oxford, MS; <sup>3</sup>Mycosynthetix, Inc., Hillsborough, NC. (309)

**9:15 AM Does Size Matter? Deletions in IAA2 in Brassicaceae Weed Species in Australia Result in Resistance to 2,4-D.** Christopher Preston\*, Yuanlin Qi, Jenna Malone, Matthew Tucker, Mahima Krishnan. Adelaide University, Adelaide, Australia. (310)

**9:30 AM Dissecting Target and Non-Target Site Mechanisms of Glyphosate Resistance in *Conyza canadensis*.** Eric Page\*<sup>1</sup>, Sara Martin<sup>2</sup>, Sydney Meloche<sup>1</sup>, Martin Laforest<sup>3</sup>. <sup>1</sup>Agriculture and Agri-Food Canada, Harrow, ON; <sup>2</sup>Agriculture and Agri-Food Canada, Ottawa, ON; <sup>3</sup>Agriculture and Agri-Food Canada, Saint-Jean-sur-Richelieu, Canada, Québec. (311)

**312-Withdrawn**

**9:45 AM BREAK**

**10:15 AM Metabolism of S-Metolachlor in Multiple Herbicide-Resistant Palmer Amaranth (*Amaranthus palmeri*) Populations.** Jeanafior

Concepcion<sup>1</sup>, Shiv Kaundun<sup>2</sup>, James Morris<sup>2</sup>, Michael La Frano<sup>3</sup>, Alexander Ulanov<sup>1</sup>, Dean Riechers\*<sup>1</sup>. <sup>1</sup>University of Illinois, Urbana, IL; <sup>2</sup>Syngenta Ltd., Bracknell, UK; <sup>3</sup>Salk Institute for Biological Studies, La Jolla, CA. (313)

**10:30 AM KYMINASHI Crop Plant Booster - A Myth or Reality on Weeds, Input Saving and Higher Crop Yields.** Samunder Singh\*. Micro Irrigation and Command Area Development Authority, Haryana, India. (314)

**11:00 AM Harnessing Plant Images to Diagnose Herbicide Modes of Action.** Tae-Kyeong Noh\* and Do-Soon Kim. College of Agriculture and Life Sciences, Seoul National University, Seoul, Korea. (315)

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## ***WEDNESDAY MORNING FEBRUARY 26***

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### **ORAL – 10. Biocontrol**

LOCATION: Port McNeil  
4<sup>th</sup> Floor, North Tower  
TIME: 11:15 AM-12:00 PM Pacific  
MODERATORS: Marcelo Moretti  
Oregon State University  
Corvallis, OR  
Alida Janmaat  
University of the Fraser Valley  
Abbotsford, BC

#### **\*SPEAKER**

**11:15 AM Rapid and Accurate Characterization of Target Genes for Genetic Biocontrol of Invasive Aquatic Plant Species.** Ping Gong\* and Seung Ho Chung. US Army Engineer Research and Development Center, Vicksburg, MS. (316)

**11:30 AM Innovative MOA for Controlling Resistant Weed Seed Bank.** Ido Shwartz\*, Amit Koch, Efrat Lidor Nili, Orly Noivirt-Brik. WeedOUT, Nes Ziona, Israel. (317)

**11:45 AM Business Meeting**

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***WEDNESDAY AFTERNOON FEBRUARY 26***

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**SYMPOSIUM-03. Description of the EPA's  
Herbicide Strategy, Communication Resources,  
and Scientific Information Useful to Regulators**

LOCATION: Pavillion Ballroom D

TIME: 1:00-5:00 PM Pacific

MODERATORS: Bill Chism  
Retired, EPA  
Point of Rocks, MD

**\*SPEAKER**

**1:00 PM Welcome.** Bill Chism\*. (318)

**1:10 PM Herbicide Strategy Implementation: Labels, Bulletins, and Websites.** Bill Chism\*, U.S. Environmental Protection Agency. (319)

**1:35 PM Bulletins Live! Two (BLT): An Introduction to Pesticide Use Limitation Areas.** Annie Krueger\*. Compliance Services International, Albuquerque, NM. (320)

**2:00 PM The Role of National Marine Fisheries Service in ESA Pesticide Consultations.** Ryan Dewitt\*. National Marine Fisheries, Seattle, WA. (321)

**2:25 PM The Role of the U.S. Fish and Wildlife Service in the Pesticide Consultation Process and Incorporation of EPA's Herbicide Strategy.** Kathryn Bissell\*. U.S. Fish and Wildlife Service, Falls Church, VA. (322)

**2:50 PM Communication, Education and Outreach.** Bill Chism\*. (323)

**3:05 PM BREAK**

**3:20 PM Pesticide Use Limitation Areas (PULAs) – Implications and Collaborations to Improve the Mapping Process.** Taylor Randell-Singleton\*. University of Georgia, Tifton, GA. (324)

**3:40 PM Runoff Mitigation Menu and Calculator and Spray Drift Mitigation.** Mark VanGessel, University of Delaware, Georgetown, DE. (325)

**4:10 PM Washington State Department of Agriculture's Response to ESA Pesticide**

**Label Changes.** Abigail Nickelson\*.  
Washington State Department of Agriculture,  
Tieton, WA. (326)

**4:30 PM Summary.** Bill Chism\*. (327)

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***WEDNESDAY AFTERNOON FEBRUARY 26***

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**ORAL - 14. Targeted and Autonomous Weed  
Control Technologies**

**LOCATION:** Pavillion Ballroom AB  
**TIME:** 1:00-4:45 PM Pacific  
**MODERATORS:** Lauren Lazaro  
Blue River Technologies  
Sunnyvale, CA  
Shaun Sharpe  
Agriculture and Agri-Food  
Canada, Saskatoon, SK

