

## **WSSA**

**2024 Annual Meeting  
January 22-25, 2024  
San Antonio, TX**

**2025 Annual Meeting  
February 24-27, 2025  
Vancouver, Canada**

## **NEWSS**

**2024 Annual Meeting  
January 8-11, 2024  
TBD**

**WEED SCIENCE SOCIETY OF  
AMERICA -  
NORTHEASTERN WEED SCIENCE  
SOCIETY  
JOINT MEETING**

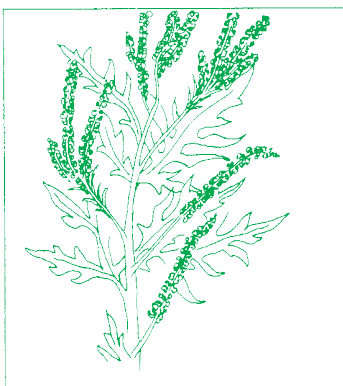
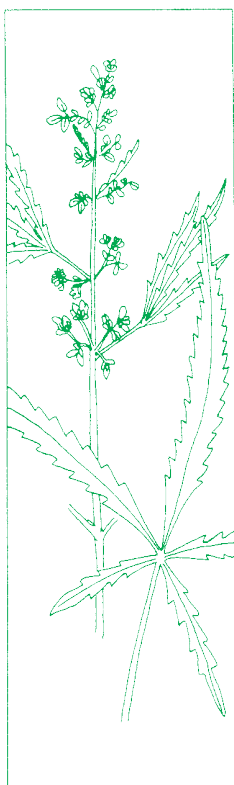
**63rd Meeting**

**2023 MEETING PROGRAM**

**Crystal Gateway Marriott**

**Arlington, VA**

**January 30, 2023 – February 2, 2023**



# WSSA Sustaining Members

## **PRESIDENTIAL**

BASF Corporation  
Bayer Crop Science  
Corteva Agrisciences  
FMC Corporation  
Syngenta Crop Protection  
Harpe Bioherbicide

## **LEADERS**

Gowan  
UPL NA Inc  
ENVU  
Valent USA  
Winfield United  
Helena Agri-Enterprises

## **PATRONS**

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

## **CONTRIBUTORS**

AMVAC Chemical Corp  
Greenleaf Technologies  
ABG Ag Services  
TeeJet Technologies  
Nippon Soda Ltd  
TKI Novasource  
Clariant Corporation  
R & D Sprayers  
SePRO

**63rd Meeting**  
**Weed Science Society of America/**  
**Northeastern Weed Science Society**

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**Local Arrangements Committee 2023 – Arlington**  
Co-Chairs .....Bill Chism and Sudeep Mathew

## **The WSSA/NEWSS 2023 Program**

Welcome to the 2023 joint Weed Science Society of America (WSSA) and the Northeastern Weed Science Society (NEWSS) meeting at the Crystal Gateway Marriott in Arlington, VA. The hotel is only one mile from Reagan National Airport (DCA), two miles to Washington, DC and directly connected to the Crystal City Metro station providing a home base for your visit to the Washington, DC area. Nearby sites include the new National Landing development and Pentagon City; as well as a quick and convenient Metro ride to downtown Washington D.C. and Old Town Alexandria. Several of my favorite museums include the Smithsonian National Museum of Natural History, National Air and Space Museum, and the National Air and Space Museum Steven F. Udvar-Hazy Center (near Dulles). Don't miss visiting the monuments and memorials – I'm partial to the area encompassed between the Washington Monument and Lincoln Memorial. While you are there, don't miss the National Archives Museum with several incredible historical documents and a new display – All American: The Power of Sports.

Now, back to the meeting! We have an exciting line-up of tours, speakers, symposia, meetings, discussions, a dessert social, and many great papers. I always get "re-charged" by the greatest people involved in Weed Science in the world. Even Washington said, "Agriculture is the most helpful, most useful, and most noble employment." The majority of committee meetings will take place ahead of the annual meeting week. Make sure you are in contact with your committee chair to participate in these meetings. There are some that will take place face to face in Arlington, due to the nature of the meeting. BTW – I am so thankful that this meeting will be taking place in person in 2023!! After going online in 2021 and 2022, we are very fortunate to have this meeting in person. The planning committees for the web meetings did an awesome job switching formats, which basically doubled their workload. Thanks to the Stanley Culpepper and Anita Dille's teams, we were able to pull this off. Meeting in person will bring an even higher excitement to the interactions and progress with weed management that will come from these sessions.

Thanks to Bill Chism and Sudeep Mathew, along with the local arrangements committee, we have two exciting tours scheduled for the meeting. Sunday, there will be a tour of the US Botanic Garden Production Facility and the following day a tour of the Smithsonian Gardens Production Greenhouse.

The General Session and WSSA/WSWS Awards Ceremony will begin Monday at 4:00 PM in Salon III. This will include our Keynote Address by Jake Li, Deputy Assistant Administrator for Pesticide Programs within EPA's Office of Chemical Safety and Pollution Prevention. We will also hear from Stanley Culpepper and Jacob Barney, presidents of WSSA and NEWSS, respectively. We will have a short break after the General Session and head directly into the Society Awards, where we will celebrate the accomplishments of many of our Scientists! Make sure that guests are registered so they can participate in

celebrating our WSSA/NEWSS Awardees starting around 7:00 PM at the social.

Tuesday through Thursday will be filled with presentations in the many different sections – including posters, regulatory, integrated weed management, weed biology and ecology, agronomic sections, and many others. Tuesday will include a Graduate Student event, NEWSS Past President’s breakfast, Good, Bad, and Ugly symposium about cover crops, Endangered Species Act symposium, SST (Single Slide Talk) contests for students, NEWSS paper contest, and many other exciting presentations. Wednesday will continue with 2 more symposia, Crop-Weed Management in a Rising CO<sub>2</sub> and Warming World, and WSSA Research Priorities Survey Results – 13 Federal Agencies Perspectives. This day will also include the President’s breakfast, finals of the SST contest, Joint Student and Photo Awards, and a Dessert Social in the evening. Thursday will include a Novel Technologies Symposium, WSSA Business Breakfast, and Board meetings.

We would also like to thank Marty Schraer, and Darrin Dodds for their help in organizing and conducting the student contests. Thanks also to Anita Dille, Stanley Culpepper, and Greg Dahl for their help and guidance preparing the program. A great deal of gratitude is also owed to the Section Chairs, Committee Chairs (over 45 committees), contest organizers, judges, dessert social organizers (thanks Renee Keese, et al.), and other leaders that have pitched in to support the meeting. We had an overwhelming group of committed folks who submitted great symposia ideas this year and some we could not accommodate and hope to have in 2024 in San Antonio. Again, we thank all our Section Chairs for helping to organize the program and especially our WSSA Executive Secretary, Mr. Eric Gustafson, for his commitment to ensure a successful meeting on all levels and the workload he takes on during the month of January. If you run into him at the meeting, please express your gratitude. We are excited about the great participation and the many opportunities to exchange scientific information on weed science research, education, and extension. We look forward to a productive and rewarding meeting.

Carroll Moseley, WSSA Program Chair and President-Elect  
Wesley Everman, NEWSS Program Chair and President-Elec

## 2023 Program Committee

General Program Chair.....	Carroll Moseley
Vice Chair.....	Gregory Dahl
Agronomic Crops.....	Daljit Singh and Craig Alford
Horticultural Crops.....	Kurt Vollmer and Thierry Besancon
Turf and Ornamentals.....	David Hillger and Mayank Milik
Pastures, Rangelands,.....	Scott Nolte and
Forests, Rights of Way, Wildlands and Aquatic Invasive Plants	Byron Sleugh
Regulatory Aspects.....	Amanda Foderaro and Cherilyn Moore
Teaching and Extension.....	Dawn Refsell and Debalin Sarangi
Formulation, Adjuvant, .....	Joe Ikley and Gourav
& Application Technology	Harma
Weed Biology and Ecology.....	Debalin Sarangi and Shilpa Singh
Biocontrol of Weeds.....	Rin Ragamaihi
Physiology.....	Chenxi Wu and Chad Brabham
Integrated Weed.....	Sarah Kezar and
Management	Ramawater Yadav
Sustaining Member Exhibits.....	Kyle Kepner
Poster Sessions.....	Tom Mueller
Student Contest.....	Marty Schraer
Student Travel Enrichment Experience.....	Sarah Kezar

### Program Booklet and Abstracts

Please also download the meeting app for the most up to date schedules and information.

### Posters and Sustaining Member Exhibits

All posters and Sustaining Member Exhibits will be on display from Tuesday at 8am to Thursday at 11am. The times will not be replicated daily throughout the program.





Awards 07:00 PM - 09:00 PM Foyer  
Reception

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*TUESDAY JANUARY 31*

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Registration 07:00 AM - 03:00 PM Arlington  
Registration

Graduate 07:00 AM - 08:00 AM Salon H  
Student Event -  
Overcoming  
Hurdles - Grad  
Student Only

Judges Work 07:00 AM - 03:00 PM Alexandria  
Room

NEWSS Past 07:00 AM - 08:00 AM Salon G  
President  
Breakfast

POSTER - 08:00 AM - 10:00 AM Salon IV-  
Committee VI  
Reports

POSTER - 01. 08:00 AM - 10:00 AM Salon IV-  
Agronomic VI  
Crops -

POSTER - 02. 08:00 AM - 10:00 AM Salon IV-  
Horticultural VI  
Crops

POSTER - 03. 08:00 AM - 10:00 AM Salon IV-  
Turf and VI  
Ornamentals

POSTER - 04. 08:00 AM - 10:00 AM Salon IV-VI  
Pasture, Range,  
Forest, &  
Rights of ways,  
Wildland, and

Aquatic  
Invasive plants

POSTER - 06. 08:00 AM - 10:00 AM Salon IV-VI  
Teaching and  
Extension

POSTER - 07. 08:00 AM - 10:00 AM Salon IV-  
VI  
Formulation,  
Adjuvant, &  
Application  
Technology

POSTER - 08. 08:00 AM - 10:00 AM Salon IV-VI  
Weed Biology  
and Ecology

POSTER - 09. 08:00 AM - 10:00 AM Salon IV-VI  
Biocontrol of  
Weeds

POSTER - 10. 08:00 AM - 10:00 AM Salon IV-  
VI  
Physiology

POSTER - 11. 08:00 AM - 10:00 AM Salon IV-  
VI  
Soil and  
Environmental  
Aspects

POSTER - 12. 08:00 AM - 10:00 AM Salon IV-  
VI  
Integrated Weed  
Management

SYMPOSIUM - 08:00 AM - 12:00 PM Salon III  
The good, the  
bad, and the ugly  
the current state  
of cover crops  
and weed  
management

ORAL - 08. 09:00 AM - 02:00 PM Salon I  
Weed Biology  
and Ecology

ORAL - 05.            09:00 AM - 01:45 PM   Salon II  
Regulatory  
Aspects

ORAL -  
NEWSS                09:00 AM - 04:30 PM   Salon J  
Student Oral

SST MS                10:15 AM - 11:30 AM   Salon K

SST PhD               10:15 AM - 12:00 PM   Salon C

SYMPOSIUM -      01:00 PM - 05:00 PM   Salon III  
Endangered  
Species Act: A  
workshop to  
determine how  
the WSSA can  
provide useful  
science-based  
information to  
regulators

ORAL - 13.            02:00 PM - 04:30 PM   Salon C  
Student Travel  
Enrichment  
Experience

NEWSS                05:00 PM - 07:00 PM   Salon II  
Business  
Meeting

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***WEDNESDAY FEBRUARY 1***

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Presidents            07:00 AM - 08:00 AM   Salon J  
Breakfast

Judges Work        07:00 AM - 03:00 PM   Alexandria  
Room

POSTER -             08:00 AM - 10:00 AM   Salon IV-VI  
NEWSS  
Student Poster

SYMPOSIUM - 08:00 AM - 12:00 PM Salon II  
Crop-Weed  
Management in a  
Rising CO<sub>2</sub> and  
Warming World

Oral 01. 09:00 AM - 05:00 PM Salon III  
Agronomic  
Crops - Day 1

ORAL - 07. 09:30 AM - 02:00 PM Salon H  
Formulation,  
Adjuvant, &  
Application  
Technology

ORAL - 12. 09:00 AM - 05:00 PM Salon I  
Integrated Weed  
Management

ORAL - 02. 02:00 PM - 05:00 PM Salon K  
Horticultural  
Crops

ORAL - 03. 09:00 AM - 11:30 AM Salon F  
Turf and  
Ornamentals

ORAL - 10. 09:00 AM - 02:00 PM Salon B  
Physiology

Joint Graduate 11:30 AM - 01:00 PM Salon J  
Student  
Luncheon

SYMPOSIUM - 01:00 PM - 05:00 PM Salon II  
WSSA Research  
Priorities Survey  
Results: 13  
Federal Agency-  
Perspectives and  
-Funding  
Opportunities

ORAL - 09.            02:00 PM - 02:30 PM   Salon B  
Biocontrol of  
Weeds

SST - SST            02:00 PM - 03:00 PM   Salon C  
PhD - Finals

ORAL - 11. Soil    02:30 PM - 03:00 PM   Salon B  
and  
Environmental  
Aspects

Joint Student/  
Photo Awards       05:00 PM - 07:00 PM   Salon III

Joint Dessert       09:00 PM - 11:00 PM   Foyer  
Social

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***THURSDAY FEBRUARY 2***

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WSSA                06:30 AM - 08:00 AM   Salon H  
Business  
Breakfast

Registration        08:00 AM - 10:00 AM   Arlington  
Registration

ORAL - 01.           08:00 AM - 12:00 PM   Salon III  
Agronomic  
Crops - Day 2

SYMPOSIUM -      08:00 AM - 12:00 PM   Salon I  
Novel  
Technology for  
Weed  
Management: An  
Update on  
WSSA Member  
Activities from  
Around the US

ORAL - 04.           09:00 AM - 11:30 AM   Salon II  
Pasture, Range,



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***SUNDAY AFTERNOON JANUARY 29***

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**WSSA Board of Directors Meeting**

LOCATION: Alexandria  
TIME: 01:00 PM - 05:00 PM Eastern  
Time  
MODERATOR: A Stanley Culpepper  
University of Georgia  
Tifton, GA

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***MONDAY MORNING JANUARY 30***

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**WSSA Board of Directors Meeting**

LOCATION: Alexandria  
TIME: 07:00 AM - 09:30 AM Eastern  
Time  
MODERATOR: A Stanley Culpepper  
University of Georgia  
Tifton, GA

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***MONDAY MORNING JANUARY 30***

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**NEWSS Board of Directors Meeting**

LOCATION: McLean  
TIME: 08:00 AM – 12:00 PM Eastern  
Time  
MODERATOR: Jacob Barney  
Virginia Tech  
Blacksburg, VA

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***MONDAY MORNING JANUARY 30***

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## **Smithsonian Greenhouse Tour**

LOCATION:

TIME: 09:00 AM - 01:00 PM Eastern  
Time

**Meet in the hotel Lobby for transportation**

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***MONDAY AFTERNOON JANUARY 30***

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### **Registration**

LOCATION: Arlington Registration

TIME: 01:00 PM - 04:00 PM Eastern  
Time

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***MONDAY AFTERNOON JANUARY 30***

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### **Women in Weed Science Meeting**

LOCATION: Rosslyn

TIME: 2:00 PM - 03:30 PM Eastern  
Time

MODERATOR: Cara L. McCauley  
Corteva Agriscience  
Indianapolis, IN

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***MONDAY AFTERNOON JANUARY 30***

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### **General Session**

LOCATION: Salon III

TIME: 04:00 PM - 07:00 PM Eastern  
Time

MODERATOR: A Stanley Culpepper  
University of Georgia



Tifton, GA

CO-MODERATOR: Jacob Barney  
Virginia Tech  
Blacksburg, VA

**\*SPEAKER**

- 04:00 PM Introduction and Announcements.** Carroll Moseley\*<sup>1</sup>, Wesley Everman<sup>2</sup>; <sup>1</sup>Syngenta, Brown Summit, NC, <sup>2</sup>North Carolina State University, Raleigh, NC
- 04:10 PM IWSC 2024 - Jerusalem and IWSS Update.** Nilda Roma-Burgos\*; University of Arkansas, Fayetteville, Fayetteville, AR
- 04:20 PM Keynote Presentation - Jake Li - Deputy Assistant Administrator for Pesticide Programs - Protecting Endangered Species from Pesticides: Why it Matters to Your Work.** Jake Li\*; US EPA - Deputy Assistant Administrator for Pesticide Programs, Washington, DC
- 05:05 PM Presidential Addresses.** A Stanley Culpepper\*<sup>1</sup>, Jacob Barney<sup>2</sup>; <sup>1</sup>University of Georgia, Tifton, GA, <sup>2</sup>Virginia Tech, Blacksburg, VA
- 05:30 PM Awards Presentation.** Mandy Bish\*<sup>1</sup>, Caren A. Schmidt<sup>2</sup>; <sup>1</sup>University of Missouri, Columbia, MO, <sup>2</sup>BASF, Durham, NC
- 06:15 PM Presentation of Honorary Members and Fellows.** Carroll Moseley\*<sup>1</sup>, Wesley Everman<sup>2</sup>; <sup>1</sup>Syngenta, Brown Summit, Nc, NC, <sup>2</sup>North Carolina State University, Raleigh, NC

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***MONDAY AFTERNOON JANUARY 30***

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**Awards Reception**

LOCATION: Foyer  
TIME: 07:00 PM - 09:00 PM Eastern Time

**Awardee Reception**

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***TUESDAY MORNING JANUARY 31***

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**Registration**

LOCATION: Arlington Registration  
TIME: 07:00 AM - 03:00 PM Eastern  
Time

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***TUESDAY MORNING JANUARY 31***

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**Graduate Student Event - Overcoming Hurdles -  
Grad Student Only**

LOCATION: Salon H  
TIME: 07:00 AM - 08:00 AM Eastern  
Time  
MODERATOR: Sarah E. Kezar  
Texas A&M University  
College Station, TX

**Grad students only**

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***TUESDAY MORNING JANUARY 31***

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**Judges Work Room**

LOCATION: Alexandria  
TIME: 07:00 AM - 03:00 PM Eastern  
Time

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***TUESDAY MORNING JANUARY 31***

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**NEWSS Past President Breakfast**

LOCATION: Salon G  
TIME: 07:00 AM - 09:00 AM Eastern  
Time  
MODERATOR: Jacob Barney  
Virginia Tech  
Blacksburg, VA

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***TUESDAY MORNING JANUARY 31***

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**POSTER - Committee Reports**

LOCATION: Salon IV-VI  
TIME: 08:00 AM - 10:00 AM Eastern  
Time

**\*PRESENTER**

**WSSA Public Awareness Committee Update.** Theresa Piskackova\*<sup>1</sup>, Eric Gustafson<sup>2</sup>; <sup>1</sup>Czech University of Life Sciences Prague, Prague 6 - Suchdol, Czechia (Czech Republic), <sup>2</sup>Weed Science Society of America, Westminster, CO

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***TUESDAY MORNING JANUARY 31***

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**POSTER - 01. Agronomic Crops -**

LOCATION: Salon IV-VI  
TIME: 08:00 AM - 10:00 AM Eastern  
Time

**WSSA Student Competition Posters will be judged  
Tuesday only**

**NEWSS Student Competition Posters will be judged  
Wednesday only**

**\*PRESENTER † STUDENT CONTEST**

**Taxonomic Pattern in Seed Dormancy and its Breaking Methods in Globally Important Weed Species.** Aniruddha Maity\*, Akashdeep Singh; Auburn University, Auburn, AL (1)

**The Interaction of Pyroxasulfone and Flumioxazin Applied Preemergence for the Control of Multiple-herbicide-resistant Waterhemp [*Amaranthus Tuberculatus* (Moq) J.D. Sauer] in Soybean.** James C. Ferrier, Nader Soltani\*, Peter H. Sikkema; University of Guelph, Ridgetown, ON, Canada (2)

**†Planting Green in Soybean: Evaluation of Residual Herbicide Interaction, Weed Control Programs, and Soybean Yield.** Trey P. Stephens\*, Amit J. Jhala; University of Nebraska-Lincoln, Lincoln, NE (3)

**Control of Larger Herbicide-Resistant Common Ragweed (*Ambrosia artemisiifolia*) in Soybean.** Kurt M. Vollmer\*; University of Maryland, Queenstown, MD (4)

**†Urea Ammonium Nitrate as the Carrier for Preplant Burndown Herbicides.** Kaone Mookodi\*<sup>1</sup>, Jared Spackman<sup>2</sup>, Albert T. Adjesiwor<sup>1</sup>; <sup>1</sup>University of Idaho, Kimberly, ID, <sup>2</sup>University of Idaho, Aberdeen, ID (5)

**Brake, Valor, and Their Tank-Mixture Combinations with Residual Herbicides for Broad- Spectrum Weed Management Programs in Mississippi Peanut.** Taghi Bararpour\*; Mississippi State University, Stoneville, MS (6)

**†Weed Control Efficacy and Dry Bean Response to Preemergence Herbicide Activation Timing.** Prayusha Bhattarai\*<sup>1</sup>, Albert T. Adjesiwor<sup>2</sup>; <sup>1</sup>University of Idaho, Moscow, ID, <sup>2</sup>University of Idaho, Kimberly, ID (7)

**Postharvest Control of Russian Thistle (*Salsola kali*) in Spring Wheat Stubble.** Fernando H. Oreja\*<sup>1</sup>, Drew J. Lyon<sup>2</sup>, Jennifer A. Gourlie<sup>3</sup>, Henry C. Wetzel<sup>2</sup>, Judit Barroso<sup>1</sup>; <sup>1</sup>Oregon State University, Adams, OR, <sup>2</sup>Washington State University, Pullman, WA, <sup>3</sup>Oregon State University, Pendleton, OR (8)

**†Identification of Palmer Amaranth Using Machine Learning.** Akhilesh Sharma\*<sup>1</sup>, Vipin Kumar<sup>2</sup>, Ajay Sharda<sup>1</sup>, William Hsu<sup>1</sup>; <sup>1</sup>Kansas State University, Manhattan, KS, <sup>2</sup>Kansas State University, Hays, KS (9)

**Drill-Spacing And Bed Width Influence on Canopy Coverage, Weed Control and Yield in Furrow-Irrigated Rice.** Koffi Badou-Jeremie Kouame\*<sup>1</sup>, Thomas R. Butts<sup>1</sup>, Noah H. Reed<sup>2</sup>, Brad M. Davis<sup>1</sup>, Leah M. Collie<sup>3</sup>, Troy W. Dillon<sup>1</sup>, Jason K. Norsworthy<sup>2</sup>, Tom Barber<sup>1</sup>, Jarrod Hardke<sup>4</sup>, Jason A. Bond<sup>5</sup>, Hunter D. Bowman<sup>6</sup>; <sup>1</sup>University of Arkansas System Division of Agriculture, Lonoke, AR, <sup>2</sup>University of Arkansas,

Fayetteville, AR, <sup>3</sup>University of Arkansas, Lonoke, AR, <sup>4</sup>University of Arkansas System Division of Agriculture, Stuttgart, AR, <sup>5</sup>Mississippi State University, Stoneville, MS, <sup>6</sup>Mississippi State University, Starkville, MS (10)

†**Evaluating the Metabolic Response of Cloquintocet-Mexyl in Winter Wheat.** William Kramer\*, Todd A. Gaines, Franck E. Dayan; Colorado State University, Fort Collins, CO (11)

**Confirmation of Glyphosate Resistance in New York Palmer Amaranth (*Amaranthus palmeri*) Populations and Response to Alternative Chemistries.** Aleah L. Butler-Jones\*<sup>1</sup>, Elizabeth C. Maloney<sup>2</sup>, Lynn M. Sosnoskie<sup>2</sup>; <sup>1</sup>Cornell University, Ithaca, NY, <sup>2</sup>Cornell University, Geneva, NY (12)

†**Does Row Spacing Matter for Weed Suppression in Corn and Soybean Cropping Systems? A Meta-analysis.** Mandeep Singh\*<sup>1</sup>, Resham Thapa<sup>2</sup>, Navdeep Singh<sup>3</sup>, Steven Brian Mirsky<sup>4</sup>, Amit J. Jhala<sup>1</sup>; <sup>1</sup>University of Nebraska-Lincoln, Lincoln, NE, <sup>2</sup>USDA-ARS Beltsville Agricultural Research Center, Beltsville, NC, <sup>3</sup>Punjab Agricultural University, Ludhiana, India, <sup>4</sup>USDA ARS, Beltsville, MD (13)

**Response of Glyphosate-Resistant Kochia (*Bassia scoparia*) to Dichlorprop-P, 2,4-D, Dicamba Alone or Their Premixture.** Sachin Dhanda\*<sup>1</sup>, Vipin Kumar<sup>1</sup>, Augustine Obour<sup>1</sup>, Elizabeth Yeager<sup>2</sup>, John Holman<sup>3</sup>, Anita Dille<sup>2</sup>; <sup>1</sup>Kansas State University, Hays, KS, <sup>2</sup>Kansas State University, Manhattan, KS, <sup>3</sup>Kansas State University, Garden City, KS (14)