**\*SPEAKER**

**1:00 PM Spectral Discrimination of Weed Species in  
Grass Seed Production in the Willamette  
Valley, OR.** Iram Mujahid Iqbal\*, Jing Zhou,  
Carol Mallory-Smith, Pete Berry. Oregon State  
University, Corvallis, OR. (328)

**1:15 PM AI-Driven Weed Managing Mobile Robot.** Woo  
Soo Kim\*. School of Mechatronic Systems  
Engineering, Global Institute for Agri-tech, Simon  
Fraser University, Surrey, BC. (329)

**1:30 PM Precision Weed Control: Mitigating Atrazine  
Use with See and Spray™ Technology.**  
Michael Dodde\*<sup>1</sup>, Jason Norsworthy<sup>1</sup>, Ryan  
Henry<sup>2</sup>, Lawrence Steckel<sup>3</sup>, Wesley Everman<sup>4</sup>,  
Bryan Young<sup>5</sup>, Diego Contreras<sup>6</sup>, Marcelo  
Zimmer<sup>5</sup>, Jared Buck<sup>3</sup>, Tristen Avent<sup>1</sup>, Lane  
Pierce<sup>1</sup>. <sup>1</sup>University of Arkansas, Fayetteville,  
AR; <sup>2</sup>UPL-Ltd., Fort Wayne, IN; <sup>3</sup>University of  
Tennessee, Jackson, TN; <sup>4</sup>Iowa State  
University, Ames, IA; <sup>5</sup>Purdue University, West  
Lafayette, IN; <sup>6</sup>North Carolina State University,  
Raleigh, NC. (330)

**1:45 PM Spatial and Temporal Patterns of Weed  
Distribution in Strawberry Fields:**

**Opportunities for Variable-Rate Application of Preemergence Herbicides.** Alex

Rodriguez\*<sup>1</sup>, Renato Herrig Furlanetto<sup>1</sup>, Arnold W. Schumann<sup>2</sup>, Amr Abd-Elrahman<sup>3</sup>, Nathan Boyd<sup>1</sup>. <sup>1</sup>Gulf Coast Research and Education Center, University of Florida, Wimauma, FL; <sup>2</sup>Citrus Research and Education Center, Lake Alfred, FL; <sup>3</sup>Gulf Coast REC, Plant City, FL. (331)

**2:00 PM Revolutionizing Weed Management in Vegetable Crops: Efficacy and Crop Response with Laser Weeding in New Jersey Succulent Pea and Spinach.** Thierry

Besançon\* and Lynn Sosnoskie. Rutgers University, Chatsworth, NJ; Cornell University, Geneva, NY. (332)

**2:15 PM Midwest Weeds in Focus: Assessing the Performance of Yolov10 and Yolov11 for Weed Detection on a New Regional Dataset.**

Mandeep Singh\*, Yeyin Shi, Amit Jhala. University of Nebraska, Lincoln, NE. (333)

**2:30 PM Robots with Freaking Laser Beams: Evaluating the Performance of Laser Weeding in NY Beet, Pea, and Spinach.** Lynn

Sosnoskie\* and Thierry Besançon. Cornell University, Geneva, NY; Rutgers University, Chatsworth, NJ. (334)

**2:45 PM Identifying Weed Species in Mint Using Aerial Imagery and Artificial Intelligence.**

Pete Berry\* and Jing Zhou. Oregon State University, Corvallis, OR. (335)

**3:00 PM BREAK**

**3:15 PM 3D Reconstruction and Modelling of Weeds: An Integration Across Computer Graphics, Artificial Intelligence, and Plant Phenotyping.**

Joe Johnson\* and Muthu Bagavathiannan. Texas A&M University, College Station, TX. (336)

**3:30 PM Targeted Step-Rates: A Case Study Using Glufosinate and See & Spray™ Technology to Deliver a Step Change in Weed Management.**

William Patzoldt\*<sup>1</sup>, Michael Houston<sup>1</sup>, Jesaelen Moraes<sup>1</sup>, Lauren Lazaro<sup>2</sup>, Chad Lammers<sup>3</sup>, Jess Spotanski<sup>3</sup>, Tristen Avent<sup>4</sup>, Jason Norsworthy<sup>4</sup>, Marcelo Zimmer<sup>5</sup>, Bryan Young<sup>5</sup>, Diego Contreras<sup>6</sup>, Wesley Everman<sup>7</sup>, Jared Buck<sup>8</sup>, Lawrence Steckel<sup>8</sup>. <sup>1</sup>Blue River Technology, Santa Clara, CA; <sup>2</sup>BRT, Sunnyvale, CA; <sup>3</sup>Midwest Research, York, NE;

<sup>4</sup>University of Arkansas, Fayetteville, AR; <sup>5</sup>Purdue University, West Lafayette, IN; <sup>6</sup>North Carolina State University, Raleigh, NC; <sup>7</sup>Iowa State University, Ames, IA; <sup>8</sup>University of Tennessee, Jackson, TN. (337)

**3:45 PM Targeted Broadleaf Weed Control in Florida Strawberry.** Nathan Boyd<sup>\*1</sup>, Arnold W. Schumann<sup>2</sup>, Renato Furlanetto<sup>1</sup>, Ana Claudia Buzanini<sup>1</sup>. <sup>1</sup>Gulf Coast Research and Education Center, University of Florida, Wimauma, FL; <sup>2</sup>Citrus Research and Education Center, Lake Alfred, FL. (338)

**4:00 PM Drone-Delivered Herbicides: Comparing Clopyralid Efficacy Across Application Techniques and Water Volumes.** Kevin Falk<sup>\*1</sup>, Rory Degenhardt<sup>2</sup>, Angela Fawcett<sup>3</sup>. <sup>1</sup>Corteva Agriscience, Carman, MB; <sup>2</sup>Corteva, Edmonton, AB; <sup>3</sup>Corteva, Mississauga, ON. (339)

**4:15 PM Leveraging Temporal Spectral Indices from UAV Imagery for Accurate Detection of Broomrape in Sunflower.** Ran Nisim Lati<sup>\*1</sup>, Guy Atsmon<sup>1</sup>, Hanan Eizenberg<sup>1</sup>, Anna Brook<sup>2</sup>, Fadi Kizel<sup>3</sup>. <sup>1</sup>Newe Ya'ar Research Center, Agricultural Research Organization, Ramat Yishay, Israel; <sup>2</sup>Center for Spatial Analysis Research (UHCSISR), University of Haifa, Mount Carmel, Israel; <sup>3</sup>Technion–Israel Institute of Technology, Haifa, Israel. (340)

**4:30 PM Business Meeting**

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## ***WEDNESDAY AFTERNOON FEBRUARY 26***

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### **ORAL – 15. Genomics**

LOCATION: Port McNeil  
4<sup>th</sup> Floor, North Tower

TIME: 1:15-5:00 PM Pacific

MODERATORS: Jake Montgomery  
University of Chicago  
Chicago, IL  
Martin Laforest, Agriculture  
and Agri-Food Canada, Saint-  
Jean-sur-Richelieu, QC



**\*SPEAKER**

- 1:15 PM No Gene Flow Between Domesticated and Weedy Proso Millet (*Panicum miliaceum*), Despite Range Overlap.** Acer VanWallendael\*. North Carolina State University, Raleigh, NC. (341)
- 342-withdrawn** (Bobadilla)
- 1:30 PM Using Genomics to Develop DNA Fingerprints and CRISPR-Cas12 Assays for Identification of *Amaranthus* Species.** Leonardo Galindo Gonzalez\*<sup>1</sup>, Andr  e Ann Dupras<sup>1</sup>, Lubaina Kothari<sup>2</sup>. <sup>1</sup>Canadian Food Inspection Agency, Ottawa, ON; <sup>2</sup>University of Guelph, Guelph, ON. (343)
- 1:45 PM The *Alopecurus aequalis* Genome is a Resource for Understanding Resistance and Weediness.** Jonathan Wright<sup>1</sup>, David Swarbreck<sup>1</sup>, Karim Gharbi<sup>1</sup>, Seanna McTaggart<sup>1</sup>, Anthony Hall<sup>1</sup>, Dana MacGregor\*<sup>2</sup>. <sup>1</sup>Earlham Institute, Norwich, United Kingdom; <sup>2</sup>Rothamsted Research, Harpenden, United Kingdom. (344)
- 2:00 PM Sex Determination in *Cirsium arvense*: A Genomic Perspective from the First Reference Genome.** Sofia Marques-Hill\*<sup>1</sup>, Victor Llaca<sup>2</sup>, Kevin Fengler<sup>2</sup>, Eric Patterson<sup>3</sup>, Luan Cutti<sup>3</sup>, Jacob Montgomery<sup>1</sup>, Sarah Morran<sup>1</sup>, Todd Gaines<sup>1</sup>. <sup>1</sup>Colorado State University, Fort Collins, CO; <sup>2</sup>Corteva Agriscience, Johnston, IA; <sup>3</sup>Michigan State University, East Lansing, MI. (345)
- 2:15 PM Reference Genome Assembly Allows Genetic Mapping of Hypersensitive Response to 2,4-D in *Conyza sumatrensis*.** Jake Montgomery\*<sup>1</sup>, Anthony C  rtez Gomez<sup>1</sup>, Sofia Marques-Hill<sup>1</sup>, Luan Cutti<sup>2</sup>, Victor Llaca<sup>3</sup>, Kevin Fengler<sup>3</sup>, Camila Ferreira de Pinho<sup>4</sup>, Franck Dayan<sup>1</sup>, Eric Patterson<sup>2</sup>, Todd Gaines<sup>1</sup>. <sup>1</sup>Colorado State University, Fort Collins, CO; <sup>2</sup>Michigan State University, East Lansing, MI; <sup>3</sup>Corteva Agriscience, Johnston, IA; <sup>4</sup>UFRRJ - Federal Rural University of Rio de Janeiro, Serop  dica, Brazil. (346)
- 2:30 PM Genetic Mechanisms of Re-evolved Seed Shattering in Weedy Rice (*Oryza* spp.).** Ana Caicedo\*<sup>1</sup> and Xiang Li<sup>2</sup>. <sup>1</sup>University of Massachusetts, Amherst, MA; <sup>2</sup>University of Georgia, Athens, GA. (347)