†**Impacts of Florpyrauxifen-benzyl on Rice and Smallflower Umbrella Sedge, *Cyperus difformis*, at Different Growth Stages.** Deniz Inci\*, Kassim Al-Khatib; University of California, Davis, Davis, CA (15)

**Late-Season Control of Glyphosate-Resistant Palmer Amaranth with Glufosinate in XtendFlex Soybean.** Vipin Kumar\*<sup>1</sup>, Sachin Dhanda<sup>1</sup>, Rui Liu<sup>2</sup>, Amit J. Jhala<sup>3</sup>; <sup>1</sup>Kansas State University, Hays, KS, <sup>2</sup>Washington State University, Prosser, WA, <sup>3</sup>University of Nebraska Lincoln, Lincoln, NE (16)

†**Weed Survey in Colorado Sugarbeet Farms Reveals Resistance to Dicamba and Glyphosate.** André Lucas Simões Araujo\*, Eric P. Westra, Todd A. Gaines; Colorado State University, Fort Collins, CO (17)

†**Impact of Soil-Applied Herbicides on Early Planted Soybean.** Matthew S. Goddard\*, Christy L. Sprague; Michigan State University, East Lansing, MI (18)

**Estimating Harvest Loss of Corn from Growers' Fields in Nebraska and Implication for Volunteerism.** Trey P. Stephens<sup>1</sup>, Vipin Kumar\*<sup>2</sup>, Jenny Rees<sup>3</sup>, Amit J. Jhala<sup>1</sup>;

<sup>1</sup>University of Nebraska-Lincoln, Lincoln, NE, <sup>2</sup>Virginia Polytechnic Institute and State University, Painter, VA, <sup>3</sup>University of Nebraska-Lincoln, York, NE (19)

**†Molecular Basis for Resistance to ACCase-inhibiting Herbicides in Downy Brome (*Bromus tectorum*) Populations.**

Victor Ribeiro\*<sup>1</sup>, Caio A. Brunharo<sup>2</sup>, Carol Mallory-Smith<sup>1</sup>, Darrin Walenta<sup>3</sup>, Judit Barroso<sup>4</sup>; <sup>1</sup>Oregon State University, Corvallis, OR, <sup>2</sup>Penn State University, University Park, PA, <sup>3</sup>Oregon State University, La Grande, OR, <sup>4</sup>Oregon State University, Adams, OR (20)

**Expression Levels of Selected GSTs in Palmer Amaranth Resistant to Trifluralin.** Fidel Gonzalez Torralva\*, Jason K. Norsworthy; UNIVERSITY OF ARKANSAS, Fayetteville, AR (21)

**†Impact of Spring-Applied Herbicides on Cover Crops Planted After Wheat.** Claudia R. Walz\*, Christy L. Sprague; Michigan State University, East Lansing, MI (22)

**PSII Inhibitor Resistance in Italian Ryegrass (*Lolium Multiflorum*) Populations in Louisiana Sugarcane.** Alice A. Wright\*<sup>1</sup>, Gerald A. McCollam<sup>1</sup>, Albert J. Orgeron<sup>2</sup>; <sup>1</sup>USDA-ARS, Houma, LA, <sup>2</sup>LSU AgCenter, Baton Rouge, LA (23)

**†Optimizing Dicamba and Glufosinate Application Timings for Weed Control in XtendFlex Soybeans in Central Kansas.** Monica R. Marrs\*<sup>1</sup>, Vipin Kumar<sup>2</sup>, Anita Dille<sup>1</sup>, Rui Liu<sup>3</sup>, Augustine Obour<sup>2</sup>; <sup>1</sup>Kansas State University, Manhattan, KS, <sup>2</sup>Kansas State University, Hays, KS, <sup>3</sup>Washington State University, Prosser, WA (24)

**Optimizing Cover Crop Termination and Herbicide Application Timings to Manage Herbicide-Resistant Waterhemp in Soybean.** Ramawatar Yadav\*<sup>1</sup>, Edward S. Dearden<sup>2</sup>, Ryan Hamberg<sup>1</sup>, Alexis L. Meadows<sup>1</sup>, Austin H. Schleich<sup>1</sup>, Prashant Jha<sup>1</sup>; <sup>1</sup>Iowa State University, Ames, IA, <sup>2</sup>Iowa State University, Crop Production & Physiology, Ames, IA (25)

**†Palmer Amaranth (*Amaranthus palmeri*) Control Options in the Absence of Dicamba.** Tyler S. Soignier\*, Brian K. Perialisi, Darrin M. Dodds, Jason Krutz, Dave Spencer, Whitney S. Crow, Bradley J. Norris, William J. Rutland, Eli B. Hobbs; Mississippi State University, Starkville, MS (26)

**Investigation of Fluroxypyr Resistance in a Kochia Population from Colorado.** Eduardo Souza de Amorim\*, Olivia E. Todd, Eric P. Westra, André Lucas Simões Araujo, Todd A. Gaines; Colorado State University, Fort Collins, CO (27)

†**Fitness of Different Ploidy Plants of F1 Progeny Derived from an Interspecific Cross Between Cultivated Sorghum and Johnsongrass.** Usha R. Pedireddi\*, Rana Afshang, Maximillian Chung, Kayla Buenaventura, Aleena Jiby, Nithya K. Subramanian, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX (28)

**Differential Control of ALS- and PPO-inhibiting Herbicide-resistant *Amaranthus Retroflexus* Populations with Other Postemergence Herbicides.** Eric A. Jones\*, Diego J. Contreras, Charlie W. Cahoon, Ramon G. Leon, Wesley Everman; North Carolina State University, Raleigh, NC (29)

†**Evaluation of Fall-Applied Residual Herbicides for Weed Management in Chickpeas (*Cicer Arietinum*).** Akamjot S. Brar\*<sup>1</sup>, Qasim Khan<sup>1</sup>, Fabian Menalled<sup>1</sup>, Zach Miller<sup>1</sup>, Clint Beiermann<sup>1</sup>, Kent McVay<sup>1</sup>, Lovreet S. Shergill<sup>2</sup>; <sup>1</sup>Montana State University, Bozeman, MT, <sup>2</sup>Montana State University, Huntley, MT (30)

**What Are We Missing? Undetected Changes to Fiber Quality from Low Rates of 2,4-D Using AFIS.** Kyle R. Russell\*<sup>1</sup>, Peter A. Dotray<sup>2</sup>, Brendan R. Kelly<sup>1</sup>; <sup>1</sup>Texas Tech University, Lubbock, TX, <sup>2</sup>Texas Tech University, Texas A&M AgriLife Research, Texas A&M AgriLife Extension, Lubbock, TX (31)

~~†**Effect of Als and 4 hppd Inhibitors Herbicides on Maize Genotypes.** José I. Saavedra ávila\*; COLPOS, Texcoco, EM, Mexico (32)~~

**Developer of Novel Adjuvant Systems for Herbicides.** Jim T. Daniel<sup>1</sup>, Chase T. Boman\*<sup>2</sup>; <sup>1</sup>Daniel Ag Consulting, Keenesburg, CO, <sup>2</sup>AgraSyst, Spokane, WA (33)

†**Seed-Shattering Phenology of Grass and Broadleaf Weeds at Soybean (*Glycine max*) and Corn (*Zea mays*) Harvest in SE Montana.** Het Samir Desai\*<sup>1</sup>, Fabian Menalled<sup>2</sup>, Lovreet S. Shergill<sup>3</sup>; <sup>1</sup>Southern Agricultural Research Center, Montana State University, Huntley, MT, <sup>2</sup>Montana State University, Bozeman, MT, <sup>3</sup>Montana State University, Huntley, MT (34)

**Confirmation of a Three-way (Thifensulfuron, Atrazine and Glyphosate) Herbicide Resistant Population of Palmer Amaranth (*Amaranthus palmeri*) in North Carolina.** Ronel J. Argueta\*, Eric A. Jones, Diego J. Contreras, Charlie W. Cahoon, Wesley Everman; North Carolina State University, Raleigh, NC (35)

†**Axant™ Flex Cotton Response and Residual Weed Management Using HPPD Inhibiting Herbicides.** Megan Mills\*<sup>1</sup>, Peter A. Dotray<sup>2</sup>, Gregory B. Baldwin<sup>3</sup>, Scott Asher<sup>4</sup>, Adam C. Hixson<sup>4</sup>, Maxwell E. Smith<sup>1</sup>, Blaine A. Patton<sup>1</sup>, Kyle

R. Russell<sup>1</sup>, Bobby Rodriguez<sup>5</sup>; <sup>1</sup>Texas Tech University, Lubbock, TX, <sup>2</sup>Texas Tech University and Texas A&M AgriLife Research & Extension Service, Lubbock, TX, <sup>3</sup>BASF, Research Triangle Park, NC, <sup>4</sup>BASF, Lubbock, TX, <sup>5</sup>Texas A&M AgriLife Extension, Lubbock, TX (36)

**Hybrid Rice Tolerance with Various Fenclorim Seed Treatments and Microencapsulated Acetochlor.** Tristen H. Avent\*, Jason K. Norsworthy, Leonard B. Piveta, Casey H. Arnold, Pamela Carvalho-Moore; University of Arkansas, Fayetteville, AR (37)

†**Transgenes Flow from Corn Confer Resistance to Glyphosate and Glufosinate-Ammonium in Teosinte (Zea Mays Subsp. Mexicana).** Luan Cutti\*<sup>1</sup>, Paula Sinigaglia Angonese<sup>1</sup>, Guilherme Menegol Turra<sup>1</sup>, Estéfani Sulzbach<sup>1</sup>, Catarine Markus<sup>1</sup>, Todd A. Gaines<sup>2</sup>, Aldo Merotto<sup>1</sup>; <sup>1</sup>Federal University of Rio Grande do Sul, Porto Alegre, Brazil, <sup>2</sup>Colorado State University, Fort Collins, CO (38)

**Comparing Remotely-Sensed Data for Estimating Palmer Amaranth and Soybean Canopy Cover.** Byron Evers<sup>1</sup>, Hannah Buessing<sup>2</sup>, Christopher Weber<sup>2</sup>, Sarah Lancaster\*<sup>2</sup>; <sup>1</sup>Bayer CropScience, Manhattan, KS, <sup>2</sup>Kansas State University, Manhattan, KS (39)

†**A Metabolization System Affected by Temperature is Associated with Florpyrauxifen-benzyl Resistance in Barnyardgrass (Echinochloa Crus-galli).** Luan Cutti\*<sup>1</sup>, Crystal D. Sparks<sup>2</sup>, André Lucas Simões Araujo<sup>2</sup>, Angela Da Cas Bundt<sup>3</sup>, Catarine Markus<sup>1</sup>, Todd A. Gaines<sup>2</sup>, Aldo Merotto<sup>1</sup>; <sup>1</sup>Federal University of Rio Grande do Sul, Porto Alegre, Brazil, <sup>2</sup>Colorado State University, Fort Collins, CO, <sup>3</sup>Corteva Agriscience, Santa Maria, Brazil (40)

**Evaluation of the Axant™ Flex Cotton System.** Zachary R. Treadway\*<sup>1</sup>, Jennifer Dudak<sup>1</sup>, Todd A. Baughman<sup>1</sup>, Adam C. Hixson<sup>2</sup>, Gregory B. Baldwin<sup>3</sup>; <sup>1</sup>Oklahoma State University, Ardmore, OK, <sup>2</sup>BASF, Lubbock, TX, <sup>3</sup>BASF, Research Triangle Park, NC (41)

†**Use of New Sorghum Herbicide Technologies to Control Annual Grass Weeds.** Blaine A. Patton\*<sup>1</sup>, Peter A. Dotray<sup>2</sup>; <sup>1</sup>Texas Tech University, Lubbock, TX, <sup>2</sup>Texas Tech University, Texas A&M AgriLife Research, Texas A&M AgriLife Extension, Lubbock, TX (42)

**Distribution of Target Site Mutations in PPO2 Gene in Waterhemp (Amaranthus Tuberculatus) and Palmer Amaranth (A. Palmeri) Populations in the USA Conferring Resistance to PPO Inhibiting Herbicides.** Daljit Singh<sup>1</sup>, Jacob S. Montgomery<sup>2</sup>, Jaishree Chitoo<sup>3</sup>, Chandrashekar Aradhya<sup>3</sup>, Alejandro Perez-Jones\*<sup>3</sup>; <sup>1</sup>Bayer, Chesterfield, MO, <sup>2</sup>Colorado



State University, Fort Collins, CO, <sup>3</sup>Bayer Crop Science, Chesterfield, MO (43)

**Palmer Amaranth (*Amaranthus palmeri*) Management in Kansas Cotton (*Gossypium hirsutum*).** Tyler P. Meyeres\*<sup>1</sup>, Lucas Haag<sup>2</sup>, Gaylon Morgan<sup>3</sup>, Sarah Lancaster<sup>1</sup>; <sup>1</sup>Kansas State University, Manhattan, KS, <sup>2</sup>Kansas State University, Colby, KS, <sup>3</sup>Cotton Incorporated, Cary, NC (44)

**†Changes in Nutrient Partitioning Following Low Rates of 2,4-D.** Kyle R. Russell\*<sup>1</sup>, Peter A. Dotray<sup>2</sup>, Irish L. B. Pabuayon<sup>3</sup>, Glen L. Ritchie<sup>1</sup>; <sup>1</sup>Texas Tech University, Lubbock, TX, <sup>2</sup>Texas Tech University, Texas A&M AgriLife Research, Texas A&M AgriLife Extension, Lubbock, TX, <sup>3</sup>LSU AgCenter, Rayne, LA (45)

**First Report of Multiple-Herbicide Resistance in Walter's Barnyardgrass in Texas Rice.** Nithya K. Subramanian\*, Tamara T. Mundt, Isidor Ceperkovic, Gabriella Elizarraras, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX (46)

**†Preemergence Control of *Amaranthus palmeri* and Axant™ Flex Cotton Weed Management Systems Using Isoxaflutole.** Maxwell E. Smith\*<sup>1</sup>, Peter A. Dotray<sup>2</sup>, Adam C. Hixson<sup>3</sup>; <sup>1</sup>Texas Tech University, Lubbock, TX, <sup>2</sup>Texas Tech University, Texas A&M AgriLife Research, Texas A&M AgriLife Extension, Lubbock, TX, <sup>3</sup>BASF, Lubbock, TX (47)

**Evaluation of Axant Flex Systems in Mid-South Cotton.** Bradley J. Norris\*, Brian K. Pieralisi, Darrin M. Dodds, Tyler S. Soignier, William J. Rutland; Mississippi State University, Starkville, MS (48)

**†Crabgrass and Texas Panicum Control with Group 15 Herbicides Applied Preemergence.** Livia Pereira\*, Steve Li, Ryan D. Langemeier, Justin T. McCaghren; Auburn University, Auburn, AL (49)

**Effect of Grassy Weed Herbicides on Cereal Rye.** Ethan B. Whitmoyer\*, Dwight Lingenfelter, John M. Wallace; Penn State University, University Park, PA (50)

**†Evaluating Weed Control and Crop Response of Pyridate in Field Pea.** Adam Leise\*<sup>1</sup>, Amit J. Jhala<sup>1</sup>, Dennis Long<sup>2</sup>; <sup>1</sup>University of Nebraska Lincoln, Lincoln, NE, <sup>2</sup>Belchim, Manchester, TN (51)

**Evaluation of Biological Nitrification Inhibition (BNI) Potential in Cover Crops.** Nithya K. Subramanian\*, Nithya Rajan, Sanjay Antony-Babu, Tamara T. Mundt, Megan L. Schill, Dinesh Phuyal, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX (52)

†**Long-term Palmer Amaranth (*Amaranthus palmeri*) Management in Dicamba-Resistant Cotton Using Herbicide Programs, Crop Rotations, and Tillage.** Rohith Vulchi\*<sup>1</sup>, Joshua A. McGinty<sup>2</sup>, Scott A. Nolte<sup>3</sup>; <sup>1</sup>Texas A&M University, College Station, TX, <sup>2</sup>Texas A&M AgriLife Extension, Corpus Christi, TX, <sup>3</sup>Texas A&M AgriLife Extension, College Station, TX (53)

**Spot Treatment of Clethodim on Weedy Rice.** Rasim Unan\*, Liberty B. Galvin, Aaron Becerra-Alvarez; University of California, Davis, Davis, CA (54)

†**Utilizing Novel Application Methods to Mitigate Auxin + Graminicide Herbicide Antagonism.** Jake A. Patterson\*<sup>1</sup>, Darrin M. Dodds<sup>1</sup>, Antonio Augusto Correa Tavares<sup>2</sup>, Gresham A. Stephens<sup>1</sup>, Caleb K. Meyer<sup>1</sup>, Sydney C. Baker<sup>1</sup>; <sup>1</sup>Mississippi State University, Starkville, MS, <sup>2</sup>University of Nebraska-Lincoln, North Platte, NE (55)

**Early Season Weed Control in Rice on Organic Soils with Preemergence Herbicides.** D Calvin Odero\*; University of Florida, Belle Glade, FL (56)

†**Impact of Cereal Rye Cover Crop Seeding Rate and Termination Timing on Weed Management in Soybean.** Eric Y. Yu\*<sup>1</sup>, Axel Garcia y Garcia<sup>2</sup>, Lizabeth Stahl<sup>3</sup>, Ryan P. Miller<sup>4</sup>, Gregg A. Johnson<sup>1</sup>, Ce Yang<sup>1</sup>, William Lazarus<sup>1</sup>, Debalin Sarangi<sup>1</sup>; <sup>1</sup>University of Minnesota, St. Paul, MN, <sup>2</sup>University of Minnesota, Lamberton, MN, <sup>3</sup>University of Minnesota Extension, Worthington, MN, <sup>4</sup>University of Minnesota, Rochester, MN (57)

**Intercropping Soybean and Corn into the New Winter Oilseed Crop Golden Pennycress (*Thlaspi arvense*).** Brent S. Heaton\*, Tad L. Wesley, Winthrop B. Phippen, Mark L. Bernards; Western Illinois University, Macomb, IL (58)

**Quantifying the Impact of Herbicide Drift on Peanuts Using Unmanned Aerial System.** Pratap Devkota\*, Navjot Singh, Joseph E. Iboyi; University of Florida, Jay, FL (59)

**Weed Seed Fate at Corn Harvest.** Haylee E. Schreier\*<sup>1</sup>, Jacob E. Vaughn<sup>1</sup>, Kevin W. Bradley<sup>1</sup>, Bryan G. Young<sup>2</sup>, Jason K. Norsworthy<sup>3</sup>, Prashant Jha<sup>4</sup>, Travis Legleiter<sup>5</sup>, Bill Johnson<sup>6</sup>; <sup>1</sup>University of Missouri, Columbia, MO, <sup>2</sup>Purdue University, Brookston, IN, <sup>3</sup>University of Arkansas, Fayetteville, AR, <sup>4</sup>Iowa State University, Ames, IA, <sup>5</sup>University of Kentucky, Princeton, KY, <sup>6</sup>Purdue University, Brookston, IN (60)

**Seed Germination Responses of Branched Broomrape (*Phelipanche ramosa*) to Different Sanitation Chemicals and**

**Exposure Durations.** Pershang Hosseini\*; Brad Hanson, University of California, Davis, Davis, CA (61)

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***TUESDAY MORNING JANUARY 31***

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**POSTER - 02. Horticultural Crops**

LOCATION: Salon IV-VI  
TIME: 08:00 AM - 10:00 AM Eastern Time

**WSSA Student Competition Posters will be judged Tuesday only**

**NEWSS Student Competition Posters will be judged Wednesday only**

**\*PRESENTER † STUDENT CONTEST**

**Sensitivity of Selected mid-Atlantic Vegetables to Simulated Dicamba Drift Rates.** Maggie H. Wasacz<sup>1</sup>, Baylee L. Carr<sup>2</sup>, Mark VanGessel<sup>3</sup>, Thierry E. Besancon\*<sup>4</sup>; <sup>1</sup>Rutgers University, Wall Township, NJ, <sup>2</sup>Rutgers University - Weed Science, Chatsworth, NJ, <sup>3</sup>University of Delaware, Georgetown, DE, <sup>4</sup>Rutgers University, Chatsworth, NJ (62)

**†Integrating Pre-emergence Herbicides with Potential Safeners for Purple Nutsedge (*Cyperus rotundus* L.) Management in Florida's Tomato Plasticulture Production.** Ruby Tiwari\*<sup>1</sup>, Nathan Boyd<sup>2</sup>, Pamela Roberts<sup>1</sup>, Samira Daroub<sup>3</sup>, Ramdas Kanissery<sup>1</sup>; <sup>1</sup>University of Florida, Immokalee, FL, <sup>2</sup>University of Florida, Balm, FL, <sup>3</sup>University of Florida, Everglades, FL (63)

**Carolina Redroot: Long Term Management with Sequential Residual Herbicide Applications in Cranberry.** Thierry E. Besancon\*<sup>1</sup>, Baylee L. Carr<sup>2</sup>, Wesley M. Bouchelle<sup>1</sup>; <sup>1</sup>Rutgers University, Chatsworth, NJ, <sup>2</sup>Rutgers University - Weed Science, Chatsworth, NJ (64)

**†Evaluation of Weed Removal Timing for Three Sweetpotato (*Ipomoea batatas* L.) Cultivars.** Emmanuel G. Cooper\*<sup>1</sup>, Stephen L. Meyers<sup>1</sup>, Jeanine Arana<sup>2</sup>; <sup>1</sup>Purdue University, West Lafayette, IN, <sup>2</sup>Purdue University/Horticulture, West Lafayette, IN (65)

**Assessing the Risk of Injury Induced by Chloroacetamide and Diphenylether Mixing in Cole Crops Production.** Wesley M. Bouchelle\*<sup>1</sup>, Elizabeth C. Maloney<sup>2</sup>, Lynn M. Sosnoskie<sup>2</sup>,

Thierry E. Besancon<sup>1</sup>; <sup>1</sup>Rutgers University, Chatsworth, NJ,  
<sup>2</sup>Cornell University, Geneva, NY (66)

†**Evaluation of Weed Control Efficacy and Crop Safety of the PPO-inhibiting Herbicide, Tiafenacil in California Orchard Cropping Systems.** Guelta Laguerre\*; Brad Hanson, UC Davis Department of Plant Sciences, Davis, CA (67)

**Evaluating Vision-Guided Spraying for Use in Vineyards.** Bethany M. Schulteis\*<sup>1</sup>, Elizabeth C. Maloney<sup>2</sup>, Emily J. Sausser<sup>3</sup>, Terry Bates<sup>1</sup>, Lynn M. Sosnoskie<sup>2</sup>; <sup>1</sup>Cornell University, Ithaca, NY, <sup>2</sup>Cornell University, Geneva, NY, <sup>3</sup>Lebanon Valley College, Annville, PA (68)

†**Interference of Palmer Amaranth (*Amaranthus palmeri*) in Stevia (*Stevia rebaudiana*).** Stephen Ippolito\*<sup>1</sup>, Katherine M. Jennings<sup>1</sup>, David W. Monks<sup>1</sup>, Sushila Chaudhari<sup>2</sup>, David L. Jordan<sup>1</sup>, Levi D. Moore<sup>1</sup>, Colton D. Blankenship<sup>1</sup>, Kira C. Sims<sup>1</sup>, Fnu Chitra<sup>1</sup>; <sup>1</sup>North Carolina State University, Raleigh, NC, <sup>2</sup>Michigan State University, East Lansing, MI (69)

**Influence of Growth Stage and Dicamba Rate on Eggplant, Cucumber, and Snap Bean Tolerance and Yield Response.** Maggie H. Wasacz<sup>1</sup>, Lynn M. Sosnoskie<sup>2</sup>, Mark VanGessel<sup>3</sup>, Thierry E. Besancon\*<sup>4</sup>; <sup>1</sup>Rutgers University, Wall Township, NJ, <sup>2</sup>Cornell University, Geneva, NY, <sup>3</sup>University of Delaware, Georgetown, DE, <sup>4</sup>Rutgers University, Chatsworth, NJ (70)

†**Effect of S-metolachlor and Flumioxazin Herbicides on Sweetpotato Treated with and without Activated Charcoal Applied Through Transplant Water.** Colton D. Blankenship\*<sup>1</sup>, Katherine M. Jennings<sup>1</sup>, David W. Monks<sup>1</sup>, David L. Jordan<sup>1</sup>, Stephen L. Meyers<sup>2</sup>, Jonathan R. Schultheis<sup>1</sup>, David H. Suchoff<sup>1</sup>; <sup>1</sup>North Carolina State University, Raleigh, NC, <sup>2</sup>Purdue University, West Lafayette, IN (71)

**Tiafenacil Alone and in Combination with Preemergence Herbicides for Burndown and Residual Weed Control in Grapes.** Elizabeth C. Maloney\*, Lynn M. Sosnoskie; Cornell University, Geneva, NY (72)

**In Search of New Weed Management Tools in Spinach, Cilantro, and Parsley for Georgia Farmers.** A Stanley Culpepper\*, Jenna C. Vance, Taylor M. Randell-Singleton; University of Georgia, Tifton, GA (73)

**Current Status of Weed Management in Washington State Vegetable Production.** Rui Liu\*<sup>1</sup>, Tim Waters<sup>2</sup>; <sup>1</sup>Washington State University, Prosser, WA, <sup>2</sup>Washington State University, Pasco, WA (74)