- 2:45 PM Mining Herbicide and Heat Stress Adaptation Genes from *Echinochloa colona* (Junglerice) and *Amaranthus palmeri* (Palmer Amaranth) Transcriptomes.** Juan C. Velasquez, Rich Adams, Gulab Rangani, Nilda Roma-Burgos\*. University of Arkansas, Fayetteville, AR. (348)
- 3:00 PM BREAK**
- 3:15 PM Mechanism of EPSPS Gene Amplification in Glyphosate-Resistant *Hordeum glaucum* and *Bromus diandrus* from Australia.** Md Mazharul Islam<sup>1</sup>, Bikram S. Gill<sup>1</sup>, Jenna M Malone<sup>2</sup>, Christopher Preston<sup>2</sup>, Mithila Jugulam<sup>\*3</sup>. <sup>1</sup>Kansas State University, Manhattan, KS; <sup>2</sup>University of Adelaide, Glen Osmond, Australia; <sup>3</sup>Texas A&M AgriLife Research and Extension Center, Beaumont, TX. (349a)
- 3:30 PM Genomic Rearrangement in Palmer Amaranth Extrachromosomal Circular DNA Containing Glutamine Synthetase 2 and 5-enolpyruvylshikimate-3-phosphate Synthase Provides Dual Herbicide Resistance** Pamela Carvalho-Moore<sup>\*1</sup>, Ednaldo Borgato<sup>2</sup>, Luan Cutti<sup>2</sup>, Aimone Porri<sup>3</sup>, Ingo Meiners<sup>4</sup>, Jens Lerchl<sup>3</sup>, Jason Norsworthy<sup>1</sup>, Eric Patterson<sup>2</sup>. <sup>1</sup>University of Arkansas, Fayetteville, AR; <sup>2</sup>Michigan State University, East Lansing, MI; <sup>3</sup>BASF SE, Limburgerhof, Germany; <sup>4</sup>BASF Corporation, Research Triangle Park, NC. (349b)
- 3:45 PM GWAS and Poly(A) RNA-Seq Methods Uncover Mechanisms Underpinning Differing Tolerances of Soybean Varieties to Postemergence Metribuzin Applications.** Samuel Revolinski\* and Lichun Zhou. University of Kentucky, Lexington, KY. (350)
- 4:00 PM A High-Throughput Pipeline for Measuring Selection Pressure during Comparative Genomic Analysis.** Nick Johnson<sup>\*1</sup>, Luan Cutti<sup>1</sup>, Todd Gaines<sup>2</sup>, Eric Patterson<sup>1</sup>. Michigan State University, East Lansing, MI; <sup>2</sup>Colorado State University, Fort Collins, CO. (351)
- 4:15 PM International Weed Genomics Consortium Benefits to Colorado Weed Science.** Philip Westra\*. Colorado State University, Fort Collins, CO. (352)
- 4:30 PM RNAseq Analysis of the Below-ground Interactions Between Canola and Kochia (*Kochia scoparia*).** Tanvir Farhan<sup>1</sup>, James Anderson<sup>\*2</sup>, Eric Patterson<sup>3</sup>, Mukhlesur

Rahman<sup>1</sup>, David Horvath<sup>2</sup>. <sup>1</sup>North Dakota State University, Fargo, ND; <sup>2</sup>USDA-ARS, ETSARC, Fargo, ND; <sup>3</sup>Michigan State University, East Lansing, MI. (353)

**4:45 PM Business Meeting**

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***WEDNESDAY AFTERNOON FEBRUARY 26***

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**Travel Enrichment Experience and Science Policy  
Fellows**

LOCATION: Pavillion Ballroom C  
TIME: 3:15-5:00 PM Pacific  
MODERATOR: Cara McCauley  
Corteva Agriscience  
Indianapolis, IN

**\*SPEAKER**

- 3:15 PM The Weed Science Policy Fellowship Experience.** Sarah Chu\*<sup>1</sup>, Joshua Miranda<sup>2</sup>, Lee Van Wychen<sup>3</sup>. <sup>1</sup>Texas A&M University, College Station, TX; <sup>2</sup>Oregon State University, Corvallis, OR; <sup>3</sup>WSSA, Alexandria, VA. (354)
- 3:30 PM Advocating for Weed Science: My Experience as a WSSA Science Policy Fellow.** Joshua Miranda\*. Oregon State University, Corvallis, OR. (355)
- 3:45 PM Travel Enrichment Experience: BASF - Dyersburg, TN.** Hannah Johnson\*. Michigan State University, East Lansing, MI. (356)
- 4:00 PM Travel Enrichment Experience with Syngenta North America Crop Protection Headquarters in Greensboro, North Carolina.** Cristiana Bernardi Rankrape\*. Southern Illinois University, Carbondale, IL. (357)
- 4:15 PM WSSA Travel Enrichment Experience.** Aleah Butler-Jones\*. Cornell University, Geneva, NY. (358)
- 4:30 PM WSSA Travel Enrichment Experience at Corteva Agriscience Headquarters, Indianapolis, IN.** Navdeep Godara\*. Virginia Tech, Blacksburg, VA. (359)

**4:45 PM Travel Enrichment Experience Award: Blue River Technology.** Luisa Baccin\*. Oregon State University, Corvallis, OR. (360)

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***WEDNESDAY AFTERNOON FEBRUARY 26***

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**Joint CWSS/Student/Photo Awards**

LOCATION: Pavillion Ballroom D  
TIME: 5:15-7:00 PM Pacific  
MODERATORS: Darrin Dodds  
Mississippi State University  
Mississippi State, MS  
  
Marty Schraer  
Syngenta Crop Protection  
Meridian, ID  
  
Leonardo Galinda-Gonzalez  
Canadian Food Inspection  
Agency, Ottawa ON

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***WEDNESDAY EVENING FEBRUARY 26***

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**Joint Society Social**

LOCATION: Pavillion Foyer  
TIME: 7:00-9:00 PM Pacific

*Sponsored by BASF Corporation*

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***THURSDAY MORNING FEBRUARY 27***

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## **WSSA Business Meeting/Breakfast**

LOCATION: Pavillion Ballroom D  
TIME: 6:30-8:00 AM Pacific  
MODERATOR: Greg Dahl  
Retired, Winfield United  
Eagan, MN  
CO-MODERATOR: Hilary A. Sandler  
UMass Cranberry Station  
East Wareham, MA

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### ***THURSDAY MORNING FEBRUARY 27***

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#### **Registration**

LOCATION: Junior Ballroom Foyer  
TIME: 8:00 AM-12:00 PM Pacific  
MODERATOR: Eric Gustafson  
IMI Group

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### ***THURSDAY MORNING FEBRUARY 27***

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#### **SYMPOSIUM-04. Experiences and Insights from Recently Funded Weed Scientists in NIFA's Competitive Grants Program**

LOCATION: Pavillion Ballroom C  
TIME: 8:15-10:00 AM Pacific  
MODERATORS: James Kells  
Michigan State University  
East Lansing, MI  
Vijay Nandula  
NIFA  
Kansas City, MO

**\*SPEAKER**

- 8:15 AM Welcome, Symposium Objectives, National Institute of Food and Agriculture Update.** James J. Kells\*. (361)  
362-Withdrawn (Nandula)
- 8:25 AM NIFA Competitive Grant Review Process.** Jane Stewart\*. Colorado State University, Fort Collins, CO. (363)
- 8:40 AM Experiences and Insights from Recently Funded Weed Scientists: CPPM-ARDP.** Marcelo Moretti\*. Oregon State University, Corvallis, OR. (364)
- 8:50 AM Experiences and Insights from Recently Funded Weed Scientists: AFRI Pests and Beneficial Species - Research.** Nathan Boyd\*. Gulf Coast Research and Education Center, University of Florida, Wimauma, FL. (365)
- 9:00 AM Experiences and Insights from Recently Funded Weed Scientists: OREI.** Greta Gramig. North Dakota State University, Fargo, ND. (366)
- 9:10 AM Experiences and Insights from Recently Funded Weed Scientists: SCRI.** Lynn Sosnoskie\*. Cornell University, Geneva, NY. (367)
- 9:20 AM Experiences and Insights from Recently Funded Weed Scientists: AFRI Pests and Beneficial Species - Conference.** Eric Patterson\*. Michigan State University, East Lansing, MI. (368)
- 9:30 AM Q and A with Speaker Panel.** James J. Kells (moderator), Nathan Boyd, Greta Gramig, Marcelo Moretti, Eric Patterson, Lynn Sosnoskie. (369)

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## THURSDAY MORNING FEBRUARY 27

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### ORAL – 02. Horticultural Crops

LOCATION: Pavillion AB  
TIME: 8:00-11:45 AM Pacific  
MODERATORS: Thierry Besançon  
Rutgers University  
Chatsworth, NJ  
Jichul Bae  
Agriculture and Agri-Food  
Canada, Agassiz, BC

#### \*SPEAKER

- 8:00 AM IR-4 Weed Science Update - Food Crops.** Roger Batts\*. North Carolina State University, Raleigh, NC. (370)
- 8:15 AM Season-long Weed Control in Onion (*Allium cepa*) - Which Sequence is Best?** Harlene Hatterman-Valenti\* and Collin Auwarter. North Dakota State University, Fargo, ND. (371)
- 8:30 AM Reducing Herbicide Rotation Studies: Not Glamorous but Important.** Mark VanGessel\*<sup>1</sup>, Barbara Scott<sup>1</sup>, Kurt Vollmer<sup>2</sup>, Roger Batts<sup>3</sup>.  
<sup>1</sup>University of Delaware, Georgetown, DE;  
<sup>2</sup>University of Maryland, Queenstown, MD;  
<sup>3</sup>North Carolina State University, Raleigh, NC. (372)
- 373-Withdrawn (Singh)**
- 8:45 AM OPEN**
- 9:00 AM Evaluating Spring-Seeded Cover Crop Termination Timing and Residual Herbicide Application for Weed Control in Watermelon.** Kurt Vollmer\*<sup>1</sup>, Thierry Besançon<sup>2</sup>, Wesley Bouchelle<sup>2</sup>. <sup>1</sup>University of Maryland, Queenstown, MD; <sup>2</sup>Rutgers University, Chatsworth, NJ. (374)
- 9:15 AM Ecological Processes Determining Weed Species Distribution across Nova Scotian Wild Blueberry Fields.** Andrew McKenzie-Gopsill\*<sup>1</sup> and Scott White<sup>2</sup>. <sup>1</sup>Agriculture and Agri-Food Canada, Charlottetown, PEI; <sup>2</sup>Dalhousie University, Truro, NS. (375)

- 9:30 AM Anaerobic Disinfestation in Specialty Crops: Strategies to Maximize Weed Control.**  
Matthew Cutulle\*. Clemson University, Clemson, SC. (376)
- 9:45 AM Laser Weeder Versus a Conventional Herbicide Program for Controlling Weeds in Seeded and Transplant Vidalia Onions.**  
Stanley Culpepper\*, Jenna Vance, Chris Tyson. University of Georgia, Tifton, GA. (377)
- 10:00 AM BREAK**  
378-Withdrawn (Lehnhoff)
- 10:30 AM Exploring Pulse Electric Field for Weed Control in Nurseries.** Tatiana Benedetti, Pamela Medeiros dos Santos, Marcelo Moretti\*. Oregon State University, Corvallis, OR. (379)
- 10:45 AM Can Laserweeding Replace Herbicides in Onions?** Jed Colquhoun\*, Daniel Heider, Emma Schmidt. University of Wisconsin, Madison, WI. (380)
- 11:00 AM Hydromulches Suppress Weeds and Maintain Crop Yield in Organic Horticultural Production Systems.** Greta Gramig\*<sup>1</sup>, Lisa DeVetter<sup>2</sup>, Waqas Ahmad<sup>1</sup>, Suzette Gallinato<sup>3</sup>, Alice Formiga<sup>4</sup>, Dilpreet Bajwa<sup>5</sup>, Ben Weiss<sup>2</sup>, Sharon Weyers<sup>6</sup>. <sup>1</sup>North Dakota State University, Fargo, ND; <sup>2</sup>Washington State University, Mt. Vernon, WA; <sup>3</sup>WSU, Pullman, WA; <sup>4</sup>Oregon State University, Corvallis, OR; <sup>5</sup>Montana State University, Bozeman, MT; <sup>6</sup>USDA, Morris, MN. (381)
- 11:15 AM Electric Weed Control in Blueberries: Effects on Weed Dynamics and Soil Health.**  
Luisa Baccin\* and Marcelo Moretti. Oregon State University, Corvallis, OR. (382)
- 11:30 AM Business Meeting**