**Defoliation Timing and Growth Responses of Seedling Field Bindweed and Honeyvine Milkweed.** Melissa McClements\*<sup>1</sup>,

Lynn M. Sosnoskie<sup>2</sup>; <sup>1</sup>Cornell, Geneva, NY, <sup>2</sup>Cornell University, Geneva, NY (75)

**Hemp and Weed Competition in New York.** Lynn M. Sosnoskie\*, Elizabeth C. Maloney; Cornell University, Geneva, NY (76)

**Dicamba Residue Persistence in Processing Tomato.** Stephen L. Meyers\*<sup>1</sup>, Jeanine Arana<sup>2</sup>, Brandi C. Woolam<sup>3</sup>, Nathaly Belen Vargas Arroyo<sup>1</sup>, Laura D. Rodriguez Baquero<sup>4</sup>, Luz Aide Cardona Giraldo<sup>1</sup>; <sup>1</sup>Purdue University, West Lafayette, IN, <sup>2</sup>Purdue University/Horticulture, West Lafayette, IN, <sup>3</sup>LSU AgCenter, Alexandria, LA, <sup>4</sup>University of Wisconsin-Madison, Madison, WI (77)

**Weed Surveys of Lima Bean (*Phaseolus lunatus*) Fields in United States Production Systems.** Yudai K. Takenaka\*<sup>1</sup>, Jed Colquhoun<sup>2</sup>, Scott Lukas<sup>3</sup>, Pavle Pavlovic<sup>4</sup>, Barbara Scott<sup>5</sup>, Mark VanGessel<sup>5</sup>, Martin Williams<sup>6</sup>; <sup>1</sup>University of Illinois at Urbana-Champaign, Urbana, IL, <sup>2</sup>University of Wisconsin-Madison, Madison, WI, <sup>3</sup>Oregon State University, Hermiston, OR, <sup>4</sup>University of Illinois, Champaign, IL, <sup>5</sup>University of Delaware, Georgetown, DE, <sup>6</sup>USDA-ARS, Urbana, IL (78)

**Michigan's Experience with Sugarbeet Tolerance to Acifluorfen.** Brian J. Stiles II\*, Gary Edward Powell, Christy L. Sprague; Michigan State University, East Lansing, MI (79)

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***TUESDAY MORNING JANUARY 31***

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**POSTER - 03. Turf and Ornamentals**

LOCATION: Salon IV-VI  
TIME: 08:00 AM - 10:00 AM Eastern Time

**WSSA Student Competition Posters will be judged Tuesday only**

**NEWSS Student Competition Posters will be judged Wednesday only**

\*PRESENTER † STUDENT CONTEST

**Efficacy of Organic Turf and Landscape Herbicides in Montgomery County, Maryland.** Kelly M. Nichols\*; University of Maryland Extension, Derwood, MD (80)

†**Ethofumesate Resistant Annual Bluegrass in Oregon Grass Seed Production Systems.** Vera Vukovic\*, Aaron J. Patton; Purdue University, West Lafayette, IN (81)

**Glufosinate and Clethodim Efficacy on Bermudagrass.** Joe C. Neal\*, Christopher D. Harlow; North Carolina State University, Raleigh, NC (82)

†**Site-Specific Treatment of Kyllinga in Golf Fairways Using a Remotely Piloted Aerial Application System.** Ubaldo Torres\*<sup>1</sup>, Daniel E. Martin<sup>2</sup>, Bholuram Gurjar<sup>1</sup>, Bishwa B. Sapkota<sup>1</sup>, Andrew W. Osburn<sup>1</sup>, Chase M. Straw<sup>1</sup>, Muthukumar V. Bagavathiannan<sup>1</sup>; <sup>1</sup>Texas A&M University, College Station, TX, <sup>2</sup>United States Department of Agriculture, College Station, TX (83)

**Non-Target Site Resistance Mechanisms in Annual Bluegrass (*Poa annua*).** Ronald R. Rogers\*, Travis Gannon, Khalied Ahmed, Mathieu LeCompte; North Carolina State University, Raleigh, NC (84)

†**Characterization of Potential Quinclorac-Resistant Smooth Crabgrass (*Digitaria ischaemum*) Population.** Claudia A. Rutland\*<sup>1</sup>, Bridgette C. Johnson<sup>2</sup>, James D. McCurdy<sup>3</sup>, Joseph S. McElroy<sup>2</sup>; <sup>1</sup>Auburn University Department of Crop, Soil, and Environmental Sciences, Auburn, AL, <sup>2</sup>Auburn University, Auburn, AL, <sup>3</sup>Mississippi State University, Starkville, MS (85)

**Halosulfuron and Sulfentrazone Combinations for False-green Kyllinga (*Kyllinga gracillima*) Control.** Daniel P. Tuck\*<sup>1</sup>, Matthew T. Elmore<sup>1</sup>, Charles A. Silcox<sup>2</sup>; <sup>1</sup>Rutgers University, New Brunswick, NJ, <sup>2</sup>Amvac Chemical, Lincoln University, PA (86)

†**Phenotypic and Reproductive Trait Diversity of *Poa annua* L. (Annual Bluegrass) in Common Garden Experiments Across Multiple Ecoregions in the United States.** Andrew W. Osburn\*, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX (87)

**Mowing Height Influences False-Green Kyllinga (*Kyllinga gracillima*) Establishment in Perennial Ryegrass Turf.** Matthew T. Elmore\*, Daniel P. Tuck; Rutgers University, New Brunswick, NJ (88)

**Injury to Nursery Crops from Herbicide Residues in a Contaminated Irrigation Water.** Ada C. Montoya\*, Joe C. Neal, Wesley Everman, Christopher D. Harlow, Travis Gannon; North Carolina State University, Raleigh, NC (89)

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**TUESDAY MORNING JANUARY 31**

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**POSTER - 04. Pasture, Range, Forest, & Rights of ways, Wildland, and Aquatic Invasive plants**

LOCATION: Salon IV-VI  
TIME: 08:00 AM - 10:00 AM Eastern Time

**WSSA Student Competition Posters will be judged Tuesday only**

**NEWSS Student Competition Posters will be judged Wednesday only**

**\*PRESENTER † STUDENT CONTEST**

**Guardrail Bareground Applications in KY: Spring or Fall Timing? Control Next Season?** Joseph Omielan\*; University of Kentucky, Lexington, KY (90)

**†Evaluation of Hemp Dogbane (*Apocynum cannabinum*) Response to Auxinic Herbicides.** Kayla L. Broster\*, John D. Byrd, Jr.; Mississippi State University, Starkville, MS (91)

**Environmental Variables Influence Native Plant Composition of Virginia Roadside.** Shawn Askew\*, Clebson G. Goncalves; Virginia Tech, Blacksburg, VA (92)

**Does PRE Herbicide Timing Affect the Control of Foxtail Species (*Setaria* Spp.) in Southern Forages.** Nicholas T. Basinger\*<sup>1</sup>, Chris Bocz<sup>1</sup>, Sambit Shome<sup>2</sup>, Hannah C. Lindell<sup>3</sup>; <sup>1</sup>The University of Georgia, Athens, GA, <sup>2</sup>University of Georgia, Athens, GA, <sup>3</sup>The University of Georgia Crop and Soil Science, Athens, GA (93)

**Do Forage Grasses Tolerate Graminicides?** Dwight Lingenfelter\*, John M. Wallace; Penn State University, University Park, PA (94)

**Invasive Aquatic and Native Marine Vegetation on the Mississippi Barrier Islands.** Gray Turnage\*, Andrew Sampe; Mississippi State University, Starkville, MS (95)

**Vegetation Damage by Ecosystem Disturbance Plants '*Sicyos angulatus* and *Humulus japonicus*' in Korea.** Soo-Hyun Lim\*; Korea National Open University, Seoul, South Korea (96)

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**TUESDAY MORNING JANUARY 31**

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**POSTER - 06. Teaching and Extension**

LOCATION: Salon IV-VI  
TIME: 08:00 AM - 10:00 AM Eastern  
Time

**WSSA Student Competition Posters will be judged  
Tuesday only**

**NEWSS Student Competition Posters will be judged  
Wednesday only**

**\*PRESENTER † STUDENT CONTEST**

**P23: Join the WSSA Plant Names Committee.** Theresa Piskackova\*; Czech University of Life Sciences Prague, Prague 6 - Suchdol, Czechia (Czech Republic) (97)

**†WeedR: An R Package and Shiny Application for Weed Scientists.** Lucas Kopecky Bobadilla\*<sup>1</sup>, Patrick Tranel<sup>2</sup>; <sup>1</sup>University of Illinois, Champaign, IL, <sup>2</sup>University of Illinois, Urbana, IL (98)

**Weeds of the Northeast - 2nd Edition.** Joe C. Neal\*<sup>1</sup>, Richard H. Uva<sup>2</sup>, Joe M. DiTomaso<sup>3</sup>, Antonio DiTommaso<sup>4</sup>; <sup>1</sup>North Carolina State University, Raleigh, NC, <sup>2</sup>Seaberry Farms, LLC, Federalsburg, MD, <sup>3</sup>UC Davis, retired, Davis, CA, <sup>4</sup>Cornell University, Ithaca, NY (99)

**†Comparing the Accuracy of Available Weather Resources for Pesticide Applicators in Texas.** Rohith Vulchi\*<sup>1</sup>, Zachary S. Howard<sup>1</sup>, Don Conlee<sup>1</sup>, Scott A. Nolte<sup>2</sup>; <sup>1</sup>Texas A&M University, College Station, TX, <sup>2</sup>Texas A&M AgriLife Extension, College Station, TX (100)

~~**Things That Work: Integrated Weed Management Teaching Modules That Stood the Test of Time.** David A. Mortensen\*; University of New Hampshire, Durham, NH (101)~~

**The Importance of Communicating Agricultural Science and Technology □ the Role of CAST and You!** Anthony L. Witcher\*<sup>1</sup>, Jill Schroeder<sup>2</sup>; <sup>1</sup>Tennessee State University, Mcminnville, TN, <sup>2</sup>New Mexico State University, Las Cruces, NM (102)

**Undergraduate Student Research Experience -- from Proposal to Poster Presentation in *AGRN 479 Weed Science*.**



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***TUESDAY MORNING JANUARY 31***

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**POSTER - 07. Formulation, Adjuvant, &  
Application Technology**

LOCATION: Salon IV-VI  
TIME: 08:00 AM - 10:00 AM Eastern  
Time

**WSSA Student Competition Posters will be judged  
Tuesday only**

**NEWSS Student Competition Posters will be judged  
Wednesday only**

**\*PRESENTER † STUDENT CONTEST**

**†Weed Management Using Unmanned Aerial Systems.**  
Dhiraj Srivastava\*<sup>1</sup>, Vijay Singh<sup>2</sup>, Vipin Kumar<sup>1</sup>; <sup>1</sup>Virginia  
Polytechnic Institute and State University, Painter, VA, <sup>2</sup>Virginia  
Tech, Painter, VA (104)

**†Designing and Testing an Ultra-Low Volume Spray System  
for Site-Specific Herbicide Application Using Ground  
Robots.** Bholuram Gurjar\*, Sunil Kumar, Joe Johnson, Robert  
Hardin, Muthukumar V. Bagavathiannan; Texas A&M  
university, College Station, TX (105)

**†Clethodim Antagonism from Dicamba on Volunteer Corn  
Control in Soybean Was Resolved by Using a Dual  
Tank/Boom Sprayer.** Marcelo Zimmer\*<sup>1</sup>, Bryan G. Young<sup>2</sup>,  
William G. Johnson<sup>1</sup>, Tristen H. Avent<sup>3</sup>, Jason K. Norsworthy<sup>3</sup>,  
Diego J. Contreras<sup>4</sup>, Wesley Everman<sup>4</sup>, Michael M. Houston<sup>5</sup>,  
Lauren M. Lazaro<sup>6</sup>, William L. Patzoldt<sup>6</sup>; <sup>1</sup>Purdue University,  
West Lafayette, IN, <sup>2</sup>Purdue University, Brookston, IN,  
<sup>3</sup>University of Arkansas, Fayetteville, AR, <sup>4</sup>North Carolina State  
University, Raleigh, NC, <sup>5</sup>Blue River Technology, Greenville,  
MS, <sup>6</sup>Blue River Technology, Sunnyvale, CA (106)

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***TUESDAY MORNING JANUARY 31***

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**POSTER - 08. Weed Biology and Ecology**

LOCATION: Salon IV-VI  
TIME: 08:00 AM - 10:00 AM Eastern  
Time

**WSSA Student Competition Posters will be judged  
Tuesday only**

**NEWSS Student Competition Posters will be judged  
Wednesday only**

\*PRESENTER † STUDENT CONTEST

**The Critical Period for Weed 'Seed' Control: Concept and its Application.** Charles M. Geddes\*<sup>1</sup>, Adam S. Davis<sup>2</sup>;  
<sup>1</sup>Agriculture and Agri-Food Canada, Lethbridge, AB, Canada,  
<sup>2</sup>University of Illinois, Urbana, IL (107)

†**Light Quality Manipulation as a Seedbank Management Tool for Palmer Amaranth (*Amaranthus palmeri*).** Sarah E. Kezar\*, Shuyang Zhen, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX (108)

**Quantifying Long-term Competitiveness of Weed Species in a Cereal-legume Rotation.** Jose L. Gonzalez-Andujar\*<sup>1</sup>, Maria J. Aguilera<sup>2</sup>, Rene Van Acker<sup>3</sup>; <sup>1</sup>Instituto de Agricultura Sostenible (CSIC), Cordoba, Spain, <sup>2</sup>Departamento de Física Aplicada, Universidad de Córdoba, Cordoba, Spain, <sup>3</sup>Ontario Agricultural College, University of Guelph, Guelph, ON, Canada (109)

†**Characteristics of Self-fertilization in *Lilium formosanum* Var. *pricei*.** Sawa Seoka\*, Hidehiro Inagaki; Shizuoka university, Shizuoka, Japan (110)

**The Role of Cytochrome P450 in Herbicide Metabolism.** Fatemeh Abdollahi\*; Postdoctoral researcher, Fort Collins, CO (111)

†**In the Ruins: The Neglected Link Between Archaeology and Weed Science.** Alice C. Wolff\*<sup>1</sup>, Sophie Westbrook<sup>2</sup>, Antonio DiTommaso<sup>2</sup>; <sup>1</sup>Cornell University/Medieval Studies, Ithaca, NY, <sup>2</sup>Cornell University, Ithaca, NY (112)

**Rational Design of an Artificial Weed for High-Throughput Soil Bin Physical Weed Control Tool Testing.** Sonora Ortiz\*<sup>1</sup>, Eric R. Gallandt<sup>1</sup>, Bashir Khoda<sup>1</sup>, Margaret R. McCollough<sup>1</sup>, Daniel C. Brainard<sup>2</sup>; <sup>1</sup>University of Maine, Orono, ME, <sup>2</sup>Michigan State University, East Lansing, MI (113)

†**Cereal Rye Residue Effects on the Germination of Troublesome Southeastern Weeds.** Annu Kumari\*<sup>1</sup>, Steve Li<sup>1</sup>, Andrew J. Price<sup>2</sup>; <sup>1</sup>Auburn University, Auburn, AL, <sup>2</sup>USDA-ARS, Auburn, AL (114)

**Elevated CO<sub>2</sub> and Temperature Effects on Growth and Photosynthetic Responses in Purple and Yellow Nutsedge (*Cyperus rotundus* L. and *C. esculentus* L.).** Srinivasa Rao Pinnamaneni\*, Krishna N. Reddy; Crop Production Systems Research Unit USDA-ARS, Stoneville, MS (115)

**†Analysis of the Recently Completed Genome of *Salsola tragus* (Russian Thistle), a Tenacious Tetraploid Tumbleweed.** John M. Lemas\*<sup>1</sup>, Eric L. Patterson<sup>2</sup>, Sarah Morran<sup>1</sup>, Nickolas A. Johnson<sup>2</sup>, Jacob S. Montgomery<sup>1</sup>, Victor Llaca<sup>3</sup>, Kevin Fengler<sup>3</sup>, Philip Westra<sup>1</sup>, Todd A. 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 (116)

**Using Weed Extracts to Protect Sweet Potato from Deer Browsing.** Ziming Yue<sup>1</sup>, Karina Beneton<sup>1</sup>, Presley Lee<sup>2</sup>, Mark Hall<sup>3</sup>, Callie J. Morris<sup>1</sup>, Mark W. Shankle<sup>3</sup>, Te-Ming (Paul) Tseng\*<sup>1</sup>; <sup>1</sup>Mississippi State University, Starkville, MS, <sup>2</sup>North Pontotoc High School, Pontotoc, MS, <sup>3</sup>Mississippi State University, Pontotoc, MS (117)

**†Competitive Interactions Between Sorghum and Johnsongrass (*Sorghum halepense*) is Influenced by Multiple Abiotic Stress Factors.** Vikas C. Tyagi\*, Aniruddha Maity, Nithya K. Subramanian, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX (118)

**Integrating Ecological Tactics to Manage Multiple Herbicide-Resistant Pigweeds in U.S. Soybean Production.** Prashant Jha\*<sup>1</sup>, Jason K. Norsworthy<sup>2</sup>, Vipin Kumar<sup>3</sup>, Karla L. Gage<sup>4</sup>; <sup>1</sup>Iowa State University, Ames, IA, <sup>2</sup>University of Arkansas, Fayetteville, AR, <sup>3</sup>Kansas State University, Hays, KS, <sup>4</sup>Southern Illinois University Carbondale, Carbondale, IL (119)

**†CO<sub>2</sub> And Temperature Effects on Herbicide-resistant and Susceptible Palmer Amaranth Biotypes.** Juliana de Souza Rodrigues\*<sup>1</sup>, Timothy L. Grey<sup>2</sup>, Donn Shilling<sup>3</sup>, Todd A. Gaines<sup>4</sup>, Nicholas T. Basinger<sup>5</sup>, John Snider<sup>2</sup>, Viktor Tishchenko<sup>6</sup>; <sup>1</sup>University of Georgia/Department of Crop and Soil Science, Tifton, GA, <sup>2</sup>University of Georgia, Tifton, GA, <sup>3</sup>University of Georgia, Athens, GA, <sup>4</sup>Colorado State University, Fort Collins, CO, <sup>5</sup>The University of Georgia, Athens, GA, <sup>6</sup>University of Georgia, Griffin, GA (120)

**Influence of Multiple Abiotic Stress Factors on Pollen Viability and Stigma Receptivity of Johnsongrass (*Sorghum halepense*).** Vikas C. Tyagi\*, Aniruddha Maity, Nithya K. Subramanian, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX (121)

†**Differentiation Between Yellow Foxtail (*Setaria pumilla*) and Knotroot Foxtail (*Setaria parviflora*) Via Morphological Characteristics and Genetics Markers.** Mikerly M. Joseph\*<sup>1</sup>, Joseph S. McElroy<sup>1</sup>, Claudia A. Rutland<sup>2</sup>; <sup>1</sup>Auburn University, Auburn, AL, <sup>2</sup>Auburn University Department of Crop, Soil, and Environmental Sciences, Auburn, AL (122)

†**Insights into Weed Aboveground and Seedbank Dynamics from a Long-Term Cropping Systems Experiment.** Natasha Djuric\*<sup>1</sup>, Michel A. Cavigelli<sup>2</sup>, Steven Brian Mirsky<sup>2</sup>, Eugene P. Law<sup>3</sup>, Antonio DiTommaso<sup>1</sup>, Matthew R. Ryan<sup>1</sup>; <sup>1</sup>Cornell University, Ithaca, NY, <sup>2</sup>USDAARS, Beltsville, MD, <sup>3</sup>University of Delaware, Beltsville, MD (123)

†**Evapotranspiration of Volunteer Corn in Corn, Soybean, and Sorghum Cropping Systems.** Mandeep Singh\*<sup>1</sup>, John Lindquist<sup>2</sup>, Stevan Knezevic<sup>2</sup>, Suat Irmak<sup>3</sup>, Vipin Kumar<sup>4</sup>, Amit J. Jhala<sup>1</sup>; <sup>1</sup>University of Nebraska-Lincoln, Lincoln, NE, <sup>2</sup>University of Nebraska, Lincoln, NE, <sup>3</sup>Penn State University, University Park, PA, <sup>4</sup>Kansas State University, Hays, KS (124)

†**Predicting Yield Loss Using the Kropff-Spitters Model and Early Season Leaf Area Indices.** Avi S. Goldsmith\*, Sandra R. Ethridge, Ramon G. Leon, Robert Austin; North Carolina State University, Raleigh, NC (125)

†**Fate of *Amaranthus palmeri* (Palmer Amaranth) and *A. tuberculatus* (Waterhemp) Seeds Under Cereal Rye Cover Crop Across the North Central Region.** Lily A. Woitaszewski\*<sup>1</sup>, Sarah Lancaster<sup>1</sup>, Anita Dille<sup>1</sup>, Kevin W. Bradley<sup>2</sup>, Mandy Bish<sup>2</sup>, William G. Johnson<sup>3</sup>, Bryan G. Young<sup>4</sup>, Claudia R. Bland<sup>3</sup>, Joseph T. Ikley<sup>5</sup>, Rodrigo Werle<sup>6</sup>, Nicholas J. Arneson<sup>6</sup>; <sup>1</sup>Kansas State University, Manhattan, KS, <sup>2</sup>University of Missouri, Columbia, MO, <sup>3</sup>Purdue University, West Lafayette, IN, <sup>4</sup>Purdue University, Brookston, IN, <sup>5</sup>North Dakota State University, Fargo, ND, <sup>6</sup>University of Wisconsin-Madison, Madison, WI (126)

†**Building Reference Genome of Canada Thistle (*Cirsium Arevense*) and Identifying Genomic Regions Behind Sex Determination.** Sofia Marques-hill\*<sup>1</sup>, Todd A. Gaines<sup>2</sup>; <sup>1</sup>Colorado State University - Agricultural Biology, Fort Collins, CO, <sup>2</sup>Colorado State University, Fort Collins, CO (127)

†**Identifying Genes Associated with Conferring Clopyralid Resistance in Common Ragweed (*Ambrosia artemisiifolia*) Using RNA Sequence Transcriptome Analysis.** Nash D. Hart\*<sup>1</sup>, Erin E. Burns<sup>2</sup>, Eric L. Patterson<sup>2</sup>; <sup>1</sup>Michigan State University, Durand, MI, <sup>2</sup>Michigan State University, East Lansing, MI (128)

†**Chlorophyll Content and Fluorescence Fail to Detect Crop Injury from Physical Weed Control Tools.** Anthony J.