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***THURSDAY MORNING FEBRUARY 27***

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**ORAL – 05. Wildland and Aquatic Invasives**

LOCATION: Port McNeil



4<sup>th</sup> Floor, North Tower  
TIME: 8:00-10:00 AM Pacific  
MODERATORS: Andrew Howell  
North Carolina State University  
Raleigh, NC  
David Clements  
Trinity Western University  
Langley, BC

**\*SPEAKER**

- 8:00 AM Native Forb Cover and Density are Increased by Cut Surface and Foliar Herbicide Applications to Woody Shrubs Invading Restored Midwestern Prairies.** Mark Renz\*. University of Wisconsin, Madison, WI. (383)
- 8:15 AM Comparison of Remotely Piloted Systems and Operational Standard Equipment for In-Water Weed Control.** Andrew Howell\*<sup>1</sup>, Kara Foley<sup>1</sup>, Benjamin Sperry<sup>2</sup>, and Rob Richardson<sup>1</sup>. <sup>1</sup>North Carolina State University, Raleigh, NC; <sup>2</sup>US Army Corps of Engineers, Gainesville, FL. (384)
- 8:30 AM Evaluating the Effect Knotweed (*Reynoutria* spp.) and Black Cottonwood (*Populus trichocarpa*) have on Soil Cohesion.** Jadon Deffenbaugh\*, David Clements, Sam Pimentel. Trinity Western University, Langley, BC. (385)
- 8:45 AM Identification of Knotweed Taxa Through cpDNA Analysis: Understanding Dispersal Methods of Invasive Knotweed Species.** Lauren Mckenna\*, David Clements, Sarah Demian, Aidan Anderson. Trinity Western University, Langley, BC. (386)
- 9:00 AM Diversity and Abundance of Flying Insects In Invasive Knotweed (*Reynoutria* spp.) and Native Cottonwood (*Populus* spp.) along the Chilliwack River.** Megumi Metcalfe\*, Jaylene Braithwaite, David Clements. Trinity Western University, Langley, BC. (387)
- 9:15 AM Comparison of *Microseria wollei* Populations from North Carolina Lakes using SNP Diversity.** Ramon Leon\*<sup>1</sup>, Saket Chandra<sup>2</sup>, Jessica Baumann<sup>1</sup>, Erika Haug<sup>1</sup>, Rob Richardson<sup>1</sup>. <sup>1</sup>North Carolina State University, Raleigh, NC; <sup>2</sup>National Institute of Technology, Calicut, India. (388)

**9:30 AM Diversity of Microbial Communities from Three North Carolina Lakes.** Ramon Leon\*<sup>1</sup>, Saket Chandra<sup>2</sup>, Jessica Baumann<sup>1</sup>, Erika Haug<sup>1</sup>, Rob Richardson<sup>1</sup>. <sup>1</sup>North Carolina State University, Raleigh, NC; <sup>2</sup>National Institute of Technology, Calicut, India. (389)

**9:45 AM Business Meeting**

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***THURSDAY MORNING FEBRUARY 27***

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**ORAL – 03. Turf and Ornamentals**

LOCATION: Parksville  
TIME: 8:00-9:45 AM Pacific  
MODERATOR: Hannah S. Wright  
University of Arkansas  
Division of Agriculture  
Little Rock, AR

**\*SPEAKER**

**8:00 AM Foxtail Management for Mixed Grass Forages.** Nicholas Basinger\*, Michael Bocz, Hannah Carol Lindell, Charles Smith III. University of Georgia, Athens, GA. (390)

**8:15 AM Seedling Zoysiagrass Response to Fluazifop-butyl and Trifloxysulfuron-methyl with the Safener Metcamifen.** Hannah Wright-Smith\*<sup>1</sup>, Michael Richardson<sup>2</sup>, Lane Tredway<sup>3</sup>, John McCalla<sup>2</sup>, David Nistler<sup>1</sup>. <sup>1</sup>University of Arkansas, Division of Agriculture, Little Rock, AR; <sup>2</sup>University of Arkansas, Fayetteville, AR; <sup>3</sup>Syngenta, Greensboro, NC. (391)

**8:30 AM Impacts of the Relationship Between Soil-Type and Moisture on Tetflupyrolimet Efficacy.** Benjamin Pritchard\*<sup>1</sup>, Travis Gannon<sup>2</sup>, David Butler<sup>1</sup>, Becky Bowling<sup>1</sup>, Jim Brosnan<sup>1</sup>. <sup>1</sup>University of Tennessee, Knoxville, TN; <sup>2</sup>North Carolina State University, Raleigh, NC. (392)

**8:45 AM Safener and Herbicide Combinations: Evaluating ACCase Inhibitors and Metcamifen for Optimal Turfgrass Safety and Weed Control.** Sri Mounika Daruvuri\*<sup>1</sup>,

Bert Wagemans<sup>2</sup>, Lukas Dant<sup>2</sup>, Scott McElroy<sup>1</sup>.  
<sup>1</sup>Auburn University, Auburn, AL; <sup>2</sup>Syngenta  
Crop Protection, Greensboro, NC. (393)