Codega\*<sup>1</sup>, Ruthie Clements<sup>1</sup>, Jordan W. Parks<sup>1</sup>, Rebecca Champagne<sup>2</sup>, Eric R. Gallandt<sup>1</sup>; <sup>1</sup>University of Maine, Orono, ME, <sup>2</sup>The University of Maine, Orono, ME (130)

†**Effective Anthraquinone Derivative Dose; A Weed-based Deer Repellent for Soybean.** Ncomiwe A. Maphalala\*<sup>1</sup>, Ziming Yue<sup>2</sup>, Te-Ming (Paul) Tseng<sup>2</sup>; <sup>1</sup>Mississippi State University-Department of Plant and Soil Sciences, Starkville, MS, <sup>2</sup>Mississippi State University, Starkville, MS (131)

†**A Novel Allele of *IAA16* is Associated with Dicamba Resistance in *Bassia scoparia*.** Jacob S. Montgomery\*<sup>1</sup>, Neeta Soni<sup>2</sup>, Sarah Morran<sup>1</sup>, Franck E. Dayan<sup>1</sup>, Philip Westra<sup>1</sup>, Eric L. Patterson<sup>3</sup>, Todd A. Gaines<sup>1</sup>; <sup>1</sup>Colorado State University, Fort Collins, CO, <sup>2</sup>Corteva Agriscience, Indianapolis, IN, <sup>3</sup>Michigan State University, East Lansing, MI (132)

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## ***TUESDAY MORNING JANUARY 31***

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### **POSTER - 09. Biocontrol of Weeds**

LOCATION: Salon IV-VI  
TIME: 08:00 AM - 10:00 AM Eastern Time

***WSSA Student Competition Posters will be judged Tuesday only***

***NEWSS Student Competition Posters will be judged Wednesday only***

**\*PRESENTER † STUDENT CONTEST**

**A Fungal Pathogen (*Colletotrichum shioi*) Reduces Biomass, Flowering, and Competitive Ability of Invasive Beefsteak Plant (*Perilla frutescens*).** Michael R. Fulcher\*; United States Department of Agriculture, Agricultural Research Service, Fort Detrick, MD (133)

†**The Efficacy and Synergistic Effect of Coumarin and Chlorogenic Acid on Glyphosate- Resistant Palmer Amaranth.** Alyssa Lea Miller\*; Mississippi State University, Starkville, MS (134)

**Invasive Weeds Serving as Microbial Reservoirs and Their Role in Pathogen Evolution and Emergence.** Matthew A. Tancos\*, Michael R. Fulcher; United States Department of

Agriculture, Agricultural Research Service, Fort Detrick, MD  
(135)

†**Exploiting the Allelopathic Weed-suppressive Potential of Sweetpotato Varieties Under Field Conditions.** Varsha Singh\*<sup>1</sup>, Worlanyo Segbefia<sup>1</sup>, Ziming Yue<sup>1</sup>, Callie J. Morris<sup>1</sup>, Parth Sharma<sup>1</sup>, Mark W. Shankle<sup>2</sup>, Te-Ming (Paul) Tseng<sup>1</sup>; <sup>1</sup>Mississippi State University, Starkville, MS, <sup>2</sup>Mississippi State University, Pontotoc, MS (136)

**Mycorrhizae Mediate the Control of Broomrapes (*Orobanche* Spp.) in Lentils and Sunflowers.** Cumali Ozaslan\*<sup>1</sup>, Antonio DiTommaso<sup>2</sup>; <sup>1</sup>Dicle University, Diyarbakir, Turkey, <sup>2</sup>Cornell University, Ithaca, NY (137)

†**Root Architecture Study for Allelopathic Traits in Cotton for Weed Suppression.** Worlanyo Segbefia\*<sup>1</sup>, Varsha Singh<sup>1</sup>, Parth Sharma<sup>1</sup>, Ncomiwe A. Maphalala<sup>2</sup>, Te-Ming (Paul) Tseng<sup>1</sup>; <sup>1</sup>Mississippi State University, Starkville, MS, <sup>2</sup>Mississippi State University-Department of Plant and Soil Sciences, Starkville, MS (138)

†**Root System Architectural Traits and Genes Linked to Allelopathic Effects in Weedy Rice (*Oryza Sativa* f. *Spontanea*).** Ncomiwe A. Maphalala\*<sup>1</sup>, Auriana Tucker<sup>2</sup>, Brooklyn C. Schumaker<sup>2</sup>, Swati Shrestha<sup>2</sup>, Shandrea D. Stallworth<sup>2</sup>, Nilda Roma-Burgos<sup>3</sup>, Te-Ming (Paul) Tseng<sup>2</sup>; <sup>1</sup>Mississippi State University-Department of Plant and Soil Sciences, Starkville, MS, <sup>2</sup>Mississippi State University, Starkville, MS, <sup>3</sup>University of Arkansas, Fayetteville, Fayetteville, AR (139)

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***TUESDAY MORNING JANUARY 31***

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**POSTER - 10. Physiology**

LOCATION: Salon IV-VI  
TIME: 08:00 AM - 10:00 AM Eastern Time

***WSSA Student Competition Posters will be judged Tuesday only***

***NEWSS Student Competition Posters will be judged Wednesday only***

**\*PRESENTER † STUDENT CONTEST**

†**A Tale of 20 Years: What Can be Learned About Glufosinate Tolerance When Comparing Palmer Amaranth Populations from 2001 Vs. Now?** Pamela Carvalho-Moore\*<sup>1</sup>, Jason K. Norsworthy<sup>1</sup>, Fidel Gonzalez Torralva<sup>1</sup>, Leonard B. Piveta<sup>1</sup>, Maria Carolina C R Souza<sup>2</sup>, Tom Barber<sup>3</sup>, Thomas R. Butts<sup>3</sup>; <sup>1</sup>University of Arkansas, Fayetteville, AR, <sup>2</sup>University of Arkansas, Fayetteville, AR, <sup>3</sup>University of Arkansas System Division of Agriculture, Lonoke, AR (140)

†**A Mutation in a Transcription Factor Imparts Non-target Site Herbicide Resistance in Rice.** Srishti Gupta\*; Colorado State University, Fort Collins, CO (141)

†**CRISPR/Cas9 Editing of a *CYP81A* Homoeolog in *Triticum aestivum*.** Olivia A. Landau\*<sup>1</sup>, Natalya Nersesian<sup>2</sup>, Thomas Clemente<sup>2</sup>, Dean E. Riechers<sup>3</sup>; <sup>1</sup>University of Illinois, Urbana, IL, <sup>2</sup>University of Nebraska, Lincoln, NE, <sup>3</sup>University of Illinois-Urbana, Urbana, IL (142)

†**Reactive Oxygen Species in Herbicidal Activity: What We Know.** Catherine J. Traxler\*<sup>1</sup>, Todd A. Gaines<sup>1</sup>, Peter Luemmen<sup>2</sup>, Franck E. Dayan<sup>1</sup>; <sup>1</sup>Colorado State University, Fort Collins, CO, <sup>2</sup>Bayer Crop Sciences, Frankfurt, Germany (143)

**Activation of a Singlet Oxygen Signaling Pathway by Competition Cues in *Arabidopsis thaliana*.** Nicole Berardi<sup>1</sup>, Sasan Amirsadeghi<sup>1</sup>, Clarence Swanton\*<sup>2</sup>; <sup>1</sup>University of Guelph, Guelph, ON, Canada, <sup>2</sup>University of Guelph, Department of Plant Agriculture, Guelph, ON, Canada (144)

†**Herbicidal Activity of Chalcones.** Raphael M. Garrido\*<sup>1</sup>, Franck E. Dayan<sup>1</sup>, Rosana M. Kolb<sup>2</sup>, Luis O. Regasini<sup>3</sup>; <sup>1</sup>Colorado State University, Fort Collins, CO, <sup>2</sup>São Paulo State University, Assis, Brazil, <sup>3</sup>São Paulo State University, São José Do Rio Preto, Brazil (145)

**Phytotoxicity of Sorgoleone Revealed by Expression of the Biosynthetic Pathway in *Nicotiana benthamiana*.** Zhiqiang Pan\*, Joanna Bajsa-Hirschel; USDA-ARS, University, MS (146)

†**An Omics Approach to Investigate the Resistance Mechanism to ACCase Inhibitors in Feather Fingergrass (*Chloris virgata*).** Luiz Augusto Inojosa Ferreira\*<sup>1</sup>, Rubem Silvério de Oliveira Jr<sup>2</sup>, Jamil Contantin<sup>2</sup>, Caio A. Brunharo<sup>3</sup>; <sup>1</sup>Penn State University, State College, PA, <sup>2</sup>State University of Maringa, Maringa, Brazil, <sup>3</sup>Penn State University, University Park, PA (147)

**Resistance of *Sagittaria montevidensis* Biotypes to Acetolactate Synthase Inhibitor and Bentazon Herbicides.** Lariza Benedetti<sup>1</sup>, Marcus Vinícius Fipke<sup>1</sup>, Vívian Ebeling Viana\*<sup>1</sup>, Diogo da Silva Moura<sup>2</sup>, Edinaldo Rabaioli Camargo<sup>1</sup>, José Alberto Noldin<sup>3</sup>, Luis Antonio de Avila<sup>1</sup>; <sup>1</sup>Federal

University of Pelotas, Pelotas, Brazil, <sup>2</sup>Centro de Ensino Superior Riograndense, Marau, Brazil, <sup>3</sup>Empresa de Pesquisa Agropecuária e Extensão Rural de Santa Catarina, Itajaí, Brazil (148)

†**Protoplast Generation from Cell Suspension Culture in Waterhemp [*Amaranthus tuberculatus* (Moq.) J. D. Sauer]**. Peter E. Beerbower\*, Robert Sabba, Michael J. Christoffers; North Dakota State University, Fargo, ND (149)

†**Agrematch AI Platform Leads to the Discovery of AS9057 as a Novel Natural Herbicide**. Alyssa Twitty\*<sup>1</sup>, Yosef Geva<sup>2</sup>, Eyal Simonovsky<sup>2</sup>, Ifat Shub<sup>2</sup>, Yael Phillip<sup>2</sup>, Franck E. Dayan<sup>1</sup>; <sup>1</sup>Colorado State University, Fort Collins, CO, <sup>2</sup>Agrematch, Rehovot, Israel (150)

†**Transcriptomic Response to Glyphosate in Rapid Response Giant Ragweed (*Ambrosia trifida*)**. Crystal D. Sparks\*<sup>1</sup>, Christopher Van Horn<sup>2</sup>, Roland S. Beffa<sup>3</sup>, Todd A. Gaines<sup>1</sup>, Franck E. Dayan<sup>1</sup>, Philip Westra<sup>1</sup>; <sup>1</sup>Colorado State University, Fort Collins, CO, <sup>2</sup>Bayer Crop Science, St. Louse, MO, <sup>3</sup>Senior Scientist Consultant, Frankfurt, Germany (151)

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## ***TUESDAY MORNING JANUARY 31***

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### **POSTER - 11. Soil and Environmental Aspects**

LOCATION: Salon IV-VI  
TIME: 08:00 AM - 10:00 AM Eastern Time

***WSSA Student Competition Posters will be judged Tuesday only***

***NEWSS Student Competition Posters will be judged Wednesday only***

**\*PRESENTER † STUDENT CONTEST**

**Relative Soybean Response from 4 Auxin Herbicides Applied POST**. Thomas C. Mueller\*<sup>1</sup>, Larry Steckel<sup>2</sup>; <sup>1</sup>University of Tennessee, Knoxville, TN, <sup>2</sup>University of Tennessee, Jackson, TN (152)

†**Cereal Rye Cover Crop Impacted the Fate of PRE-emergence Herbicides Flumioxazin and Pyroxasulfone in Soybean**. Jose J. Nunes\*<sup>1</sup>, Eric J. Miller<sup>2</sup>, Lily A. Woitaszewski<sup>3</sup>, Shelby E. Lanz<sup>4</sup>, Nicholas J. Arneson<sup>1</sup>, John M. Wallace<sup>5</sup>, Karla L. Gage<sup>6</sup>, Sarah Lancaster<sup>3</sup>, Thomas C.



Mueller<sup>4</sup>, Rodrigo Werle<sup>1</sup>; <sup>1</sup>University of Wisconsin-Madison, Madison, WI, <sup>2</sup>Southern Illinois University, Carbondale, IL, <sup>3</sup>Kansas State University, Manhattan, KS, <sup>4</sup>University of Tennessee, Knoxville, TN, <sup>5</sup>Penn State University, University Park, PA, <sup>6</sup>Southern Illinois University Carbondale, Carbondale, IL (153)

**How Does Environment Influence VLCFA-Inhibitor Efficacy?** Tyler P. Meyeres\*<sup>1</sup>, Lucas Haag<sup>2</sup>, Peter Tomlinson<sup>1</sup>, Sarah Lancaster<sup>1</sup>; <sup>1</sup>Kansas State University, Manhattan, KS, <sup>2</sup>Kansas State University, Colby, KS (154)

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## ***TUESDAY MORNING JANUARY 31***

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### **POSTER - 12. Integrated Weed Management**

LOCATION: Salon IV-VI  
TIME: 08:00 AM - 10:00 AM Eastern Time

**WSSA Student Competition Posters will be judged Tuesday only**

**NEWSS Student Competition Posters will be judged Wednesday only**

**\*PRESENTER † STUDENT CONTEST**

**†Impact of Blue Light on the Germination Characteristics of Grass Weed Seeds.** Sarah A. Chu\*, Sarah E. Kezar, Shuyang Zhen, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX (155)

**Integrated Weed Management Using Biosolarization, Cover Cropping and Strip Tillage.** Dwayne D. Joseph\*<sup>1</sup>, Alan W. Leslie<sup>2</sup>, Kurt M. Vollmer<sup>3</sup>, Cerruti Rr Hooks<sup>2</sup>; <sup>1</sup>University of Maryland, Chestertown, MD, <sup>2</sup>University of Maryland, College Park, MD, <sup>3</sup>University of Maryland, Queenstown, MD (156)

**†Ecology and Landscape Scale Management of a Globally Invasive Weed; *Nassella trichotoma* (Serrated Tussock).** Talia J. Humphries\*; Federation University Australia, Ballarat, Australia (157)

**Integrated Weed Management in Olive Orchards.** Veronica Pedraza<sup>1</sup>, Juan A. Lezaun<sup>2</sup>, Irache Garnica<sup>2</sup>, Jose L. Gonzalez-Andujar\*<sup>3</sup>; <sup>1</sup>Instituto de Agricultura Sostenible (CSIC), Córdoba, Spain, <sup>2</sup>Instituto Navarro de Tecnologías e Infraestructuras

Agrarias (INTIA), Villava, Spain, <sup>3</sup>Instituto de Agricultura Sostenible (CSIC), Cordoba, Spain (158)

†**Atrazine Wash Off from Cereal Rye (*Secale cereale* L.) Residue onto the Soil After Simulated Rainfall.** Lucas Oliveira Ribeiro Maia\*<sup>1</sup>, Bryan G. Young<sup>2</sup>, William G. Johnson<sup>1</sup>, Eileen J. Kladvik<sup>1</sup>, Shalamar Armstrong<sup>1</sup>; <sup>1</sup>Purdue University, West Lafayette, IN, <sup>2</sup>Purdue University, Brookston, IN (159)

**Changing Labor Landscape in Northeast Weed Management for Specialty Crops.** Laura Pineda-Bermudez\*, Lynn M. Sosnoskie; Cornell University, Geneva, NY (160)

†**Summer Cover Crop Suppression of Broadleaf, Grass, and Nutsedge Weeds.** Moriah Williams\*<sup>1</sup>, Nathan Boyd<sup>2</sup>; <sup>1</sup>University of Florida, Saint Petersburg, FL, <sup>2</sup>University of Florida, Balm, FL (161)

**Field Scale Evaluation of the Harrington Seed Destructor in Alberta, Canada.** Breanne D. Tidemann\*<sup>1</sup>, K. Neil Harker<sup>1</sup>, Hugh Beckie<sup>2</sup>; <sup>1</sup>Agriculture and Agri-Food Canada, Lacombe, AB, Canada, <sup>2</sup>University of Western Australia, Perth, Australia (162)

**Weed Suppression Provided by a Second Season Perennial Living Mulch and Self-reseeded Cover Crop.** Veronica Yurchak\*, Alan W. Leslie, Cerruti Rr Hooks, Bill Phillips; University of Maryland, College Park, MD (163)

**Can Exogenous Application of Phytohormones Involved in the Stimulus of Seed Germination Become Part of Integrated Waterhemp (*Amaranthus tuberculatus*) Management Programs?** Jose J. Nunes, Nicholas J. Arneson, Rodrigo Werle\*; University of Wisconsin-Madison, Madison, WI (164)

†**Integrative Effect of Row Spacing and Herbicide Programs on Photosynthetically Active Radiation (PAR) in Corn Infested with Multiple Herbicide-resistant Palmer Amaranth.** Ramandeep Kaur\*<sup>1</sup>, Stevan Knezevic<sup>2</sup>, Yeyin Shi<sup>2</sup>, Nevin Lawrence<sup>2</sup>, Parminder Chahal<sup>2</sup>, Rachana Jhala<sup>2</sup>, Amit J. Jhala<sup>1</sup>; <sup>1</sup>University of Nebraska-Lincoln, Lincoln, NE, <sup>2</sup>University of Nebraska, Lincoln, NE (165)

**Cover Crops as a Weed Seed Bank Management Tool.** Cynthia Sias<sup>1</sup>, Bethany R. Wolters<sup>2</sup>, Mark S. Reiter<sup>3</sup>, Michael L. Flessner\*<sup>1</sup>; <sup>1</sup>Virginia Tech, Blacksburg, VA, <sup>2</sup>University of Tennessee, Martin, TN, <sup>3</sup>Virginia Tech, Painter, VA (166)

†**Impacts of Soil Organic Amendments and Weed Control Practices on Nutritional Status and Performance of Valencia Sweet Orange (*Citrus Sinensis* 'Valencia') Trees.** Ankit

Pokhrel\*, Ute Albrecht, Ramdas Kanissery, Sarah Strauss;  
University of Florida, Immokalee, FL (167)

**Evaluating Different Deep Learning Models for the Detection of Poison Ivy (*Toxicodendron radicans*) in Images.** Renato Herrig Furlanetto\*<sup>1</sup>, Nathan Boyd<sup>2</sup>, Ana Claudia Buzanini<sup>1</sup>, Alex G. Rodriguez<sup>3</sup>; <sup>1</sup>University of Florida, Wimauma, FL, <sup>2</sup>University of Florida, Balm, FL, <sup>3</sup>University of Florida, Belle Glade, FL (168)

**†Multi-year Herbicide Comparison for Italian Ryegrass (*Lolium Perenne* Ssp. *Multiflorum*) Control in Wheat.** Wyatt J. Stutzman\*, Kevin Bamber, Michael L. Flessner; Virginia Tech, Blacksburg, VA (169)

**Weed Suppression from Frost-seeded *Brassicaceae* Cover Crops.** Huong Nguyen\*, Olivia Fisher, Amy Fox, Kristen Loria, Kathryn Marini, Chris J. Pelzer, Adam Sharifi, Domenic Varma, Sandra Wayman, Matthew R. Ryan; Cornell University, Ithaca, NY (170)

**Evaluation of Two-pass Herbicide Programs for Broad-spectrum Weed Control in Conventional Corn in Wisconsin Atrazine Prohibition Areas.** Ahmadreza Mobli\*<sup>1</sup>, Ryan P. DeWerff<sup>2</sup>, Nicholas J. Arneson<sup>1</sup>, Rodrigo Werle<sup>1</sup>; <sup>1</sup>University of Wisconsin-Madison, Madison, WI, <sup>2</sup>University of Wisconsin, Madison, WI (171)

**†A Multi-state Evaluation of Weed Seed Fate During Soybean Harvest.** Jacob E. Vaughn\*<sup>1</sup>, Joseph T. Ikley<sup>2</sup>, Vipin Kumar<sup>3</sup>, Sarah Lancaster<sup>4</sup>, Christy L. Sprague<sup>5</sup>, Rodrigo Werle<sup>6</sup>, Nicholas J. Arneson<sup>6</sup>, Kevin W. Bradley<sup>1</sup>; <sup>1</sup>University of Missouri, Columbia, MO, <sup>2</sup>North Dakota State University, Fargo, ND, <sup>3</sup>Kansas State University, Hays, KS, <sup>4</sup>Kansas State University, Manhattan, KS, <sup>5</sup>Michigan State University, East Lansing, MI, <sup>6</sup>University of Wisconsin-Madison, Madison, WI (172)

**Cover Crop Residue Management Strategies Impact Deposition and Washoff of Soil-applied Residual Herbicides.** Cody Smith<sup>1</sup>, John M. Wallace\*<sup>2</sup>, Mark VanGessel<sup>3</sup>, Michael L. Flessner<sup>4</sup>; <sup>1</sup>Penn State University, University Park Pa, PA, <sup>2</sup>Penn State University, University Park, PA, <sup>3</sup>University of Delaware, Georgetown, DE, <sup>4</sup>Virginia Tech, Blacksburg, VA (173)

**†Goosegrass (*Eleusine indica*) Control Options in Bentgrass Putting Greens.** Bridgette C. Johnson\*, Joseph S. McElroy; Auburn University, Auburn, AL (174)

**US-Herbicide Resistance Action Committee (HRAC): Who We Are and What We Do?** Zahoor A. Ganie\*<sup>1</sup>, Lowell Sandell<sup>2</sup>, Greg Elmore<sup>3</sup>, Chandrashekar Aradhya<sup>4</sup>; <sup>1</sup>FMC,

Newark, DE, <sup>2</sup>Valent, Ashland, NE, <sup>3</sup>Bayer Crop Science, Saint Louis, MO, <sup>4</sup>Bayer Crop Science, Chesterfield, MO (175)

†**Light Quality Alteration is a Mechanism of Weed Suppression by Cereal Rye Cover Crop.** Gustavo Camargo Silva\*, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX (176)

**Building an Agriculture Weed ID Network for New York: Development of Web Based Resources to Interface with Growers and Beyond.** Sharon Bachman\*<sup>1</sup>, Caroline Marschner<sup>2</sup>, Antonio DiTommaso<sup>2</sup>, Isabella Colucci<sup>2</sup>; <sup>1</sup>Cornell Cooperative Extension, East Aurora, NY, <sup>2</sup>Cornell University, Ithaca, NY (177)

†**Weed Control and Rice Response to Florpyrauxifen-benzyl.** Rachelle Berger\*; University of Florida, Belle Glade, FL (178)

**To Bury or Uproot? Modelling Selectivity of Physical Weed Control in Sensitive Crops.** Daniel C. Brainard\*, Noelle Connors; Michigan State University, East Lansing, MI (179)

†**CANCELLED Impact of Seeding Rate, Nitrogen Availability, and Disease Pressure in *Bromus tectorum* and Winter Wheat Interactions.** Laura Berrios-Ortiz\*<sup>1</sup>, Fabian Menalled<sup>2</sup>; <sup>1</sup>Department of Land Resources and Environmental Sciences- Montana State University, Bozeman, MT, <sup>2</sup>Montana State University, Bozeman, MT (180)

†**Effect of Tillage, Cover Crop, and Herbicide on Giant Ragweed (*Ambrosia trifida* L.) Management in Soybean.** Venkatanaga Shiva Datta Kumar Sharma Chiruvelli\*<sup>1</sup>, Thomas J. Peters<sup>2</sup>, Gregg A. Johnson<sup>1</sup>, Debalin Sarangi<sup>1</sup>; <sup>1</sup>University of Minnesota, St Paul, MN, <sup>2</sup>North Dakota State University, Fargo, ND (181)

**Weed Detection Using Convolutional Neural Networks Under Scenarios of Occlusion.** Daniel J. Ginn\*<sup>1</sup>, Ramon G. Leon<sup>2</sup>, Chris Reberg-Horton<sup>2</sup>, Steven Brian Mirsky<sup>3</sup>, Muthukumar V. Bagavathiannan<sup>1</sup>; <sup>1</sup>Texas A&M University, College Station, TX, <sup>2</sup>North Carolina State University, Raleigh, NC, <sup>3</sup>USDA ARS, Beltsville, MD (182)

†**A Multi-Tactic Waterhemp Management Approach in Soybean-Sugar Beet Rotation.** Navjot Singh\*<sup>1</sup>, Thomas J. Peters<sup>2</sup>, Seth L. Naeve<sup>1</sup>, Ryan P. Miller<sup>3</sup>, Debalin Sarangi<sup>4</sup>; <sup>1</sup>University of Minnesota, Saint Paul, MN, <sup>2</sup>North Dakota State University, Fargo, ND, <sup>3</sup>University of Minnesota, Rochester, MN, <sup>4</sup>University of Minnesota, St. Paul, MN (183)

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**TUESDAY MORNING JANUARY 31**

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**SYMPOSIUM - 04. The good, the bad, and the ugly the current state of cover crops and weed management**

LOCATION: Salon III  
TIME: 08:00 AM - 12:00 PM Eastern Time  
CHAIR: Erin Haramoto  
University of Kentucky  
Lexington, KY  
MODERATOR: Erin Haramoto  
University of Kentucky  
Lexington, KY  
CO-MODERATOR: Steve Young  
USDA ARS  
Beltsville, MD

**\*SPEAKER**

- 08:00 AM Symposium Welcome.** Steve Young\*; USDA-ARS, Beltsville, MD (184)
- 08:05 AM Current State of Cover Crops and Weed Management □ What Do We Know and How Do We Know It?** Erin Haramoto\*; University of Kentucky, Lexington, KY (185)
- 08:20 AM Cover Crop Options and Opportunities in Australian Cropping Systems.** Michael Walsh\*<sup>1</sup>, Asad Shabbir<sup>2</sup>, Saliya Gurusinghe<sup>3</sup>, Leslie A. Weston<sup>4</sup>; <sup>1</sup>University of Sydney, Narrabri, Australia, <sup>2</sup>The University of Sydney, Camden, Australia, <sup>3</sup>Charles Sturt University, Bathurst, Australia, <sup>4</sup>Charles Sturt University, Wagga Wagga, Australia (186)
- 08:40 AM What is the Potential for Actually Managing Weeds with Cover Crops? A Reality Check.** Richard G. Smith\*; University of New Hampshire, Durham, NH (187)
- 09:00 AM Opportunities and Challenges of Growing Cover Crops in the Semi-arid Great Plains.** John Holman\*<sup>1</sup>, Augustine Obour<sup>2</sup>; <sup>1</sup>Kansas State University, Garden City, KS, <sup>2</sup>Kansas State University, Hays, KS (188)

- 09:20 AM Weighing Cover Crop Mediated Weed Management Benefits with Other Risks.** Erin Haramoto\*; University of Kentucky, Lexington, KY (189)
- 09:40 AM The Highs and Lows of Working with a Perennial Cover Crop for Weed Suppression.** Cerruti Rr Hooks\*, Alan W. Leslie, Veronica Yurchak; University of Maryland, College Park, MD (190)
- 10:00 AM Coffee Break**
- 10:15 AM Cover Crop-Based Integrated Weed Management: Communicating an Adaptive Management Framework.** John M. Wallace\*; Penn State University, University Park, PA (191)
- 10:35 AM Emerging Opportunities to Understand Cover Crop x Weed Management Interactions from Data-Model Mashups.** Armen R. Kemanian\*, Yuning Shi, Curt A. McConnell; Penn State University, State College, PA (192)
- 10:55 AM Assessing Regional Variations of Weed Suppression with Cover Crops.** Steven Brian Mirsky<sup>1</sup>, Victoria Ackroyd<sup>2</sup>, Muthukumar V. Bagavathiannan<sup>3</sup>, Kevin W. Bradley<sup>4</sup>, William S. Curran<sup>5</sup>, Adam S. Davis<sup>6</sup>, Jeffrey Evans<sup>7</sup>, Wesley Everman<sup>8</sup>, Michael L. Flessner<sup>9</sup>, Nicholas R. Jordan<sup>10</sup>, Eugene P. Law<sup>11</sup>, Lauren M. Lazaro<sup>12</sup>, Ramon G. Leon<sup>8</sup>, John Lindquist<sup>13</sup>, Jason K. Norsworthy<sup>14</sup>, Lovreet S. Shergill<sup>15</sup>, Mark VanGessel<sup>16</sup>; <sup>1</sup>USDA ARS, Beltsville, MD, <sup>2</sup>University of Maryland, College Park, MD, <sup>3</sup>Texas A&M University, College Station, TX, <sup>4</sup>University of Missouri, Columbia, MO, <sup>5</sup>Penn State University, Bozeman, MT, <sup>6</sup>University of Illinois, Urbana, IL, <sup>7</sup>Five Rivers Conservation Trust, Concord, NH, <sup>8</sup>North Carolina State University, Raleigh, NC, <sup>9</sup>Virginia Tech, Blacksburg, VA, <sup>10</sup>University of Minnesota, St. Paul, MN, <sup>11</sup>University of Delaware, Beltsville, MD, <sup>12</sup>Blue River Technology, Sunnyvale, CA, <sup>13</sup>University of Nebraska, Lincoln, NE, <sup>14</sup>University of Arkansas, Fayetteville, AR, <sup>15</sup>Montana State University, Huntley, MT, <sup>16</sup>University of Delaware, Georgetown, DE (193)
- 11:15 AM Panel Discussion.** Steve Young\*; USDA-ARS, Beltsville, MD (194)

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**TUESDAY MORNING JANUARY 31**

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**ORAL - 08. Weed Biology and Ecology**

LOCATION: Salon I  
TIME: 09:00 AM - 02:00 PM Eastern Time  
CHAIR: Debalin Sarangi  
University of Minnesota  
St. Paul, MN  
MODERATOR: Debalin Sarangi  
University of Minnesota  
St. Paul, MN  
CO-MODERATOR: Shilpa Singh  
Texas A&M University  
College Station, TX

**\*SPEAKER**

- 09:00 AM Directional Selection of Competitive Ability in *Setaria faberi* Confirmed with GWAS.** Sandra R. Ethridge<sup>1</sup>, Saket Chandra<sup>1</sup>, Wesley Everman<sup>1</sup>, David L. Jordan<sup>1</sup>, Anna M. Locke<sup>2</sup>, Micheal D. Owen<sup>3</sup>, Ramon G. Leon\*<sup>1</sup>; <sup>1</sup>North Carolina State University, Raleigh, NC, <sup>2</sup>USDA-ARS, Raleigh, NC, <sup>3</sup>Iowa State University, Ames, IA (195)
- 09:15 AM Impact of Combined Temperature and Moisture Stress on Palmer Amaranth (*Amaranthus palmeri*) Growth and Fecundity: Adaptations and Constraints.** Sarah E. Kezar\*, Aniruddha Maity, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX (196)
- 09:30 AM The International Weed Genomics Consortium: a Review of Current Reference Genomes and Future Directions.** Sarah Morran\*<sup>1</sup>, Todd A. Gaines<sup>1</sup>, Dana R. MacGregor<sup>2</sup>, Eric L. Patterson<sup>3</sup>, Mithila Jugulam<sup>4</sup>, Roland S. Beffa<sup>5</sup>; <sup>1</sup>Colorado State University, Fort Collins, CO, <sup>2</sup>Rothamsted Research, Harpenden, United Kingdom, <sup>3</sup>Michigan State University, East Lansing, MI, <sup>4</sup>Kansas State University, Manhattan, KS, <sup>5</sup>Senior Scientist Consultant, Frankfurt, Germany (197)

- 09:45 AM** **New Insights in Amaranth PPO Target Site Resistance and PPO1 and PPO2 Biochemistry.** Jens Lerchl\*<sup>1</sup>, Aimone Porri<sup>2</sup>, Inessa De<sup>1</sup>, Lucie Meyer<sup>1</sup>, Nilda Roma-Burgos<sup>3</sup>, Matheus Machado Noguera<sup>4</sup>, Bernhard Grimm<sup>5</sup>, Boris Hedtke<sup>5</sup>, Daniel Wittmann<sup>6</sup>, Patrick Tranel<sup>7</sup>, Kathryn Seebruck<sup>8</sup>; <sup>1</sup>BASF SE, Limburgerhof, Germany, <sup>2</sup>BASF Global Research & Development, Limburgerhof, Germany, <sup>3</sup>University of Arkansas, Fayetteville, Fayetteville, AR, <sup>4</sup>Univ Arkansas, Fayetteville, AR, <sup>5</sup>Humboldt University, Berlin, Germany, <sup>6</sup>BASF SE, Berlin, Germany, <sup>7</sup>University of Illinois, Urbana, IL, <sup>8</sup>University Illinois, Urbana, IL (198)
- 10:00 AM** **Coffee Break**
- 10:15 AM** **Modeling the Effect of Density, Emergence Time, Inter- and Intra-Specific Competition of Barnyard Grass (*Echinochloa Crus-Galli*) on Growth and Yield of Dry-Seeded Rice: Simulations with INTERCOM.** Tahir Hussain Awan\*<sup>1</sup>, Bhagirath Singh Chauhan<sup>2</sup>, John Lindquist<sup>3</sup>; <sup>1</sup>Rice Research Institute, Kala Shah Kaku, Punjab, Pakistan, Lahore, Pakistan, <sup>2</sup>The Centre for Plant Science, Queensland Alliance for Agriculture and Food Innovation (QAAFI), The University of Queensland, Gatton 4343, Queensland, Australia, Queensland, Australia, <sup>3</sup>University of Nebraska, Lincoln, NE (199)
- 10:30 AM** **A Comparative Genomics Approach to Investigate the Parallel Evolution of Weediness in *Alopecurus myosuroides* (Black Grass) and *Alopecurus aequalis* (Orange Foxtail).** Dana R. MacGregor\*<sup>1</sup>, Jon Wright<sup>2</sup>, Hannah Rees<sup>2</sup>, Christian Harrison<sup>1</sup>, Jun Li<sup>3</sup>, Paul Neve<sup>4</sup>, Seanna McTaggart<sup>2</sup>, Anthony Hall<sup>2</sup>; <sup>1</sup>Rothamsted Research, Harpenden, United Kingdom, <sup>2</sup>Earlham Institute, Norwich, United Kingdom, <sup>3</sup>Nanjing Agricultural University, Nanjing, China, <sup>4</sup>University of Copenhagen, Copenhagen, Denmark (200)
- 10:45 AM** **Does the Emergence Pattern of *Echinochloa crus-gali* (Barnyardgrass) Differ with EPOST Timings in Corn?** Theresa Piskackova\*; Czech University of Life Sciences Prague, Prague 6 - Suchdol, Czechia (Czech Republic) (201)
- 11:00 AM** **A Single GST Identified Via an Association Mapping and Transcriptomics Approach Endows High Levels of Resistance to Atrazine in**



*Amaranthus palmeri*. Shiv S. Kaundun\*; Syngenta, Bracknell, United Kingdom (202)

- 11:15 AM Utilizing Thermal Requirements of California Weedy Rice (*Oryza sativa spontanea*) to Predict Seedling Emergence Timing Under Field Conditions.** Liberty B. Galvin\*<sup>1</sup>, Whitney Brim-DeForest<sup>2</sup>, Kassim Al-Khatib<sup>1</sup>; <sup>1</sup>University of California, Davis, Davis, CA, <sup>2</sup>University of California, Davis, Yuba City, CA (203)
- 11:30 AM *In-vitro* Screening to Phenotype Cereal Rye (*Secale cereale*) Lines for Allelopathic Activity.** Democrito B. Rebong\*<sup>1</sup>, Ramon G. Leon<sup>1</sup>, Chris Reberg-Horton<sup>1</sup>, J. Paul Murphy<sup>1</sup>, Virginia Moore<sup>2</sup>, Steven Brian Mirsky<sup>3</sup>, Lisa Kucek<sup>4</sup>, Nancy Ehlke<sup>5</sup>; <sup>1</sup>North Carolina State University, Raleigh, NC, <sup>2</sup>Cornell University, Ithaca, NY, <sup>3</sup>USDA ARS, Beltsville, MD, <sup>4</sup>USDA Agricultural Research Service, Madison, WI, <sup>5</sup>University of Minnesota, St. Paul, MN (204)
- 11:45 AM Demographic Implications of Self-fertilization and Migration for the Maintenance of Genetic Variation and Successful Adaptation to New Environments in Annual Weeds.** Samuel R. Revolinski\*, Ian Burke; Washington State University, Pullman, WA (205)
- 12:00 PM Lunch**
- 01:00 PM Mapping of Metabolic Resistance to Tembotrione in Palmer Amaranth.** Carlos Alberto Gonsiorkiewicz Rigon\*<sup>1</sup>, Jacob S. Montgomery<sup>1</sup>, Anita Küpper<sup>2</sup>, Roland S. Beffa<sup>3</sup>, Franck E. Dayan<sup>1</sup>, Todd A. Gaines<sup>1</sup>; <sup>1</sup>Colorado State University, Fort Collins, CO, <sup>2</sup>Bayer AG, Frankfurt, Germany, <sup>3</sup>Senior Scientist Consultant, Frankfurt, Germany (206)
- 01:15 PM Coupling Seedbank Management and Cultivation Tool Stacking for Improved Weed Control in Organic Vegetables.** Margaret R. McCollough\*<sup>1</sup>, Rebecca Champagne<sup>2</sup>, Eric R. Gallandt<sup>1</sup>, Daniel C. Brainard<sup>3</sup>; <sup>1</sup>University of Maine, Orono, ME, <sup>2</sup>The University of Maine, Orono, ME, <sup>3</sup>Michigan State University, East Lansing, MI (207)
- 01:30 PM Phenotypic Variation Among Populations of the Invasive Weed *Parthenium hysterophorus* L. (Asteraceae) as a Tool to Assess Multiple Introductions.** Maor Matzrafi\*<sup>1</sup>, Sahar Malka<sup>2</sup>,

Hanan Eizenberg<sup>3</sup>; <sup>1</sup>039904412, Ramat-yishay, Israel, <sup>2</sup>The Robert H. Smith Faculty of Agriculture, Food and Environment, The Hebrew University of Jerusalem, Jerusalem, Israel, <sup>3</sup>Department of Plant Pathology and Weed Research, Agricultural Research Organization □ Volcani Institute, Newe-Ya□ar Research Center, Ramat-yishay, Israel (208)

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***TUESDAY MORNING JANUARY 31***

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**ORAL - 05. Regulatory Aspects**

LOCATION: Salon II  
TIME: 09:00 AM - 01:45 PM Eastern Time  
CHAIR: Amanda Foderaro  
North Carolina State University  
Raleigh, NC  
MODERATOR: Amanda Foderaro  
North Carolina State University  
Raleigh, NC  
CO-MODERATOR: Cherilyn Moore  
Syngenta Crop Protection, LLC  
Greensboro, NC

**\*SPEAKER**

- 09:00 AM EPA's Plant Assessment Tool: A Non-Target Plant Exposure Model Used in Endangered Species Assessments.** Melissa Bridges\*<sup>1</sup>, Elizabeth Donovan<sup>1</sup>, Gretchen E. Dykes<sup>1</sup>, William P. Eckel<sup>1</sup>, Frank T. Farruggia<sup>1</sup>, Jerrett Fowler<sup>1</sup>, Kristina Garber<sup>1</sup>, Brian Kiernan<sup>1</sup>, Stephan Miller<sup>2</sup>, Chuck Peck<sup>1</sup>, Dana Spatz<sup>1</sup>, Holly Summers<sup>1</sup>, Peter Tellez<sup>1</sup>, Dirk Young<sup>1</sup>; <sup>1</sup>US Environmental Protection Agency, Washington, DC, <sup>2</sup>US Environmental Protection Agency, Washington, VA (209)
- 09:15 AM EPA's Consideration of Pesticide Use, Mitigating Environmental Exposure, and Updating Labels in Endangered Species Evaluations.** Frank T. Farruggia\*<sup>1</sup>, Amy Adams<sup>2</sup>, Jennifer Connolly<sup>3</sup>, Kristina Garber<sup>1</sup>, Stephen Muela<sup>4</sup>, Tracy Perry<sup>3</sup>; <sup>1</sup>US Environmental Protection Agency, Washington, DC, <sup>2</sup>United States Environmental Protection Agency,

Washington, DC, <sup>3</sup>United States Environmental Protection Agency, Washington, DC, <sup>4</sup>United States Environmental Protection Agency, Washington, DC (210)

- 09:30 AM Public Comment Periods: How Can WSSA Help EPA? Part 1.** Kelly V. Tindall\*, Bradley Kells; US Environmental Protection Agency - Office of Pesticide Programs, Washington, DC (211)
- 09:45 AM Public Comment Periods: How Can WSSA Help EPA? Part 2.** Bradley Kells\*, Kelly V. Tindall; US Environmental Protection Agency - Office of Pesticide Programs, Washington, DC (212)
- 10:00 AM The Importance of Herbicide Resistance Information for Regulatory Agencies.** Cameron H. Douglass<sup>1</sup>, John Orłowski\*<sup>2</sup>; <sup>1</sup>US Department of Agriculture, Office of the Chief Economist, Office of Pest Management Policy, Washington, DC, <sup>2</sup>US Environmental Protection Agency, Office of Pesticide Programs, Biological and Economic Analysis Division, Washington, DC (213)
- 10:15 AM Coffee Break**
- 10:30 AM Climate Impacts of Herbicide Regulations: Case Studies with Cover Cropping and No-till.** Laura Dodson<sup>1</sup>, Fengxia Dong<sup>2</sup>, Cameron H. Douglass\*<sup>3</sup>, Rebecca Nemeč<sup>4</sup>, Ryan Olver<sup>2</sup>, Michelle Ranville<sup>3</sup>; <sup>1</sup>US Department of Agriculture, Economic Research Service, Washington, DC, <sup>2</sup>US Department of Agriculture, Economic Research Service, Kansas City, MO, <sup>3</sup>US Department of Agriculture, Office of the Chief Economist, Office of Pest Management Policy, Washington, DC, <sup>4</sup>US Department of Agriculture, Office of the Chief Economist, Washington, DC (214)
- 10:45 AM Pesticide Task Forces: Role, Function, and Benefits.** Montague U. Dixon\*; Syngenta Crop Protection, Greensboro, NC (215)
- 11:00 AM ESA And FIFRA: A Regulatory Perspective on Successes and Challenges.** Reuben D. Baris\*; Corteva Agriscience, Indianapolis, IN (216)
- 11:15 AM Types of Registrations Under FIFRA - Section 3, Special Local Needs, Section 18 Emergency Use: What They Are and How They Are Utilized.** Rachel Hardie\*; Syngenta Crop Protection, Greensboro, NC (217)

- 11:30 AM Paraquat Dichloride Interim Registration Review Decision Update.** Jordan Moseley\*; Syngenta Crop Protection, LLC, Greensboro, NC (218)
- 11:45 AM Regulatory Update on Atrazine.** Mark White\*; Syngenta, Macon, MO (219)
- 12:00 PM Lunch**
- 01:00 PM Persistent Herbicides in Compost: A Regulatory Pathway.** Travis Bui\*; Corteva Agriscience, Indianapolis, IN (220)
- 01:15 PM Introduction to the Center for Excellence in Regulatory Science in Agriculture at North Carolina State University.** Keith L. Edmisten\*, Danesha Seth Carley; North Carolina State University, Raleigh, NC (221)
- 01:30 PM The Economic, Nutritional, and Environmental Benefits of International Cooperation for the Establishment of MRLs on Specialty Crops.** Dirk C. Drost\*; Minor Use Foundation, Inc, Raleigh, NC (222)

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***TUESDAY MORNING JANUARY 31***

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**ORAL - NEWSS Student Oral**

LOCATION: Salon J  
 TIME: 09:00 AM - 04:30 PM Eastern Time  
 CHAIR: Arthur E. Gover  
 Penn State  
 University Park, PA  
 MODERATOR: Arthur E. Gover  
 Penn State  
 University Park, PA

**\*SPEAKER † STUDENT CONTEST**

**09:00 AM †Influence of *Sorghum halepense* (Johnsongrass) Density on Early Growth of *Zea mays* (Corn).** Ryan P. O'Briant\*<sup>1</sup>, Antonio DiTommaso<sup>2</sup>, Lynn M. Sosnoskie<sup>3</sup>; <sup>1</sup>Cornell University - Soil and Crop Sciences, Brooktondale,

NY, <sup>2</sup>Cornell University, Ithaca, NY, <sup>3</sup>Cornell University, Geneva, NY (223)

- 09:15 AM** †**Competitive and Hormetic Responses of Velvetleaf (*Abutilon theophrasti*) Historical Seed Collection.** Sandra R. Ethridge\*<sup>1</sup>, Saket Chandra<sup>1</sup>, Wesley Everman<sup>1</sup>, Anna M. Locke<sup>2</sup>, David L. Jordan<sup>1</sup>, Micheal D. Owen<sup>3</sup>, Ramon G. Leon<sup>1</sup>; <sup>1</sup>North Carolina State University, Raleigh, NC, <sup>2</sup>USDA-ARS, Raleigh, NC, <sup>3</sup>Iowa State University, Ames, IA (224)
- 09:30 AM** †**Soybean and Palmer Amaranth Identification Using Machine Learning.** Dhiraj Srivastava\*<sup>1</sup>, Vijay Singh<sup>2</sup>; <sup>1</sup>Virginia Polytechnic Institute and State University, Painter, VA, <sup>2</sup>Virginia Tech, Painter, VA (225)
- 09:45 AM** †**Do Cover Crops Affect Weed Community Structure?** Uriel D. Menalled\*<sup>1</sup>, Stephane Cordeau<sup>2</sup>, Antonio DiTommaso<sup>1</sup>, Richard G. Smith<sup>3</sup>, Matthew R. Ryan<sup>1</sup>; <sup>1</sup>Cornell University, Ithaca, NY, <sup>2</sup>INRAE, Lyon, France, <sup>3</sup>University of New Hampshire, Durham, NH (226)
- 10:00 AM** **Coffee Break**
- 10:15 AM** †**Varietal Tolerance of Cucurbits Crops with Postemergence Applications of S-Metolachlor.** Carrie J. Mansue\*<sup>1</sup>, Thierry E. Besancon<sup>2</sup>, Lynn M. Sosnoskie<sup>3</sup>, Kurt M. Vollmer<sup>4</sup>; <sup>1</sup>Rutgers University, Mays Landing, NJ, <sup>2</sup>Rutgers University, Chatsworth, NJ, <sup>3</sup>Cornell University, Geneva, NY, <sup>4</sup>University of Maryland, Queenstown, MD (227)
- 10:30 AM** †**Neutral Weed Communities: the Junction Point Between Crop Productivity, Biodiversity, and Ecosystem Services.** Marco Esposito\*<sup>1</sup>, Valerio Cirillo<sup>2</sup>, Albino Maggio<sup>2</sup>, Antonio DiTommaso<sup>3</sup>; <sup>1</sup>Cornell University & University of Napoli Federico II, Ithaca, NY, <sup>2</sup>University of Naples Federico II, Naples, Italy, <sup>3</sup>Cornell University, Ithaca, NY (228)
- 10:45 AM** †**Optimizing Impregnated Pyroxasulfone for Cotton.** Brock A. Dean\*, Charlie W. Cahoon, Zackary R. Taylor, Jose H. de Sanctis, Jacob Forehand, Hunter Lee; North Carolina State University, Raleigh, NC (229)
- 11:00 AM** †**Anaerobic Soil Disinfestation: A Catalyst for Organic Watermelon Production in South**

**Carolina?** Sohaib Chattha\*, Matthew A. Cutulle;  
Clemson University, Charleston, SC (230)

- 11:15 AM** †**Weed Potential of Roll-crimped Cereal Rye Differs Across Cultural Practices.** Laurel Wellman\*<sup>1</sup>, John M. Wallace<sup>2</sup>; <sup>1</sup>Penn State University, State College, PA, <sup>2</sup>Penn State University, University Park, PA (231)
- 11:30 AM** †**False-Green *Kyllinga (Kyllinga gracillima)* Establishment from Seed is Influenced by Turfgrass Management Regime.** Trevor S. Watson\*, Matthew T. Elmore, Daniel P. Tuck; Rutgers University, New Brunswick, NJ (232)
- 11:45 AM** †**Soybean Response to Simulated Drift of Herbicides Commonly Used to Manage Roadside Weeds.** Estefania Gomiero Polli\*, Travis Gannon, Ronald R. Rogers, Mathieu LeCompte, Khalied Ahmed; North Carolina State University, Raleigh, NC (233)
- 12:00 PM** **Lunch**
- 01:00 PM** †**Multi-Seed *Zea* Pellets (MSZP) for Increasing Agroecosystem Biodiversity.** Sophie Westbrook\*<sup>1</sup>, Masoume Amirkhani<sup>2</sup>, Alan G. Taylor<sup>2</sup>, Michael T. Loos<sup>2</sup>, John E. Losey<sup>1</sup>, Antonio DiTommaso<sup>1</sup>; <sup>1</sup>Cornell University, Ithaca, NY, <sup>2</sup>Cornell University, Geneva, NY (234)
- 01:15 PM** †**Using 3-D Image Reconstruction to Characterize Canopy Architecture and Predict Biomass.** April M. Dobbs\*<sup>1</sup>, Daniel J. Ginn<sup>2</sup>, Søren K. Skovsen<sup>3</sup>, Muthukumar V. Bagavathiannan<sup>2</sup>, Steven Brian Mirsky<sup>4</sup>, Chris Reberg-Horton<sup>1</sup>, Prashant Jha<sup>5</sup>, Ramawatar Yadav<sup>5</sup>; <sup>1</sup>North Carolina State University, Raleigh, NC, <sup>2</sup>Texas A&M University, College Station, TX, <sup>3</sup>Aarhus University, Aarhus, Denmark, <sup>4</sup>USDA ARS, Beltsville, MD, <sup>5</sup>Iowa State University, Ames, IA (235)
- 01:30 PM** †**Cover Crops and Falls Residual Herbicides for Managing Multiple Herbicide-Resistant Italian Ryegrass.** Jose H. de Sanctis\*, Charlie W. Cahoon, Wesley Everman, Travis Gannon, Zachary R. Taylor; North Carolina State University, Raleigh, NC (236)
- 01:45 PM** †**Herbicides Affect White Clover Bloom Morphology and Pollinator Foraging in Lawn**

**Turf.** Navdeep Godara\*, Shawn Askew; Virginia Tech, Blacksburg, VA (237)

- 02:00 PM** †**Effect of Metcamifen on Trifloxysulfuron Absorption, Translocation and Metabolism in Turfgrass Systems.** Ronald R. Rogers\*, Travis Gannon, Khalied Ahmed; North Carolina State University, Raleigh, NC (238)
- 02:15 PM** †**Confirmation of Glufosinate Resistance and Inheritance in a North Carolina Palmer Amaranth (*Amaranthus Palmeri*) Population.** Eric A. Jones\*, Jeffrey Dunne, Diego J. Contreras, Charlie W. Cahoon, Katherine M. Jennings, Ramon G. Leon, Wesley Everman; North Carolina State University, Raleigh, NC (239)
- 02:30 PM** †**Factors That Influence Uniform Droplet Deposition from an Agricultural Spray Drone.** Daewon Koo\*<sup>1</sup>, Navdeep Godara<sup>1</sup>, John M. Peppers<sup>1</sup>, Clebson G. Goncalves<sup>2</sup>, Shawn Askew<sup>1</sup>; <sup>1</sup>Virginia Tech, Blacksburg, VA, <sup>2</sup>University of California, Agriculture and Natural Resources, Ukiah, CA (240)
- 02:45 PM** †**The Confirmation and Characterization of Auxinic Herbicide Resistance in a Population of Green Pigweed (*Amaranthus powellii*) from Ontario, Canada.** Isabelle Aicklen\*<sup>1</sup>, Peter Smith<sup>1</sup>, Brendan Metzger<sup>2</sup>, Todd A. Gaines<sup>3</sup>, Mithila Jugulam<sup>4</sup>, Darren E. Robinson<sup>5</sup>, Peter H. Sikkema<sup>5</sup>, Francois Tardif<sup>1</sup>; <sup>1</sup>University of Guelph, Guelph, ON, Canada, <sup>2</sup>BASF Canada, Morden, MB, Canada, <sup>3</sup>Colorado State University, Fort Collins, CO, <sup>4</sup>Kansas State University, Manhattan, KS, <sup>5</sup>University of Guelph, Ridgetown, ON, Canada (241)
- 03:00 PM** **Coffee Break**
- 03:15 PM** †**Speed, Angle and Spacing Effects on Finger Weeder Performance.** Jordan W. Parks\*, Margaret R. McCollough, Eric R. Gallandt; University of Maine, Orono, ME (242)
- 03:30 PM** †**Interaction of See and Spray™ Model Sensitivity and Application Timing in Soybean.** Diego J. Contreras\*<sup>1</sup>, Wesley Everman<sup>1</sup>, Jason K. Norsworthy<sup>2</sup>, Tristen H. Avent<sup>2</sup>, Bryan G. Young<sup>3</sup>, Marcelo Zimmer<sup>4</sup>, Jasmine M. Mausbach<sup>5</sup>, Lauren M. Lazaro<sup>6</sup>, William L. Patzoldt<sup>6</sup>; <sup>1</sup>North Carolina State University, Raleigh, NC, <sup>2</sup>University of Arkansas, Fayetteville, AR, <sup>3</sup>Purdue University,