- 9:00 AM Spotted Spurge Recognition in Turfgrass: Segmentation and Semi-Supervised Learning Approaches.** Mikerly Mistral Joseph<sup>\*1</sup>, Katarzyna Gawron<sup>1</sup>, Chang Zhao<sup>1</sup>, Arnold W. Schumann<sup>2</sup>, Nathan Boyd<sup>3</sup>, Gregory MacDonald<sup>1</sup>, Pawel Petelewicz<sup>1</sup>. <sup>1</sup>University of Florida, Gainesville, FL; <sup>2</sup>Citrus Research and Education Center, Lake Alfred, FL; <sup>3</sup>Gulf Coast Research and Education Center, University of Florida, Wimauma, FL. (394)
- 9:15 AM Organic Weed Control in Turfgrass with Lasers, Cryogenic Liquid, and Radiant Heat.** Shawn Askew<sup>\*1</sup>, Juan Romero<sup>1</sup>, Clebson Goncalves<sup>2</sup>, Navdeep Godara<sup>1</sup>, John Peppers<sup>1</sup>. <sup>1</sup>Virginia Tech, Blacksburg, VA; <sup>2</sup>University of California, Mendocino, CA. (395)
- 9:30 AM Business Meeting**

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## ***THURSDAY MORNING FEBRUARY 27***

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### **ORAL – 07. Teaching and Extension**

LOCATION: Parksville  
TIME: 10:15-11:15 AM Pacific  
MODERATOR: Joseph Ikley  
North Dakota State University  
Fargo, ND

**\*SPEAKER**

- 10:15 AM Characterization and Management of Glyphosate-Resistant Waterhemp from New York and Connecticut.** Vipran Kumar<sup>\*1</sup>, Jatinder Aulakh<sup>2</sup>, Mike Stanyard<sup>3</sup>, Mike Hunter<sup>4</sup>, Bryan Brown<sup>4</sup>, Lynn Sosnoskie<sup>4</sup>, Amit Jhala<sup>5</sup>. <sup>1</sup>Cornell University, Ithaca, NY; <sup>2</sup>Connecticut Ag Experiment Station, Windsor, CT; <sup>3</sup>Cornell University, Newark, NY; <sup>4</sup>Cornell University, Geneva, NY; <sup>5</sup>University of Nebraska, Lincoln, NE. (396)

- 10:30 AM Be Out Standing in Your Field! The Critical Role of Field Research Scientists in Developing, Launching, and Supporting Crop Protection Products.** Byron Sleugh\*<sup>1</sup>, Rory Degenhardt<sup>2</sup>, David Simpson<sup>1</sup>, Craig Alford<sup>1</sup>, Norbert Satchivi<sup>1</sup>, Kelly Backscheider<sup>1</sup>, John Wiles<sup>1</sup>, Andrew Leader<sup>1</sup>. <sup>1</sup>Corteva Agriscience, Indianapolis, IN; <sup>2</sup>Corteva, Edmonton, AB. (398)
- 10:45 AM Effect of Metribuzin and Sulfentrazone Tank-Mixes on Weed Control and Soybean Across North Dakota.** Joseph Ikley\*<sup>1</sup>, Caleb Dalley, Brian Jenks, Charlemagne Lim, Michael Ostlie, Austin Weippert. North Dakota State University, Fargo, ND. (399)
- 11:00 AM Business Meeting**

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***THURSDAY MORNING FEBRUARY 27***

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**ORAL – 12. Soil and Environmental Aspects**

LOCATION: Port McNeil  
4<sup>th</sup> Floor, North Tower

TIME: 10:15-11:30 AM Pacific

MODERATOR: Bill Chism  
EPA, Retired  
Point of Rocks, MD

**\*SPEAKER**

- 10:15 AM Does Poultry Litter Application Affect the Weed Control Efficiency of Pre-Emergent Herbicides in Alabama Soils?** Rakesh Ghosh\*<sup>1</sup>, Aniruddha Maity<sup>1</sup>, Andrew Price<sup>2</sup>. <sup>1</sup>Auburn University, Auburn, AL; <sup>2</sup>USDA-ARS, Auburn, AL. (400)
- 10:30 AM Quantification of Strigolactone Transport Distance in Soil Using Parasitic Weed Germination Bioassay.** Amit Paporisch\* and Hammam Ziadne. Agricultural Research

Organization, Volcani Institute, Newe-Ya'ar Research Center, Ramat Yishai, Israel. (401)

**10:45 AM Planting Green Effects on Surface and Subsurface Atrazine Runoff.** Noelle Connors\*<sup>1</sup>, Caio Brunharo<sup>1</sup>, Heather Karsten<sup>1</sup>, Louis Saporito<sup>2</sup>, John Wallace<sup>1</sup>. <sup>1</sup>Pennsylvania State University, University Park, PA; <sup>2</sup>USDA-ARS, Pasture Systems and Watershed Management Research Unit, University Park PA. (402)

**11:00 AM Digging into the Role of Edaphic Factors on Herbicide Resistance: A Meta-Analysis.** Andrew Ahlersmeyer\*<sup>1</sup>, Andrew Price<sup>2</sup>, Aniruddha Maity<sup>1</sup>. <sup>1</sup>Auburn University, Auburn, AL; <sup>2</sup>USDA-ARS, Auburn, AL. (403)

**11:15 AM Business Meeting**

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***THURSDAY MORNING FEBRUARY 27***

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**ORAL – 04. Pastures, Rangelands, Forests, and Rights of Way**

LOCATION: Pavillion Ballroom C  
TIME: 10:15-11:45 AM Pacific  
MODERATOR: Zachary Howard  
Texas A&M University  
College Station, TX

**\*SPEAKER**

**10:15 AM Indaziflam for Invasive Annual Grass Control and Biodiversity Restoration in Rangelands.** Vicki Maloney\*. ENVU, Calgary, AB. (404)

**10:30 AM Plant-Soil Microbe Interactions and Ventenata's (*Ventenata dubia*) Ability to Invade Grasslands.** Lisa Jones\*, Brenda Schroeder, Timothy Prather. University of Idaho, Moscow, ID. (405)