Brookston, IN, <sup>4</sup>Purdue University, West Lafayette, IN, <sup>5</sup>University of Nebraska-Lincoln, Lincoln, NE, <sup>6</sup>Blue River Technology, Sunnyvale, CA (243)

**03:45 PM †Residual Control of Palmer Amaranth Varies Across VLCFA-Inhibiting Herbicides.** Jackson W. Alsdorf\*<sup>1</sup>, Amanda M. Foderaro<sup>2</sup>, Eric A. Jones<sup>1</sup>, Diego J. Contreras<sup>1</sup>, Wesley Everman<sup>1</sup>; <sup>1</sup>North Carolina State University, Raleigh, NC, <sup>2</sup>Syngenta, Raleigh, NC (244)

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**TUESDAY MORNING JANUARY 31**

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**SST - SST MS**

LOCATION: Salon K  
TIME: 10:15 AM - 11:30 AM Eastern Time  
CHAIR: Marty Schraer  
Syngenta  
Meridian, ID  
MODERATOR: Marty Schraer  
Syngenta  
Meridian, ID

**\*SPEAKER † STUDENT CONTEST**

**10:15 AM †Confirmation of Paraquat Resistance in Horseweed (*Erigeron canadensis*) in New York.** Bethany M. Schulteis\*<sup>1</sup>, Elizabeth C. Maloney<sup>2</sup>, Caio A. Brunharo<sup>3</sup>, Lynn M. Sosnoskie<sup>2</sup>; <sup>1</sup>Cornell University, Ithaca, NY, <sup>2</sup>Cornell University, Geneva, NY, <sup>3</sup>Penn State University, University Park, PA (245)

**10:20 AM †Preliminary Responses of Weeds, the Weed Soil Seedbank, and Microarthropod Communities to Zasso Electrical Weeding.** Aleah L. Butler-Jones\*<sup>1</sup>, Elizabeth C. Maloney<sup>2</sup>, Charlee R. Smith<sup>3</sup>, Emily J. Sausser<sup>4</sup>, Lynn M. Sosnoskie<sup>2</sup>; <sup>1</sup>Cornell University, Ithaca, NY, <sup>2</sup>Cornell University, Geneva, NY, <sup>3</sup>The Ohio State University, Columbus, OH, <sup>4</sup>Lebanon Valley College, Annville, PA (246)

**10:25 AM †Improved Herbicide Selectivity in Tomato by Safening Action of Benoxacor, Fenclorim, Melatonin, and 2,4,6- Trichlorophenoxyacetic**



**Acid.** Tabata Raissa De Oliveira\*, Antonio Augusto Tavares, Josiane C. Argenta, Varsha Varsha, Te-Ming (Paul) Tseng; Mississippi State University, Starkville, MS (247)

**10:30 AM** †**Sulfentrazone Efficacy and Safety in Cabbage and Broccoli.** Laura Pineda-Bermudez\*<sup>1</sup>, Elizabeth C. Maloney<sup>1</sup>, Baylee L. Carr<sup>2</sup>, Wesley M. Bouchelle<sup>3</sup>, Thierry E. Besancon<sup>3</sup>, Lynn M. Sosnoskie<sup>1</sup>; <sup>1</sup>Cornell University, Geneva, NY, <sup>2</sup>Rutgers University - Weed Science, Chatsworth, NJ, <sup>3</sup>Rutgers University, Chatsworth, NJ (248)

**10:35 AM** †**Weed Impacts on Alfalfa Forage Accumulation and Nutritive Value.** Chandra L. Montgomery\*<sup>1</sup>, Albert T. Adjesiwor<sup>2</sup>; <sup>1</sup>University of Idaho, Moscow, ID, <sup>2</sup>University of Idaho, Kimberly, ID (249)

**10:40 AM** †**GST Inhibition - Influence on Quizalofop P-ethyl Metabolism in Winter Wheat.** Amber Pelon\*<sup>1</sup>, Franck E. Dayan<sup>2</sup>, Todd A. Gaines<sup>2</sup>; <sup>1</sup>Colorado State University, Berthoud, CO, <sup>2</sup>Colorado State University, Fort Collins, CO (250)

**10:45 AM** †**Weed Suppression Via Cotton Chromosome Substitution Lines at Different Cover Crop Systems.** Alyssa Lea Miller\*; Mississippi State University, Starkville, MS (251)

**10:50 AM** †**Surface Ponds as a Source of Weed Contamination in Container Nurseries.** Alisha O. Ray\*<sup>1</sup>, Anthony LeBude<sup>1</sup>, James Altland<sup>2</sup>, Christopher D. Harlow<sup>1</sup>, Joe C. Neal<sup>1</sup>; <sup>1</sup>North Carolina State University, Raleigh, NC, <sup>2</sup>USDA-ARS, Wooster, OH (252)

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***TUESDAY MORNING JANUARY 31***

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**SST - SST PhD**

**LOCATION:** Salon C  
**TIME:** 10:15 AM - 12:00 PM Eastern Time  
**CHAIR:** Marty Schraer  
Syngenta  
Meridian, ID  
**MODERATOR:** Marty Schraer

Syngenta  
Meridian, ID

\*SPEAKER † STUDENT CONTEST

- 10:15 AM †Investigating New Peanut Cultivar Responses to Postemergence Applications of Chlorimuron.** Nicholas J. Shay\*<sup>1</sup>, Eric P. Prostko<sup>2</sup>; <sup>1</sup>The University of Georgia, Tifton, GA, <sup>2</sup>University of Georgia, Tifton, GA (253)
- 10:20 AM †Weed Community Shift in Nitrogen Immobilized Soils.** Maria A. Gannett\*, Antonio DiTommaso, Jenny Kao-Kniffin; Cornell University, Ithaca, NY (254)
- 10:25 AM †Effect of Fall- or Spring-Planted Cover Crops on Weed Suppression in High Plains.** Sachin Dhanda\*<sup>1</sup>, Vipin Kumar<sup>1</sup>, Augustine Obour<sup>1</sup>, Elizabeth Yeager<sup>2</sup>, John Holman<sup>3</sup>, Anita Dille<sup>2</sup>; <sup>1</sup>Kansas State University, Hays, KS, <sup>2</sup>Kansas State University, Manhattan, KS, <sup>3</sup>Kansas State University, Garden City, KS (255)
- 10:30 AM †Utility of John Deere's See & Spray™ Ultimate in Southern U.S. Row Crops.** Tristen H. Avent\*<sup>1</sup>, Jason K. Norsworthy<sup>1</sup>, William L. Patzoldt<sup>2</sup>, Lauren M. Lazaro<sup>2</sup>; <sup>1</sup>University of Arkansas, Fayetteville, AR, <sup>2</sup>Blue River Technology, Sunnyvale, CA (256)
- 10:35 AM †Transgenerational Effect of Weed Competition on Wheat.** Albert O. Kwarteng\*<sup>1</sup>, Albert T. Adjesiwor<sup>2</sup>; <sup>1</sup>University of Idaho, Moscow, ID, <sup>2</sup>University of Idaho, Kimberly, ID (257)
- 10:40 AM †Assessing the Efficacy of a Biculture Living and Dead Cover Crop Mixture for Weed Suppression in Sweet Corn.** Veronica Yurchak\*, Alan W. Leslie, Bill Phillips, Cerruti Rr Hooks; University of Maryland, College Park, MD (258)
- 10:45 AM †A Deep Learning Approach for Nutsedge (*Cyperus* Spp.) Detection in Strawberry Plasticulture Production.** Alex G. Rodriguez\*<sup>1</sup>, Arnold W. Schumann<sup>2</sup>, Nathan Boyd<sup>3</sup>; <sup>1</sup>University of Florida, Wimauma, FL, <sup>2</sup>University of Florida, Lake Alfred, FL, <sup>3</sup>University of Florida, Balm, FL (259)
- 10:50 AM †Weed Seed Fate in the Combine During Wheat and Soybean Harvest.** Eli C. Russell\*, Michael L.

Flessner, Matthew P. Spoth, Kevin Bamber;  
Virginia Tech, Blacksburg, VA (260)

- 10:55 AM** †**Evaluating the Effect of Cover Crop Termination Management on Palmer Amaranth (*Amaranthus Palmeri*) Suppression in Soybean.** Cynthia Sias\*, Michael L. Flessner, Kevin Bamber; Virginia Tech, Blacksburg, VA (261)
- 11:00 AM** †**Using Black Soldier Fly Larvae Composting to Reduce Weed Seed Germination.** Jeanine Arana\*<sup>1</sup>, Stephen L. Meyers<sup>2</sup>, Luz Aide Cardona Giraldo<sup>2</sup>, Nathaly Belen Vargas Arroyo<sup>2</sup>, Laura D. Rodriguez Baquero<sup>3</sup>; <sup>1</sup>Purdue University/Horticulture, West Lafayette, IN, <sup>2</sup>Purdue University, West Lafayette, IN, <sup>3</sup>University of Wisconsin-Madison, Madison, WI (262)
- 11:05 AM** †**Weed Genetic Control: Potential Application for Controlling Dioecious Amaranths.** Lucas Kopecky Bobadilla\*<sup>1</sup>, Patrick Tranel<sup>2</sup>; <sup>1</sup>University of Illinois, Champaign, IL, <sup>2</sup>University of Illinois, Urbana, IL (263)
- 11:10 AM** †**Determining the Critical Period of Weed Control in Organic Carrots.** Emma Kubinski\*<sup>1</sup>, Mac Burgess<sup>2</sup>, Fabian Menalled<sup>3</sup>; <sup>1</sup>Montana State University/Land Resources and Environmental Science, Bozeman, MT, <sup>2</sup>Montana State University/ Plant Sciences and Plant Pathology, Bozeman, MT, <sup>3</sup>Montana State University, Bozeman, MT (264)
- 11:15 AM** †**Allelopathic Weed-suppressive Effect of Cotton Chromosome Substitution Lines Under Field Conditions.** Worlanyo Segbefia\*<sup>1</sup>, Varsha Singh<sup>1</sup>, Ncomiwe A. Maphalala<sup>2</sup>, Tabata Raissa De Oliveira<sup>1</sup>, Ziming Yue<sup>1</sup>, Te-Ming (Paul) Tseng<sup>1</sup>; <sup>1</sup>Mississippi State University, Starkville, MS, <sup>2</sup>Mississippi State University-Department of Plant and Soil Sciences, Starkville, MS (265)
- 11:20 AM** †**Biochemical Profiling of Sweetpotato Roots for Weed-Suppressing Allelochemicals.** Varsha Singh\*<sup>1</sup>, Worlanyo Segbefia<sup>1</sup>, Ziming Yue<sup>1</sup>, Mark W. Shankle<sup>2</sup>, Te-Ming (Paul) Tseng<sup>1</sup>; <sup>1</sup>Mississippi State University, Starkville, MS, <sup>2</sup>Mississippi State University, Pontotoc, MS (266)
- 11:25 AM** †**Prediction of Weed Emergence Patterns in a Rice-Wheat Cropping System Using Population-Based Threshold Models.** Faryal Ali\*<sup>1</sup>, Irfan

Afzal<sup>2</sup>; <sup>1</sup>University of agriculture Faisalabad Pakistan, Mardan, Pakistan, <sup>2</sup>University of agriculture Faisalabad Pakistan, Faisalabad, Pakistan (267)

- 11:30 AM** †**Soybean Weed Management with Residual Herbicide Programs.** Zachary R. Treadway\*, Jennifer Dudak, Todd A. Baughman; Oklahoma State University, Ardmore, OK (268)
- 11:35 AM** †**Evaluation of Pre-emergence Herbicides for Weed Management in Florida's Strawberry Plasticulture Production.** Ruby Tiwari\*<sup>1</sup>, Nathan Boyd<sup>2</sup>, Pamela Roberts<sup>1</sup>, Samira Daroub<sup>3</sup>, Ramdas Kanissery<sup>1</sup>; <sup>1</sup>University of Florida, Immokalee, FL, <sup>2</sup>University of Florida, Balm, FL, <sup>3</sup>University of Florida, Everglades, FL (269)
- 11:40 AM** †**Johnsongrass (*Sorghum halepense*) Promotes Biological Nitrification Inhibition in its Rhizosphere.** Megan L. Schill\*, Dinesh Phuyal, Nithya Rajan, Nithya K. Subramanian, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX (270)
- 11:45 AM** †**Subtelomeric Rearrangements Cause Glyphosate Resistance in *Eleusine indica*.** Nicholas A. Johnson\*<sup>1</sup>, Nathan D. Hall<sup>2</sup>, Qin Yu<sup>3</sup>, Chun Zhang<sup>4</sup>, Eric L. Patterson<sup>1</sup>; <sup>1</sup>Michigan State University, East Lansing, MI, <sup>2</sup>Michigan State, East Lansing, MI, <sup>3</sup>University of Western Australia, Perth, Australia, <sup>4</sup>Guangdong Academy of Agricultural Sciences, Guangzhou, China (129)

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***TUESDAY AFTERNOON JANUARY 31***

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**SYMPOSIUM - 01. Endangered Species Act: A workshop to determine how the WSSA can provide useful science-based information to regulators**

LOCATION: Salon III  
TIME: 01:00 PM - 05:00 PM Eastern Time  
CHAIR: William J. Chism  
US EPA  
Point of Rocks, MD

MODERATOR: William J. Chism  
US EPA  
Point of Rocks, MD

**\*SPEAKER**

- 01:00 PM Introduction to Workshop, Objectives and Format.** William J. Chism\*; US EPA, Point Of Rocks, MD (271)
- 01:10 PM Keynote.** Jake Li\*; US EPA - Deputy Assistant Administrator for Pesticide Programs, Washington, DC (272)
- 01:30 PM Keynote.** Kyle Kunkler\*; American Soybean Association, St Louis, MO (273)
- 01:50 PM Discuss WSSA Comments to EPA Endangered Species Workplan.** William J. Chism\*; US EPA, Point of Rocks, MD (274)
- 02:05 PM Description of Workshop Topics.** William J. Chism\*; US EPA, Point Of Rocks, MD (275)
- 02:55 PM Coffee Break**
- 03:10 PM Workgroup Discussion Sessions.** William J. Chism\*; US EPA, Point Of Rocks, MD (276)
- 04:40 PM Post Workshop Discussion.** William J. Chism\*; US EPA, Point Of Rocks, MD (277)

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***TUESDAY AFTERNOON JANUARY 31***

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**ORAL - 13. Student Travel Enrichment Experience**

LOCATION: Salon C  
TIME: 02:00 PM - 04:30 PM Eastern Time

**\*SPEAKER**

- 02:00 PM A Tour Through Corteva Headquarters: A Global Perspective of an Integrated Field Science Organization.** Estefania Gomiero Polli\*; North Carolina State University, Raleigh, NC (278)

- 02:15 PM Travel Enrichment Experience at Beltsville Agricultural Research Center, Maryland.** Sachin Dhanda\*; Kansas State University, Hays, KS (279)
- 02:30 PM Travel Enrichment Experience with the Weed Research Lab at Colorado State University.** Joshua W. Miranda\*; Oregon State University, Corvallis, OR (280)
- 02:45 PM From East to West: Biocontrol Musings from Montana.** Emily Duenk\*; University of Guelph, Ridgetown, ON, Canada (281)
- 03:00 PM Coffee Break**
- 03:15 PM Weed Science Research, Policy, and Partnerships with USDA-ARS: 2022 Travel Enrichment Experience.** Sarah E. Kezar\*<sup>1</sup>, Steve Young<sup>2</sup>; <sup>1</sup>Texas A&M University, College Station, TX, <sup>2</sup>USDA-ARS, Beltsville, MD (282)
- 03:30 PM Science Policy Fellowship: A Unique Learning Opportunity for Aspiring Weed Scientists.** Taylor M. Randell-Singleton\*<sup>1</sup>, Navdeep Godara<sup>2</sup>, Lee Van Wychen<sup>3</sup>; <sup>1</sup>University of Georgia, Tifton, GA, <sup>2</sup>Virginia Tech, Blacksburg, VA, <sup>3</sup>Weed Science Society of America, Alexandria, VA (283)

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***TUESDAY AFTERNOON JANUARY 31***

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**NEWSS Business Meeting**

LOCATION: Salon II  
TIME: 05:00 PM - 07:00 PM Eastern Time  
MODERATOR: Jacob Barney  
Virginia Tech  
Blacksburg, VA

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***WEDNESDAY MORNING FEBRUARY 1***

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**Presidents Breakfast**

LOCATION: Salon J

TIME: 07:00 AM - 08:00 AM Eastern  
Time  
MODERATOR: A Stanley Culpepper  
University of Georgia  
Tifton, GA

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***WEDNESDAY MORNING FEBRUARY 1***

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**Judges Work Room**

LOCATION: Alexandria  
TIME: 07:00 AM - 03:00 PM Eastern  
Time

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***WEDNESDAY MORNING FEBRUARY 1***

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**POSTER - NEWSS Student Poster**

LOCATION: Salon IV-VI  
TIME: 08:00 AM - 10:00 AM Eastern  
Time

***WSSA Student Competition Posters will be judged  
Tuesday only***

***NEWSS Student Competition Posters will be judged  
Wednesday only***

**\*PRESENTER † STUDENT CONTEST**

**†Increased Soil Temperature Effects on Weed Seed  
Mortality Vary Across Species.** Ashley N. Isaacson\*<sup>1</sup>, Richard  
G. Smith<sup>2</sup>, Chris Stamplis<sup>3</sup>, Alix Contosta<sup>2</sup>, Carolyn J. Lowry<sup>4</sup>;  
<sup>1</sup>Penn State University, State College, PA, <sup>2</sup>University of New  
Hampshire, Durham, NH, <sup>3</sup>Pennsylvania State University,  
University Park, PA, <sup>4</sup>The Pennsylvania State University,  
University Park, PA (284)

**†Steam Disinfestation of Soil with and without Accelerants.**  
Donald E. Fox\*<sup>1</sup>, Emma Volk<sup>1</sup>, Mark Hoffmann<sup>1</sup>, Steve  
Fennimore<sup>2</sup>, Joe C. Neal<sup>1</sup>; <sup>1</sup>North Carolina State University,  
Raleigh, NC, <sup>2</sup>University of California - Davis, Salinas, CA  
(285)

†**Acreage Allocation for Variable Density Planting to Optimize Crop Yield and Weed Suppression.** Sandra R. Ethridge\*<sup>1</sup>, Wesley Everman<sup>1</sup>, Anna M. Locke<sup>2</sup>, David L. Jordan<sup>1</sup>, Ramon G. Leon<sup>1</sup>; <sup>1</sup>North Carolina State University, Raleigh, NC, <sup>2</sup>USDA-ARS, Raleigh, NC (286)

†**Degradation of Spring Applied Methiozolin and its Effects on Smooth Crabgrass and Goosegrass Control.** John M. Peppers\*, Shawn Askew; Virginia Tech, Blacksburg, VA (287)

†**Weed Risk Assessment of *Brassica carinata* in the Southeastern U.S.** April M. Dobbs\*, Chris Reberg-Horton, Lori Unruh Snyder, Ramon G. Leon; North Carolina State University, Raleigh, NC (288)

†**Response of Italian Ryegrass Accessions from South-Central North Carolina to Spring Burndown Herbicides.** Jose H. de Sanctis\*, Charlie W. Cahoon, Wesley Everman, Travis Gannon; North Carolina State University, Raleigh, NC (289)

†**Optimizing Application Time of Residual Herbicides in a Planted Green Soybean System.** Megan R. Czekaj\*<sup>1</sup>, John M. Wallace<sup>2</sup>, Mark VanGessel<sup>3</sup>, Michael L. Flessner<sup>4</sup>; <sup>1</sup>Penn State University- Agricultural and Environmental Plant Science, State College, PA, <sup>2</sup>Penn State University, University Park, PA, <sup>3</sup>University of Delaware, Georgetown, DE, <sup>4</sup>Virginia Tech, Blacksburg, VA (290)

†**Do Plant Growth Regulator Admixtures Influence Annual Bluegrass Control by Methiozolin?** Navdeep Godara\*, Shawn Askew, John M. Peppers; Virginia Tech, Blacksburg, VA (291)

†**Evaluation of Various Preemergent Herbicides at Different Rates to Control False-Green *Kyllinga (Kyllinga gracillima)* from Seed.** Matthew T. Elmore<sup>1</sup>, Brandon C. McNally<sup>1</sup>, Aaron J. Patton<sup>2</sup>, Daniel P. Tuck<sup>1</sup>, Trevor S. Watson\*<sup>1</sup>; <sup>1</sup>Rutgers University, New Brunswick, NJ, <sup>2</sup>Purdue University, West Lafayette, IN (292)

†**Discrimination Between PPO-inhibiting Herbicide-resistant Redroot Pigweed (*Amaranthus retroflexus*) Utilizing Spectral Reflectance.** Eric A. Jones\*, Robert Austin, Diego J. Contreras, Jeffrey Dunne, Charlie W. Cahoon, Ramon G. Leon, Wesley Everman; North Carolina State University, Raleigh, NC (293)

†**Influence of Tall Fescue Canopy Architecture on Weed Emergence.** Daewon Koo\*<sup>1</sup>, Clebson G. Goncalves<sup>2</sup>, Shawn Askew<sup>1</sup>; <sup>1</sup>Virginia Tech, Blacksburg, VA, <sup>2</sup>University of California, Agriculture and Natural Resources, Ukiah, CA (294)



†**Control of Common Row Crop Weeds with Dicamba and Glufosinate Applied Alone, Mixed, and Sequentially.** Jackson W. Alsdorf\*, Eric A. Jones, Diego J. Contreras, Charlie W. Cahoon, Ramon G. Leon, Wesley Everman; North Carolina State University, Raleigh, NC (295)

†**Effect of Increased Soil Temperatures on Weed Seed Mortality Vary Across Species.** Ashley N. Isaacson\*<sup>1</sup>, Carolyn J. Lowry<sup>2</sup>; <sup>1</sup>Penn State University, State College, PA, <sup>2</sup>The Pennsylvania State University, University Park, PA (296)

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***WEDNESDAY MORNING FEBRUARY 1***

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**SYMPOSIUM - 03. Crop-Weed Management in a Rising CO<sub>2</sub> and Warming World**

LOCATION: Salon II  
TIME: 08:00 AM - 12:00 PM Eastern Time  
CHAIR: Martin Williams  
USDA-ARS  
Urbana, IL  
MODERATOR: Martin Williams  
USDA-ARS  
Urbana, IL

**\*SPEAKER**

**08:00 AM Our Changing Climate: Science, Impacts, and Vulnerabilities.** Donald J. Wuebbles\*; University of Illinois, Urbana, IL (297)

**08:20 AM Modeling Invasive Weed Distributions Under Future Climate Scenarios.** Antonio DiTommaso\*<sup>1</sup>, Sophie Westbrook<sup>1</sup>, Emma K. Nikkel<sup>2</sup>, David R. Clements<sup>3</sup>, Caroline Marschner<sup>1</sup>; <sup>1</sup>Cornell University, Ithaca, NY, <sup>2</sup>University of British Columbia, Vancouver, BC, Canada, <sup>3</sup>Trinity Western University, Langley, BC, Canada (298)

**08:40 AM Effect of CO<sub>2</sub> on Weedy Rice Growth, Seed Shattering, and Seed Dormancy.** Luis A. Avila\*; Universidade Federal de Pelotas, Pelotas, Brazil (299)

- 09:00 AM Impact of High Temperature Stress on Crops, Weeds, and Herbicide Efficacy.** Pv V. Prasad\*; Kansas State University, Manhattan, KS (300)
- 09:20 AM Climate Change and Pest Treatment Costs: What is Happening?** Bruce A. McCarl\*; Texas A & M University, College Station, TX (301)
- 09:40 AM Weeds and Weed Management in a Warmer, Wetter World.** Carolyn J. Lowry\*<sup>1</sup>, Ashley N. Isaacson<sup>2</sup>, Alix Contosta<sup>3</sup>, Erin Haramoto<sup>4</sup>, Richard G. Smith<sup>3</sup>, John M. Wallace<sup>5</sup>; <sup>1</sup>The Pennsylvania State University, University Park, PA, <sup>2</sup>Penn State University, State College, PA, <sup>3</sup>University of New Hampshire, Durham, NH, <sup>4</sup>University of Kentucky, Lexington, KY, <sup>5</sup>Penn State University, University Park, PA (302)
- 10:00 AM Coffee Break**
- 10:15 AM Does Environmental Change Increase the Impact of Weeds?** Montserrat Vilà\*; Estación Biológica de Doñana (EBD-CSIC), Sevilla, Spain (303)
- 10:35 AM Combined Effects of Climate Change and Intensification on Potential Yield.** Jonathan Storkey\*; Rothamsted Research, Harpenden, United Kingdom (304)
- 10:55 AM Crops and Weeds Running to Stand Still in the Red Queen's Climate Change.** David R. Clements\*; Trinity Western University, Langley, BC, Canada (305)
- 11:15 AM Climate Change, Weed Biology and Public Health.** Lewis H. Ziska\*; Columbia University, Baltimore, MD (306)

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***WEDNESDAY MORNING FEBRUARY 1***

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**Oral 01. Agronomic Crops - Day 1**

- LOCATION: Salon III
- TIME: 09:00 AM - 05:00 AM Eastern Time
- CHAIR: Daljit Singh  
Bayer

Chesterfield, MO  
MODERATOR: Daljit Singh  
Bayer  
Chesterfield, MO  
CO-MODERATOR: Craig M. Alford  
Corteva  
Ankeny, IA

**\*SPEAKER**

- 09:00 AM** **Diffenolifenican: a Tool for Managing *Amaranthus* Species in Corn and Soybean Cropping Systems.** John Buol\*, Carl Coburn, Richard Leitz, Eric Riley, Ananda Datta; Bayer, St. Louis, MO (307)
- 09:15 AM** **Depletion of Multiple-Herbicide-Resistant Waterhemp Seed in the Soil Seed Bank with Integrated Weed Management Strategies.** Peter H. Sikkema\*, Nader Soltani; University of Guelph, Ridgetown, ON, Canada (308)
- 09:30 AM** **How is Soybean Biomass Partitioning to Vegetation, Floral Development and Pod Formation Affected by Exposure to Simulated Drift Rates of Auxin Herbicides?** Koffi Badou-Jeremie Kouame\*<sup>1</sup>, Thomas R. Butts<sup>1</sup>, Brad M. Davis<sup>1</sup>, Leah M. Collie<sup>2</sup>, Troy W. Dillon<sup>1</sup>, Jeremy K. Sutterfield<sup>1</sup>, Benjamin C. Thrash<sup>1</sup>, Nick R. Bateman<sup>3</sup>, John J. Adamczyk<sup>4</sup>, Gus M. Lorenz<sup>2</sup>; <sup>1</sup>University of Arkansas System Division of Agriculture, Lonoke, AR, <sup>2</sup>University of Arkansas, Lonoke, AR, <sup>3</sup>University of Arkansas System Division of Agriculture, Fayetteville, AR, <sup>4</sup>USDA, Poplarville, MS (309)
- 09:45 AM** **Effectiveness of Tirexor® and Voraxor® on Glufosinate-Resistant Palmer Amaranth.** Pamela Carvalho-Moore\*<sup>1</sup>, Jason K. Norsworthy<sup>1</sup>, Ty Smith<sup>1</sup>, Casey H. Arnold<sup>1</sup>, Matthew C. Woolard<sup>1</sup>, Maria Leticia Zaccaro-Gruener<sup>1</sup>, Tom Barber<sup>2</sup>; <sup>1</sup>University of Arkansas, Fayetteville, AR, <sup>2</sup>University of Arkansas System Division of Agriculture, Lonoke, AR (310)
- 10:00 AM** **Coffee Break**
- 10:15 AM** **Agriculturally Significant Weeds and Associated Soil Nematodes of South-Central New Jersey: the Good, the Bad, the Ugly.** Melissa A. Bravo\*; Rutgers, The State University of New Jersey, Woodstown, NJ (311)

- 10:30 AM A Survey of Twelve Common Rowcrop Weeds and Associated Soil Nematodes of Salem County, NJ.** Melissa A. Bravo\*; Rutgers, The State University of New Jersey, Woodstown, NJ (312)
- 10:45 AM The Potential of Inter-row Non-selective Herbicide Application to Manage Wild Oat (*Avena fatua* L.) in Wheat.** Eric N. Johnson\*, Christian Willenborg, Steve Shirliffe; University of Saskatchewan, Saskatoon, SK, Canada (313)
- 11:00 AM Discovery of Tetflupyrolimet: A New Mode-of-Action Herbicide Interfering with De Novo Pyrimidine Biosynthesis for Effective Management of Herbicide-Resistant Grass Weeds Globally.** Atul Puri\*, Thomas Selby, Steve Gutteridge, Mark Holliday, Adam Prestegord; FMC Corporation, Newark, DE (314)
- 11:15 AM Control of Multiple-Herbicide-Resistant Waterhemp (*Amaranthus tuberculatus*) with Acetochlor-based Tank Mixtures in Soybean.** Hannah E. Symington\*<sup>1</sup>, Nader Soltani<sup>2</sup>, Allan Kaastra<sup>3</sup>, David C. Hooker<sup>2</sup>, Darren E. Robinson<sup>2</sup>, Peter H. Sikkema<sup>2</sup>; <sup>1</sup>University of Guelph, Rr#3 Watford, ON, Canada, <sup>2</sup>University of Guelph, Ridgetown, ON, Canada, <sup>3</sup>Bayer Crop Science, Guelph, ON, Canada (315)
- 11:45 AM Spatiotemporal Changes in Glyphosate Efficacy on Key Weed Species in the US and Canada.** Christopher A. Landau\*<sup>1</sup>, Kevin W. Bradley<sup>2</sup>, Erin E. Burns<sup>3</sup>, Ryan P. DeWerff<sup>4</sup>, Michael L. Flessner<sup>5</sup>, Karla L. Gage<sup>6</sup>, Aaron G. Hager<sup>7</sup>, Joseph T. Ikley<sup>8</sup>, Prashant Jha<sup>9</sup>, William G. Johnson<sup>10</sup>, Paul O. Johnson<sup>11</sup>, Sarah Lancaster<sup>12</sup>, Dwight Lingenfelter<sup>13</sup>, Mark M. Loux<sup>14</sup>, Eric J. Miller<sup>15</sup>, Scott A. Nolte<sup>16</sup>, Debalin Sarangi<sup>17</sup>, Peter H. Sikkema<sup>18</sup>, Christy L. Sprague<sup>3</sup>, Mark VanGessel<sup>19</sup>, Rodrigo Werle<sup>20</sup>, Martin Williams<sup>21</sup>, Bryan G. Young<sup>22</sup>; <sup>1</sup>University of Illinois, Crop Sciences, Urbana, IL, <sup>2</sup>University of Missouri, Columbia, MO, <sup>3</sup>Michigan State University, East Lansing, MI, <sup>4</sup>University of Wisconsin, Madison, WI, <sup>5</sup>Virginia Tech, Blacksburg, VA, <sup>6</sup>Southern Illinois University Carbondale, Carbondale, IL, <sup>7</sup>University of Illinois, Urbana, IL, <sup>8</sup>North Dakota State University, Fargo, ND, <sup>9</sup>Iowa State University, Ames, IA, <sup>10</sup>Purdue University, West Lafayette, IN, <sup>11</sup>South Dakota State University, Brookings, ND, <sup>12</sup>Kansas State University, Manhattan, KS, <sup>13</sup>Penn State University, University Park, PA, <sup>14</sup>The

Ohio State University, Columbus, OH, <sup>15</sup>Southern Illinois University, Carbondale, IL, <sup>16</sup>Texas A&M AgriLife Extension, College Station, TX, <sup>17</sup>University of Minnesota, St. Paul, MN, <sup>18</sup>University of Guelph, Ridgetown, ON, Canada, <sup>19</sup>University of Delaware, Georgetown, DE, <sup>20</sup>University of Wisconsin-Madison, Madison, WI, <sup>21</sup>USDA-ARS, Urbana, IL, <sup>22</sup>Purdue University, Brookston, IN (317)

**12:00 PM Lunch**

**01:00 PM Chaff Lining for Management of Weeds in Winter Wheat.** Matthew P. Spoth<sup>1</sup>, Michael L. Flessner\*<sup>1</sup>, Kevin Bamber<sup>1</sup>, Wykle C. Greene<sup>1</sup>, Cynthia Sias<sup>1</sup>, Eli C. Russell<sup>1</sup>, Vipin Kumar<sup>2</sup>, Vijay Singh<sup>3</sup>; <sup>1</sup>Virginia Tech, Blacksburg, VA, <sup>2</sup>Virginia Polytechnic Institute and State University, Painter, VA, <sup>3</sup>Virginia Tech, Painter, VA (318)

**01:15 PM Changes in Weed Population Density After Harvest with a Seed Impact Mill.** Eli C. Russell\*, Michael L. Flessner, Matthew P. Spoth, Wykle C. Greene, Kevin Bamber; Virginia Tech, Blacksburg, VA (319)

**01:30 PM Reduction in Palmer Amaranth (*Amaranthus Palmeri*) Emergence and Growth Rate in Response to Cover Crop Termination Timing: Applications for Optimizing Herbicide Programs.** Cynthia Sias\*, Michael L. Flessner, Kevin Bamber; Virginia Tech, Blacksburg, VA (320)

**01:45 PM The Cover Crop Evolution/Revolution- Past, Present, Future.** William S. Curran\*; Penn State University, Bozeman, MT (321)

**02:00 PM Cross Resistance to Acetyl-CoA Carboxylase-Inhibiting Herbicides in a Johnsongrass [*Sorghum halepense* (L.) Pers.] Accession Collected in Arkansas.** Fidel Gonzalez Torralva\*, Jason K. Norsworthy; UNIVERSITY OF ARKANSAS, Fayetteville, AR (322)

**02:15 PM Georgia's Endangered Species Pilot Program: A Team Approach to Help Protect Species and the Farm.** Taylor M. Randell-Singleton\*<sup>1</sup>, Jenna C. Vance<sup>1</sup>, William J. Chism<sup>2</sup>, A Stanley Culpepper<sup>1</sup>; <sup>1</sup>University of Georgia, Tifton, GA, <sup>2</sup>US EPA, Point Of Rocks, MD (323)

- 02:30 PM Survey of Herbicide Resistance in Pigweed (*Amaranthus* Spp.) Escapes in North Dakota Row Crops.** Joseph T. Ikley\*<sup>1</sup>, Stephanie DeSimini<sup>1</sup>, Michael J. Christoffers<sup>1</sup>, Megan O'Neil<sup>2</sup>, Zack Bateson<sup>2</sup>; <sup>1</sup>North Dakota State University, Fargo, ND, <sup>2</sup>National Agricultural Genotyping Center, Fargo, ND (324)
- 02:45 PM Does Interseeded Cover Crop Seed Size Influence Tolerance to Residual Herbicide Programs?** Tosh R. Mazzone\*<sup>1</sup>, John M. Wallace<sup>1</sup>, Matthew R. Ryan<sup>2</sup>, Chris J. Pelzer<sup>2</sup>; <sup>1</sup>Penn State University, University Park, PA, <sup>2</sup>Cornell University, Ithaca, NY (325)
- 03:00 PM Coffee Break**
- 03:15 PM A23980B: Corn Weed Control from Four Complimentary Active Ingredients.** Craig Austin\*<sup>1</sup>, Seth A. Strom<sup>2</sup>, Mark Kitt<sup>1</sup>, Thomas Beckett<sup>1</sup>; <sup>1</sup>Syngenta, Greensboro, NC, <sup>2</sup>Syngenta Crop Protection, Monticello, IL (326)
- 03:30 PM Introducing Golden Pennycress (*Thlaspi arvense*) into the Corn-Soybean Rotation.** Mark L. Bernards\*, Brent S. Heaton; Western Illinois University, Macomb, IL (327)
- 03:45 PM Investigating the Genetic Control of Interspecific Hybridization Between *Sorghum bicolor* and *S. halepense* Using Recombinant Inbred Lines (RILs).** Usha R. Pedireddi\*, Nithya K. Subramanian, George Hodnett, Patricia Klein, William Rooney, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX (328)
- 04:00 PM Classification of Herbicide Symptomology in Cotton Using Digital Images and Deep Learning.** Ubaldo Torres\*<sup>1</sup>, Joe Johnson<sup>1</sup>, Shefali Sarang<sup>1</sup>, Bishwa B. Sapkota<sup>1</sup>, Scott A. Nolte<sup>2</sup>, Muthukumar V. Bagavathiannan<sup>1</sup>; <sup>1</sup>Texas A&M University, College Station, TX, <sup>2</sup>Texas A&M AgriLife Extension, College Station, TX (329)
- 04:15 PM Evaluation of Crop Herbicide Tolerance Using UAV Obtained Multispectral Imagery.** Ryan D. Langemeier\*, Livia Pereira, Justin T. McCaghren, Steve Li; Auburn University, Auburn, AL (330)

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**WEDNESDAY MORNING FEBRUARY 1**

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**ORAL - 07. Formulation, Adjuvant, &  
Application Technology**

LOCATION: Salon H  
TIME: 09:30 AM - 02:00 PM Eastern  
Time  
CHAIR: Joseph T. Ikley  
North Dakota State University  
Fargo, ND  
MODERATOR: Joseph T. Ikley  
North Dakota State University  
Fargo, ND  
CO-MODERATOR: Gourav Sharma  
Virginia Tech  
Blacksburg, VA

**\*SPEAKER**

- 09:30 AM Comparison of Weed Control Outcomes When Using Precision Application Versus Traditional Approaches in Corn (*Zea mays*). Isaac H. Barnhart\*<sup>1</sup>, Greg Kruger<sup>2</sup>, Calvin Andrew Miller<sup>3</sup>, Chris Proctor<sup>4</sup>, Rodrigo Werle<sup>5</sup>, Anita Dille<sup>1</sup>; <sup>1</sup>Kansas State University, Manhattan, KS, <sup>2</sup>University of Nebraska - Lincoln, North Platte, NE, <sup>3</sup>BASF, Seymour, IL, <sup>4</sup>University of Nebraska-Lincoln, Lincoln, NE, <sup>5</sup>University of Wisconsin-Madison, Madison, WI (331)**
- 09:45 AM Weed Control in Soybeans (Glycine Max) Using Precision Sprayers. Isaac H. Barnhart\*<sup>1</sup>, Proctor Chris<sup>2</sup>, Thiago H. Vitti<sup>2</sup>, Calvin Andrew Miller<sup>3</sup>, Greg Kruger<sup>4</sup>, Anita Dille<sup>1</sup>; <sup>1</sup>Kansas State University, Manhattan, KS, <sup>2</sup>University of Nebraska-Lincoln, Lincoln, NE, <sup>3</sup>BASF, Seymour, IL, <sup>4</sup>University of Nebraska - Lincoln, North Platte, NE (332)**
- 10:00 AM Coffee Break**
- 10:15 AM Effects of PRE Herbicides on Precision Post Emergence Herbicide Application in Plasticulture Production. Ana Claudia Buzanini\*<sup>1</sup>, Arnold W. Schumann<sup>2</sup>, Nathan Boyd<sup>3</sup>; <sup>1</sup>University of Florida, Wimauma, FL, <sup>2</sup>University of Florida, Lake Alfred, FL, <sup>3</sup>University of Florida, Balm, FL (333)**
- 10:30 AM Herbicide Options in Industrial Hemp. Wyatt J. Stutzman\*, Kevin Bamber, Cynthia Sias, Eli C.**

Russell, Michael L. Flessner; Virginia Tech,  
Blacksburg, VA (334)

- 10:45 AM** **Assessing Deposition and Plant Responses Following Dicamba Applications in Cotton and Soybean Using Hooded and Open Boom Sprayers.** Devin Hammer\*, Naresh Pai, Allen Olmstead; Bayer Crop Science, St. Louis, MO (335)
- 11:00 AM** **A Novel Tool for Improving Selection of Nozzles and Adjuvants, CPDA's New *Application Enhancement Certification* Program.** James Reiss\*; Precision Laboratories, LLC, Lake Geneva, WI (336)
- 11:15 AM** **Dicamba Applications Using Drop Nozzles to Reduce Drift in Texas Cotton.** Hayden R. Taylor\*<sup>1</sup>, Scott A. Nolte<sup>2</sup>, Peter A. Dotray<sup>3</sup>, Joshua A. McGinty<sup>4</sup>; <sup>1</sup>Texas A&M University, College Station, TX, <sup>2</sup>Texas A&M AgriLife Extension, College Station, TX, <sup>3</sup>Texas Tech University, Texas A&M Texas Tech University, Texas A&M AgriLife Research, Texas A&M AgriLife Extension, Lubbock, TX, <sup>4</sup>Texas A&M AgriLife Extension, Corpus Christi, TX (337)
- 11:30 AM** **Developer of Novel Adjuvant Systems for Herbicides.** Jim T. Daniel\*<sup>1</sup>, Chase T. Boman<sup>2</sup>; <sup>1</sup>Daniel Ag Consulting, Keenesburg, CO, <sup>2</sup>AgraSyst, Spokane, WA (338)
- 11:45 AM** **Evaluation of Soybean and Cotton Injury to Low Volume Applications as Influenced by Application Type and GPA.** Livia Pereira\*, Steve Li, Ryan D. Langemeier, Justin T. McCaghren; Auburn University, Auburn, AL (339)
- 12:00 PM** **Lunch**
- 01:00 PM** **What's New at the Winfield United Innovation Center?** Gregory K. Dahl\*<sup>1</sup>, Eric P. Spandl<sup>2</sup>, Ryan J. Edwards<sup>2</sup>, Joshua J. Skelton<sup>3</sup>, Steven A. Fredericks<sup>2</sup>, Aszhia K. Albrecht<sup>4</sup>, Elizabeth R. Alonzi<sup>2</sup>, Elizabeth Buescher<sup>2</sup>, Cody Hoerning<sup>2</sup>, Derick Jiwan<sup>2</sup>; <sup>1</sup>Winfield United, Eagan, MN, <sup>2</sup>Winfield United, River Falls, WI, <sup>3</sup>WinField United, Saint Paul, MN, <sup>4</sup>Land O' Lakes - Winfield United, River Falls, WI (340)
- 01:15 PM** **Single Tank vs Dual Tank See and Spray™ Programs in Soybean.** Wesley Everman\*<sup>1</sup>, Diego J. Contreras<sup>1</sup>, Jason K. Norsworthy<sup>2</sup>, Tristen H.



Avent<sup>2</sup>, Bryan G. Young<sup>3</sup>, Marcelo Zimmer<sup>4</sup>,  
Jasmine M. Mausbach<sup>5</sup>, Michael M. Houston<sup>2</sup>,  
Lauren M. Lazaro<sup>6</sup>, William L. Patzoldt<sup>6</sup>; <sup>1</sup>North  
Carolina State University, Raleigh, NC, <sup>2</sup>University  
of Arkansas, Fayetteville, AR, <sup>3</sup>Purdue University,  
Brookston, IN, <sup>4</sup>Purdue University, West Lafayette,  
IN, <sup>5</sup>University of Nebraska-Lincoln, Lincoln, NE,  
<sup>6</sup>Blue River Technology, Sunnyvale, CA (341)

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***WEDNESDAY MORNING FEBRUARY 1***

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**ORAL - 12. Integrated Weed Management**

LOCATION: Salon I  
TIME: 09:00 AM - 05:00 PM Eastern  
Time  
CHAIR: Sarah E. Kezar  
Texas A&M University  
College Station, TX  
MODERATOR: Sarah E. Kezar  
Texas A&M University  
College Station, TX

**\*SPEAKER**

- 09:15 AM Integrated Strategies of Weed Control in Semiarid Central Great Plains.** Vipan Kumar\*<sup>1</sup>, Rui Liu<sup>2</sup>, Sachin Dhanda<sup>1</sup>, Prashant Jha<sup>3</sup>, Jason K. Norsworthy<sup>4</sup>; <sup>1</sup>Kansas State University, Hays, KS, <sup>2</sup>Washington State University, Prosser, WA, <sup>3</sup>Iowa State University, Ames, IA, <sup>4</sup>University of Arkansas, Fayetteville, AR (342)
- 09:30 AM Development of a Novel Electrocution-Based Robotic Platform for Weed Control in Vegetables and Field Crops.** Ran Nisim Lati\*<sup>1</sup>, Avital Bechar<sup>2</sup>; <sup>1</sup>Department of Plant Pathology and Weed Research, Newe Yaar Research Center, Agricultural Research Organization (ARO) - Volcani Center, Ramat Yishay, Israel, <sup>2</sup>Institute of Agricultural Engineering, Agricultural Research Organization, The Volcani Center, Bet-Dagan, Israel, Bet Dagan, Israel (343)
- 09:45 AM Investigating Novel Integrated Weed Management Systems on the Canadian Prairies.** Breanne D. Tidemann\*<sup>1</sup>, K. Neil Harker<sup>1</sup>, Steve Shirtliffe<sup>2</sup>, Christian Willenborg<sup>2</sup>, Eric N. Johnson<sup>2</sup>,

Robert Gulden<sup>3</sup>, Newton Lupwayi<sup>4</sup>, T. Kelly Turkington<sup>1</sup>, Emma Stephens<sup>4</sup>, Charles M. Geddes<sup>4</sup>; <sup>1</sup>Agriculture and Agri-Food Canada, Lacombe, AB, Canada, <sup>2</sup>University of Saskatchewan, Saskatoon, SK, Canada, <sup>3</sup>University of Manitoba, Winnipeg, MB, Canada, <sup>4</sup>Agriculture and Agri-Food Canada, Lethbridge, AB, Canada (344)

**10:00 AM Coffee Break**

**10:15 AM Soil Residual Herbicide Degradation as Influenced by Soil Microbial Activity in Cover Cropping Systems.** Lucas Oliveira Ribeiro Maia\*<sup>1</sup>, William G. Johnson<sup>1</sup>, Bryan G. Young<sup>2</sup>, Eileen J. Kladvik<sup>1</sup>, Shalamar Armstrong<sup>1</sup>; <sup>1</sup>Purdue University, West Lafayette, IN, <sup>2</sup>Purdue University, Brookston, IN (345)

**10:30 AM Incorporating Winter Camelina or Canola into Rotational Cropping Systems of Colder Climates to Reduce Weed Pressure.** James V. Anderson\*<sup>1</sup>, Wun S. Chao<sup>1</sup>, Xuehui Li<sup>2</sup>, Russ W. Gesch<sup>3</sup>, Marisol T. Berti<sup>2</sup>, David P. Horvath<sup>1</sup>; <sup>1</sup>USDA-ARS, Fargo, ND, <sup>2</sup>North Dakota State University, Fargo, ND, <sup>3</sup>USDA-ARS, Morris, MN (346)

**10:45 AM Cereal Rye Cover Crop Effects on Fiber Hemp (*Cannabis sativa* L.) in Southeast Texas.** Jodie M. McVane\*, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX (347)

**11:00 AM Cereal Rye Cover Crop Significantly Delays Weed Emergence in Cotton.** Gustavo Camargo Silva\*, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX (348)

**11:15 AM Early Detection of Herbicide Resistance Using Commercial Weed Map Data.** Gregory E. Stewart\*<sup>1</sup>, Devin Kirk<sup>2</sup>, Charles M. Geddes<sup>3</sup>; <sup>1</sup>Geco Engineering, North Vancouver, BC, Canada, <sup>2</sup>Geco Engineering, Vancouver, BC, Canada, <sup>3</sup>Agriculture and Agri-Food Canada, Lethbridge, AB, Canada (349)

**11:30 AM Effects of Cover Crop Management on Weed Emergence Across the Eastern United States.** Eugene P. Law\*<sup>1</sup>, Mark VanGessel<sup>2</sup>, Steven Brian Mirsky<sup>3</sup>, Victoria Ackroyd<sup>4</sup>, Muthukumar V. Bagavathiannan<sup>5</sup>, Kevin W. Bradley<sup>6</sup>, William S. Curran<sup>7</sup>, Adam S. Davis<sup>8</sup>, Jeffrey Evans<sup>9</sup>, Wesley Everman<sup>10</sup>, Michael L. Flessner<sup>11</sup>, Nicholas R.