**10:45 AM How Does Urban Stream Restoration Impact Native and Invasive Plant Communities?**

Gabrielle Ripa, Jacob Barney\*, J. Leighton Reid, Tess Thompson. Virginia Tech, Blacksburg, VA. (406)

**11:00 AM Carbon Losses from Annual Grass Invasion in Rangelands.** Harold Quicke\*<sup>1</sup>, Toby Maxwell<sup>2</sup>, Matthew Germino<sup>3</sup>. <sup>1</sup>ENVU, Windsor, CO; U.S. Geological Survey, Forest rangeland Ecosystems Service Center, Prineville, OR; <sup>3</sup>USGS, Boise, ID. (407)

**408-Withdrawn**

**11:15 AM Business Meeting**

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***THURSDAY AFTERNOON FEBRUARY 27***

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**TOURS – Craft Breweries and Harbor Boat Tour  
with Comedy Show**

LOCATION: Meet in Lobby  
TIME: 12:30-5:00 PM Pacific  
MODERATORS: **Craft Beer Tour**  
Victoria Brookes  
Agriculture and Agri-Food  
Canada, Retired, Agassisi, BC

**Boat Tour and  
Comedy Show**  
Alida Janmaat  
University of the Fraser Valley  
Abbotsford, BC

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## Meeting Conduct Reminder

The WSSA Code of Ethics defines professional conduct binding on all members of the Society. Members should recognize that this code of ethics and conduct signifies a voluntary assumption of the obligation of self-discipline and members should strive to uphold and maintain the honor and dignity of the Society. The following rules and standards of conduct have been developed for the safe and efficient operation of the WSSA and for the benefit and protection of the rights and safety of all. WSSA members are expected to observe the highest standards of professional conduct at all times, while at work or engaged in Society business.

**1. Obey all laws, rules and regulations governing our business.** The WSSA is subject to applicable federal laws in the state or country of the meeting or event. It is the policy of the WSSA that all laws, rules and regulations are complied with fully and completely. If it is unclear whether an action or activity is a legal or ethical violation, contact the WSSA President and/or Executive Secretary immediately for advice. Any incident or situation that violates the law or this policy should be immediately reported to the President and/or Executive Secretary; in person or via this contact information: [info@wssa.net](mailto:info@wssa.net) or 720-445-4789.

- 2. Be honest, truthful, fair and trustworthy in all WSSA activities and relationships.** The WSSA expects each member to treat other members with respect and honesty. This includes providing information that is accurate, complete, objective, timely, relevant, and understandable.
- 3. Respect and protect WSSA assets.** Assets are anything of value owned by the WSSA. All WSSA members are expected to be custodians of those assets. Members are responsible to maintain Society assets in good condition and to protect them from loss. This includes, but is not limited to, real assets and equipment as well as “soft assets” such as intellectual property, member lists, and other confidential information owned by the Society. WSSA assets of any kind should not be used for personal benefit.
- 4. Avoid all conflicts of interest between Society business and personal affairs.** All WSSA members are expected to act with total objectivity regarding WSSA business. Accordingly, it is improper for a WSSA member to be in a position where their personal interests’ conflict, or appears to conflict, with WSSA interests. WSSA members should not use their position within the WSSA to influence WSSA members or others for their personal benefit. If a member believes that a conflict of interest has developed or may develop, it should be promptly reported to the WSSA President and/or Executive Secretary. The Society’s Conflict of Interest Policy is outlined in 5.8.
- 5. Promote a culture of respect for all WSSA members.** The WSSA supports and adheres to laws and regulations dealing with fair member practices. Membership discrimination in our Society based on sex, race, age, religion, national origin, or sexual preference will not be tolerated. Sexual harassment will not be tolerated. Sexual harassment is defined as unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature that explicitly or implicitly affects an individual’s membership in the society, unreasonably interferes with an individual’s activities within the society, or creates an intimidating, hostile or offensive society environment. This also includes inappropriate use of nudity and/or sexual images in public spaces (including within visual presentations, Twitter, and other online media); deliberate intimidation, stalking, or unwelcome following; harassing photography or recording; and sustained disruption of talks or other events.
- 6. Use your best efforts to maintain a safe environment and protect the Society.** The WSSA believes in and supports the laws designated to keep our Society safe and designed to protect the environment. If you believe that an unsafe condition exists in our Society, bring it immediately to the attention of the President, a member of the Board, or Executive Secretary. If an accident takes place, report it pursuant to policy and

immediately take action to address the problem. Any incident or situation that violates the law or this policy should be immediately reported to the President and/or Executive Secretary; in person or via this contact information: [info@wssa.net](mailto:info@wssa.net) or 720-445-4789.

**7. Promote an ethical culture for all WSSA members.** The WSSA always expects all of its members to conduct themselves ethically and to encourage and support that behavior in their fellow members. Members exercise integrity in scientific research activities and in the reporting of results.

**8. Relation of professionals to the public.** They shall not knowingly permit the publication of reports or other documents for any unsound or illegitimate undertaking.

**9. Respect fellow WSSA members.** Members shall freely give credit for work done by others to whom the credit is due and shall refrain from plagiarism in oral and written communication, and not knowingly accept credit rightfully due to another person.

**10. Reporting alleged violations.** Violation of the WSSA Code of Ethics and Conduct may subject a member to disciplinary action up to and including membership revocation. At the annual conference, when “Safe WSSA” members become aware of a complaint, they will seek out the alleged victim(s) and offender(s) separately and gather facts. Immediate responses at the conference may range from warning a harasser to cease his or her behavior immediately, to ending a speaker’s talk early if the speaker uses inappropriate language or images, to requiring a harasser to leave the conference immediately with no refund, to banning a harasser from future events “either indefinitely or for a certain time period.” Law enforcement may be engaged if circumstances require.

## NOTES

## NOTES