Jordan<sup>12</sup>, Lauren M. Lazaro<sup>13</sup>, Ramon G. Leon<sup>10</sup>, John Lindquist<sup>14</sup>, Jason K. Norsworthy<sup>15</sup>, Lovreet S. Shergill<sup>16</sup>; <sup>1</sup>University of Delaware, Beltsville, MD, <sup>2</sup>University of Delaware, Georgetown, DE, <sup>3</sup>USDA ARS, Beltsville, MD, <sup>4</sup>University of Maryland, College Park, MD, <sup>5</sup>Texas A&M University, College Station, TX, <sup>6</sup>University of Missouri, Columbia, MO, <sup>7</sup>Penn State University, Bozeman, MT, <sup>8</sup>University of Illinois, Urbana, IL, <sup>9</sup>Five Rivers Conservation Trust, Concord, NH, <sup>10</sup>North Carolina State University, Raleigh, NC, <sup>11</sup>Virginia Tech, Blacksburg, VA, <sup>12</sup>University of Minnesota, St. Paul, MN, <sup>13</sup>Blue River Technology, Sunnyvale, CA, <sup>14</sup>University of Nebraska, Lincoln, NE, <sup>15</sup>University of Arkansas, Fayetteville, AR, <sup>16</sup>Montana State University, Huntley, MT (350)

- 11:45 AM Using "Stacked" Cultivation Implements to Improve Weed Control Selectivity.** Bryan Brown\*<sup>1</sup>, Daniel C. Brainard<sup>2</sup>, Percy Marshall<sup>3</sup>; <sup>1</sup>New York State Integrated Pest Management Program, Cornell University, Geneva, NY, <sup>2</sup>Michigan State University, East Lansing, MI, <sup>3</sup>University of Arkansas, Fayetteville, AR (351)
- 12:00 PM Lunch**
- 01:00 PM Integrating Electrocutation as a Supplemental Weed Control Tool in No-till Organic Soybean.** Madhav Dhakal\*, Carolyn Garrity, Reza Afshar; Rodale Institute, Kutztown, PA (352)
- 01:15 PM A New Enemy in Town: Resistant Ryegrass Heading North in Europe.** Alberto Collavo\*, Bianca Assis Barbosa Martins, Bodo Peters; Bayer AG, Frankfurt Am Main, Germany (353)
- 01:30 PM Effect of Winter *Brassica carinata* Production on Weed Control in Subsequent Peanut.** Pratap Devkota\*, Sithin Mathew, Navjot Singh; University of Florida, Jay, FL (354)
- 01:45 PM Automated Intra-row Weeding Informed by Sugar Beet Response to Hoeing and Flaming Across Early Growth Stages.** Margaret R. McCollough\*<sup>1</sup>, Frank Poulsen<sup>2</sup>, Bo Melander<sup>3</sup>; <sup>1</sup>University of Maine, Orono, ME, <sup>2</sup>F. Poulsen Engineering Aps., Hvalsø, Denmark, <sup>3</sup>Aarhus University, Department of Agroecology, Slagelse, Denmark (355)

- 02:00 PM HRAC Global Validation Criteria for Unique Herbicide Resistance Cases.** Harry J. Streck\*<sup>1</sup>, Mark A. Peterson<sup>2</sup>, Marcel S C de Melo<sup>3</sup>, Caio V S Rossi<sup>4</sup>, Ian M. Heap<sup>5</sup>; <sup>1</sup>HRAC Global, Frankfurt Am Main, Germany, <sup>2</sup>Dow AgroSciences LLC (Ret.), Indianapolis, IN, <sup>3</sup>Bayer Brasil, Paulínia, Brazil, <sup>4</sup>Corteva, Mogi Mirim, Brazil, <sup>5</sup>The International Herbicide-Resistant Weed Database, Corvallis, OR (356)
- 02:15 PM Pairing Nanoparticles with FANA Technology for Spray-on Gene Silencing in Weeds.** Katie Martin\*<sup>1</sup>, Todd A. Gaines<sup>1</sup>, Veenu Aishwarya<sup>2</sup>; <sup>1</sup>Colorado State University, Fort Collins, CO, <sup>2</sup>AUM Lifetech, Philadelphia, PA (357)
- 02:30 PM Species-Level Weed Biomass Estimation from Video Imagery Using 3D Point Clouds.** Daniel J. Ginn\*<sup>1</sup>, Paula J. Ramos-Giraldo<sup>2</sup>, Michael A. Alcorn<sup>3</sup>, Maria L. Cangiano<sup>3</sup>, April M. Dobbs<sup>2</sup>, Søren K. Skovsen<sup>4</sup>, Matthew Kutugata<sup>1</sup>, Ramon G. Leon<sup>2</sup>, Chris Reberg-Horton<sup>2</sup>, Muthukumar V. Bagavathiannan<sup>1</sup>, Steven Brian Mirsky<sup>5</sup>; <sup>1</sup>Texas A&M University, College Station, TX, <sup>2</sup>North Carolina State University, Raleigh, NC, <sup>3</sup>USDA, Beltsville, MD, <sup>4</sup>Aarhus University, Aarhus, Denmark, <sup>5</sup>USDA ARS, Beltsville, MD (358)
- 02:45 PM Hard Water Effect on Glyphosate Grass Control in the Enlist Weed System.** Justin T. McCaghren\*, Steve Li, Ryan D. Langemeier, Livia Pereira; Auburn University, Auburn, AL (359)
- 03:00 PM Multistate Assessment of Cowpea Cover Crop Germplasm, Seeding Rate, and Termination Timing Effects on Weed Suppression.** Carlene A. Chase\*<sup>1</sup>, Daniel A. Boakye<sup>1</sup>, Parmeshwor Aryal<sup>1</sup>, Nicholas T. Basinger<sup>2</sup>, Lisa Fultz<sup>3</sup>, Audrey V. Gamble<sup>4</sup>, Erin Haramoto<sup>5</sup>, Nithya Rajan<sup>6</sup>, Vitalis Temu<sup>7</sup>, Elide Valencia<sup>8</sup>; <sup>1</sup>University of Florida, Gainesville, FL, <sup>2</sup>The University of Georgia, Athens, GA, <sup>3</sup>Louisiana State University, Baton Rouge, LA, <sup>4</sup>Auburn University, Auburn, AL, <sup>5</sup>University of Kentucky, Lexington, KY, <sup>6</sup>Texas A&M University, College Station, TX, <sup>7</sup>Virginia State University, Petersburg, VA, <sup>8</sup>University of Puerto Rico, Mayaguez, Mayaguez, PR (360)
- 03:15 PM Integrated Weed Management Practices to Control ALS and PPO-Inhibitor Resistant Palmer Amaranth.** Justin T. McCaghren\*, Steve Li, Ryan D. Langemeier, Livia Pereira; Auburn University, Auburn, AL (361)

- 03:30 PM Cultural Tactics Prevail in the War on Multiple Herbicide-Resistant Kochia (*Bassia scoparia*).** Charles M. Geddes\*<sup>1</sup>, Louis J. Molnar<sup>1</sup>, Cindy A. Gampe<sup>2</sup>, Prabhath Lokuruge<sup>2</sup>; <sup>1</sup>Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, <sup>2</sup>Agriculture and Agri-Food Canada, Scott, SK, Canada (362)
- 03:45 PM Cover Crop Monocultures and Mixtures Affect Weed Seedbank Diversity in the Southeast United States.** Aniruddha Maity\*<sup>1</sup>, Audrey V. Gamble<sup>1</sup>, Annu Kumari<sup>1</sup>, Anna Murry Johnson<sup>1</sup>, Andrew J. Price<sup>2</sup>; <sup>1</sup>Auburn University, Auburn, AL, <sup>2</sup>USDA-ARS, Auburn, AL (363)
- 04:00 PM Community Management of Herbicide Resistance: Insights from the Pacific Northwest.** Nick Bergmann\*<sup>1</sup>, Ian Burke<sup>1</sup>, Chloe Wardropper<sup>2</sup>; <sup>1</sup>Washington State University, Pullman, WA, <sup>2</sup>University of Illinois, Champaign, IL (364)

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**WEDNESDAY AFTERNOON FEBRUARY 1**

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**ORAL - 02. Horticultural Crops**

- LOCATION: Salon K  
TIME: 02:00 PM - 05:00 PM Eastern Time  
CHAIR: Kurt M. Vollmer  
University of Maryland  
Queenstown, MD  
MODERATOR: Kurt M. Vollmer  
University of Maryland  
Queenstown, MD  
CO-MODERATOR: Thierry E. Besancon  
Rutgers University  
CHATSWORTH, NJ

**\*SPEAKER**

- 02:00 PM IR-4 Weed Science Update - Food Crops.** Roger B. Batts\*, Jerry Baron, Venkat Pedibhotla; IR-4 Project HQ, NC State University, Raleigh, NC (365)

- 02:15 PM Weed Control and Crop Tolerance as Influenced by Pendimethalin Rate and Timing of Application in Cranberry Production.** Thierry E. Besancon\*<sup>1</sup>, Marcelo L. Moretti<sup>2</sup>, Katherine Ghantous<sup>3</sup>, Jed Colquhoun<sup>4</sup>, Cyrus A. Smith<sup>5</sup>; <sup>1</sup>Rutgers University, Chatsworth, NJ, <sup>2</sup>Oregon State University, Corvallis, OR, <sup>3</sup>UMass Amherst, UMass Cranberry Station, East Wareham, MA, <sup>4</sup>University of Wisconsin-Madison, Madison, WI, <sup>5</sup>Ocean Spray Cranberries, Inc., Bandon, OR (366)
- 02:30 PM Reducing Herbicide Inputs in Plasticulture Peppers Using Spring-seeded Grass Cover Crops.** Dwayne D. Joseph<sup>1</sup>, Thierry E. Besancon\*<sup>2</sup>, Cerruti Rr Hooks<sup>3</sup>, Alan W. Leslie<sup>3</sup>, Kurt M. Vollmer<sup>4</sup>; <sup>1</sup>University of Maryland, Chestertown, MD, <sup>2</sup>Rutgers University, Chatsworth, NJ, <sup>3</sup>University of Maryland, College Park, MD, <sup>4</sup>University of Maryland, Queenstown, MD (367)
- 02:45 PM Can Vegetable Crop Seed Treatments Enhance Competitiveness with Weeds?** Jed Colquhoun\*, Jacklyn Slivicke, Emma Schmidt; University of Wisconsin-Madison, Madison, WI (368)
- 03:00 PM Coffee Break**
- 03:15 PM Integrating Spring-seeded Grass Cover Crops for Weed Management in Cucurbit Production.** Kurt M. Vollmer\*<sup>1</sup>, Thierry E. Besancon<sup>2</sup>, Alan W. Leslie<sup>3</sup>, Dwayne D. Joseph<sup>4</sup>, Cerruti Rr Hooks<sup>3</sup>; <sup>1</sup>University of Maryland, Queenstown, MD, <sup>2</sup>Rutgers University, Chatsworth, NJ, <sup>3</sup>University of Maryland, College Park, MD, <sup>4</sup>University of Maryland, Chestertown, MD (369)
- 03:30 PM Flumioxazin Application Rate and Timing for Improved Crop Safety While Maintaining Efficacy in Potato.** Harlene M. Hatterman-Valenti\*, Collin Auwarter, Avery Shikanai; North Dakota State University, Fargo, ND (370)
- 03:45 PM An Update on NY Research in Snap Beans, Table Beets, and Carrots.** Lynn M. Sosnoskie\*, Elizabeth C. Maloney; Cornell University, Geneva, NY (371)
- 04:00 PM Evaluating In-season Management Strategies for Branched Broomrape Control in California Processing Tomatoes.** Matthew Fatino\*, Bradley D. Hanson; University of California, Davis, Davis, CA (372)

- 04:15 PM Weed Control and Hazelnut (*Corylus avellana* L.) Tolerance with Tiafenacil.** Joshua W. Miranda\*, Marcelo L. Moretti; Oregon State University, Corvallis, OR (373)
- 04:30 PM Speculations on Weed Management and Herbicide Use Under Agrivoltaic Panels in Cranberry Production.** Hilary A. Sandler\*<sup>1</sup>, Giverson Mupambi<sup>2</sup>, Dwayne Breger<sup>3</sup>, Samantha Glaze-Corcoran<sup>4</sup>; <sup>1</sup>UMass Cranberry Station, East Wareham, MA, <sup>2</sup>University of Massachusetts Amherst / Cranberry Station, East Wareham, MA, <sup>3</sup>UMass Clean Energy Extension, Amherst, MA, <sup>4</sup>University of Massachusetts, Amherst, MA (374)
- 04:45 PM Development of Sustainable Weed Management Strategies for Michigan Cherry Growers by Identify Promising New Herbicides.** Sushila Chaudhari\*, Christopher G. Galbraith, Monique Mose; Michigan State University, East Lansing, MI (375)

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***WEDNESDAY MORNING FEBRUARY 1***

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**ORAL - 03. Turf and Ornamentals**

- LOCATION: Salon C  
TIME: 09:00 AM - 11:30 AM Eastern Time  
CHAIR: David E. Hillger  
Corteva Agriscience  
Thorntown, IN  
MODERATOR: David E. Hillger  
Corteva Agriscience  
Thorntown, IN

**\*SPEAKER**

- 09:00 AM Weed Encroachment into a Fine Fescue Mixture Affected by Different Seeding Timings.** Ross C. Braun<sup>1</sup>, Aaron J. Patton<sup>1</sup>, Eric Watkins<sup>2</sup>, Andrew B. Hollman<sup>2</sup>, James A. Murphy<sup>3</sup>, Bradley S. Park\*<sup>3</sup>, Alexander R. Kowalewski<sup>4</sup>, Emily T. Braithwaite<sup>4</sup>; <sup>1</sup>Purdue University, West Lafayette, IN, <sup>2</sup>University of Minnesota, St. Paul, MN, <sup>3</sup>Rutgers University, New Brunswick, NJ, <sup>4</sup>Oregon State University, Corvallis, OR (376)

- 09:15 AM** **Influence of Mowing Heights and Post-treatment Irrigation on Annual Bluegrass Control with Methiozolin.** John M. Peppers\*, Shawn Askew; Virginia Tech, Blacksburg, VA (377)
- 09:30 AM** **Seedbank Persistence of Annual Bluegrass (*Poa annua* L.) Across Multiple Climatic Zones in the United States.** Andrew W. Osburn\*, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX (378)
- 09:45 AM** **Weed Control in Christmas Trees with Fluridone.** Marcelo L. Moretti\*; Oregon State University, Corvallis, OR (379)
- 10:00 AM** **Coffee Break**
- 10:15 AM** **Factors Associated with the Exposure of Sub-canopy Stolons and Shoots to Herbicides in Dormant Zoysiagrass.** Shawn Askew\*, Jordan M. Craft, Clebson G. Goncalves; Virginia Tech, Blacksburg, VA (380)
- 10:30 AM** **Common Ragweed Control in Southern Appalachian Fraser Fir Christmas Tree Production.** Joe C. Neal\*<sup>1</sup>, Christopher D. Harlow<sup>1</sup>, Jeff Owen<sup>2</sup>, Brad Edwards<sup>3</sup>; <sup>1</sup>North Carolina State University, Raleigh, NC, <sup>2</sup>North Carolina State University, Raleigh, NC, <sup>3</sup>North Carolina Cooperative Extension, Jefferson, NC (381)
- 10:45 AM** **Impact of Temperature on Germination and Growth of Japanese Stiltgrass [*Microstegium vimineum* (Trin.) A. Camus].** Jeffrey Derr\*<sup>1</sup>, Aman Rana<sup>2</sup>; <sup>1</sup>Virginia Tech, Virginia Beach, VA, <sup>2</sup>Virginia Tech HRAREC, Virginia Beach, VA (382)
- 11:00 AM** **Investigating the Genetic Relatedness of Herbicide Resistant *Poa annua* Populations.** Claudia A. Rutland\*<sup>1</sup>, Joseph S. McElroy<sup>2</sup>, Jinesh Patel<sup>2</sup>; <sup>1</sup>Auburn University Department of Crop, Soil, and Environmental Sciences, Auburn, AL, <sup>2</sup>Auburn University, Auburn, AL (383)
- 11:15 AM** **Evaluation of Goosegrass (*Eleusine indica*) Populations Suspected Resistant to Revolver and Dismiss.** Bridgette C. Johnson\*, Joseph S. McElroy; Auburn University, Auburn, AL (384)



- 11:30 AM Pre-emergent Herbicides and Mulches in Propagation - Rooting and Growth After Transplant.** Anthony L. Witcher\*<sup>1</sup>, Isha Poudel<sup>2</sup>;  
<sup>1</sup>Tennessee State University, Mcminnville, TN,  
<sup>2</sup>University of Tennessee, Jackson, TN (385)

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**WEDNESDAY MORNING FEBRUARY 1**

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**ORAL - 10. Physiology**

- LOCATION: Salon B  
TIME: 09:00 AM - 02:00 PM Eastern Time  
CHAIR: Chenxi Wu  
Bayer CropScience  
St Louis, MO  
MODERATOR: Chenxi Wu  
Bayer CropScience  
St Louis, MO

**\*SPEAKER**

- 09:00 AM Florpyrauxifen-benzyl Resistance in Barnyardgrass (*Echinochloa crus-galli*) Evolved Prior to the Commercialization of Loyant™.**  
Hudson K. Takano\*, Scott Greenwalt, David Ouse, Moriah Zielinski, Paul Schmitzer; Corteva Agriscience, Indianapolis, IN (386)
- 09:15 AM Molecular Targets of Herbicides and Insecticides - Are There Useful Overlaps?**  
Stephen O. Duke\*<sup>1</sup>, Amar G. Chittiboyina<sup>1</sup>, Thomas C. Sparks<sup>2</sup>, Daniel R. Swale<sup>3</sup>; <sup>1</sup>University of Mississippi, Oxford, MS, <sup>2</sup>Agriluent LLC, Greenfield, IN, <sup>3</sup>University of Florida, Gainesville, FL (387)
- 09:30 AM Glyphosate Selection Increases EPSPS Copy Number and Glyphosate Resistance Within Individual Plants of *Hordeum glaucum*.**  
Christopher Preston\*<sup>1</sup>, Patricia Adu-Yeboah<sup>1</sup>, Jenna M. Malone<sup>1</sup>, Gurjeet Singh Gill<sup>2</sup>; <sup>1</sup>University of Adelaide, Glen Osmond, Australia, <sup>2</sup>University of Adelaide, Adelaide, Australia (388)
- 09:45 AM Herbicides Pose a Unique Challenge: Insights from Omics Analyses of Plants Responding to Sublethal Stresses.** Jim Westwood\*, Gourav

Sharma, Suzanne R. Laliberte, Shawn Askew, Jacob Barney, David C. Haak; Virginia Tech, Blacksburg, VA (389)

**10:00 AM Coffee Break**

**10:15 AM Chromosome-Scale Draft Genomes of Common and Giant Ragweed Reveal a Potential Mechanism of Glyphosate Resistance.** Eric Page\*<sup>1</sup>, Martin Laforest<sup>2</sup>, Sara Martin<sup>3</sup>, Katherine Bisailon<sup>4</sup>, Brahim Soufiane<sup>4</sup>, Sydney Meloche<sup>1</sup>, Francois Tardif<sup>5</sup>; <sup>1</sup>Agriculture and Agri-Food Canada, Harrow, ON, Canada, <sup>2</sup>Agriculture and Agri-Food Canada, Saint-jean-sur-richelieu, QC, <sup>3</sup>Agriculture and Agri-Food Canada, Ottawa, ON, <sup>4</sup>Agriculture and Agri-Food Canada, Saint-jean-sur-richelieu, QC, Canada, <sup>5</sup>University of Guelph, Guelph, ON, Canada (390)

**10:30 AM A Deeper Understanding of Resistance to Glufosinate in *Amaranthus palmeri*.** Matheus Machado Noguera\*<sup>1</sup>, Aimone Porri<sup>2</sup>, Eduarda P. Mena Barreto<sup>1</sup>, Juan Camilo Velásquez R<sup>1</sup>, Martin Penkert<sup>3</sup>, James W. Heiser<sup>4</sup>, Jens Lerchl<sup>5</sup>, Nilda Roma-Burgos<sup>6</sup>; <sup>1</sup>University of Arkansas, Fayetteville, AR, <sup>2</sup>BASF Global Research & Development, Limburgerhof, Germany, <sup>3</sup>BASF SE, Ludwigshafen, Germany, <sup>4</sup>University of Missouri, Portageville, MO, <sup>5</sup>BASF SE, Limburgerhof, Germany, <sup>6</sup>University of Arkansas, Fayetteville, Fayetteville, AR (391)

**10:45 AM Dose-Response Characteristics of Global Metabolome as a Potential Avenue to Capture the Secondary Toxicity of Herbicides in Weeds.** Shalini priya Etukuri\*, Pawanjit Kaur Sandhu, Jisun Lee, Nishanth Tharayil; Clemson University, Clemson, SC (392)

**11:00 AM Identification and Characterization of GST Genes Involved in Group 15 Herbicide Detoxification in Resistant Grasses.** Evlampia Parcharidou<sup>1</sup>, Rebecka Duecker<sup>1</sup>, Roland S. Beffa\*<sup>2</sup>; <sup>1</sup>Georg-August Universität Göttingen, Göttingen, Germany, <sup>2</sup>Senior Scientist Consultant, Frankfurt, Germany (393)

**11:15 AM Genetic Factors Influencing Snap Bean Tolerance to Preemergence Herbicides from Three Site-of-Action Groups.** Ana I. Saballos\*<sup>1</sup>, Nicholas Hausman<sup>1</sup>, Ed Peachey<sup>2</sup>, Patrick Tranel<sup>3</sup>, Martin Williams<sup>4</sup>; <sup>1</sup>Global Change and Photosynthesis Research, US Department of

Agriculture, Agricultural Research Service, Urbana, IL, <sup>2</sup>Oregon State University, Corvallis, OR, <sup>3</sup>University of Illinois, Urbana, IL, <sup>4</sup>USDA-ARS, Urbana, IL (394)

- 11:30 AM Genome-wide Characterization of MADS-box Transcription Factors Family in Dioecious Amaranth Species.** Lucas Kopecky Bobadilla\*<sup>1</sup>, Patrick Tranel<sup>2</sup>; <sup>1</sup>University of Illinois, Champaign, IL, <sup>2</sup>University of Illinois, Urbana, IL (395)
- 11:45 AM Metabolic Resistance Profiles of Palmer Amaranth (*Amaranthus palmeri*) Populations to HPPD-inhibiting Herbicides.** Jeanafior Crystal T. Concepcion\*<sup>1</sup>, Shiv S. Kaundun<sup>2</sup>, James A. Morris<sup>2</sup>, Devin Koester<sup>1</sup>, Sarah-Jane Hutchings<sup>2</sup>, Dean E. Riechers<sup>3</sup>; <sup>1</sup>University of Illinois at Urbana-Champaign, Urbana, IL, <sup>2</sup>Syngenta, Bracknell, United Kingdom, <sup>3</sup>University of Illinois-Urbana, Urbana, IL (396)
- 12:00 PM Lunch**
- 01:00 PM Comparative Analysis of S-Metolachlor Metabolism Among Palmer Amaranth (*Amaranthus palmeri*) and Waterhemp (*A. tuberculatus*) Populations from the U.S.** Jeanafior Crystal T. Concepcion<sup>1</sup>, Noeleen K. Brown<sup>2</sup>, James A. Morris<sup>3</sup>, Sarah-Jane Hutchings<sup>3</sup>, Shiv S. Kaundun<sup>3</sup>, Dean E. Riechers\*<sup>2</sup>; <sup>1</sup>University of Illinois at Urbana-Champaign, Urbana, IL, <sup>2</sup>University of Illinois-Urbana, Urbana, IL, <sup>3</sup>Syngenta, Bracknell, United Kingdom (397)
- 01:15 PM Overcoming Weed Resistance with Discovery of Novel Modes of Action.** Karthik Putta\*, Paolo Castiglioni, Neville Anthony, David Lauffer, David Vierra, Balaji Aravindhan Pandian, Gary Schaefer, Peter Stchur, Brittany Baisch, Timothy Panosian, Jacqueline Heard, Thomas Meade; ENKO, Mystic, CT (398)
- 01:30 PM Which Summer Annual Weeds May Emerge as Important Candidates as Model Species for Research to Combat Climate Change and Global Food Security?** Philip Westra\*<sup>1</sup>, Todd A. Gaines<sup>1</sup>, Eric L. Patterson<sup>2</sup>, Jacob S. Montgomery<sup>1</sup>, John M. Lemas<sup>1</sup>; <sup>1</sup>Colorado State University, Fort Collins, CO, <sup>2</sup>Michigan State University, East Lansing, MI (399)

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**WEDNESDAY MORNING FEBRUARY 1**

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**Graduate Student Luncheon**

LOCATION: Salon J  
TIME: 11:30 AM - 01:00 PM Eastern  
Time  
MODERATOR: Sarah E. Kezar  
Texas A&M University  
College Station, TX

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**WEDNESDAY AFTERNOON FEBRUARY 1**

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**SYMPOSIUM - 05. WSSA Research Priorities  
Survey Results: 13 Federal Agency-Perspectives  
and -Funding Opportunities**

LOCATION: Salon II  
TIME: 01:00 PM - 05:00 PM Eastern  
Time  
CHAIR: James Kells  
Michigan State University  
East Lansing, MI  
MODERATOR: James Kells  
Michigan State University  
East Lansing, MI  
CO-MODERATOR: Steve Young  
USDA ARS  
Beltsville, MD

**\*SPEAKER**

- 01:00 PM** **Introductions and Objectives.** James J. Kells\*; Michigan State University, East Lansing, MI (400)
- 01:20 PM** **Summary and Interpretation of WSSA Research Priorities Survey.** Daniel C. Brainard\*<sup>1</sup>, Erin Haramoto<sup>2</sup>, Ramon G. Leon<sup>3</sup>, James J. Kells<sup>1</sup>, Lee Van Wychen<sup>4</sup>, Pratap Devkota<sup>5</sup>, Mithila Jugulam<sup>6</sup>, Jacob Barney<sup>7</sup>; <sup>1</sup>Michigan State University, East Lansing, MI, <sup>2</sup>University of Kentucky, Lexington, KY, <sup>3</sup>North Carolina State University, Raleigh, NC,

<sup>4</sup>Weed Science Society of America, Alexandria, VA, <sup>5</sup>University of Florida, Jay, FL, <sup>6</sup>Kansas State University, Manhattan, KS, <sup>7</sup>Virginia Tech, Blacksburg, VA (401)

- 02:05 PM Question and Answer Session on Survey Results.** Daniel C. Brainard\*; Michigan State University, East Lansing, MI (402)
- 02:50 PM Coffee Break**
- 03:05 PM Research Panel Discussion.** Stephen O. Duke\*; University of Mississippi, Oxford, MS (403)
- 03:50 PM Management Panel Discussion.** Lee Van Wychen\*; Weed Science Society of America, Alexandria, VA (404)
- 04:35 PM Closing Comments and Next Steps.** James J. Kells\*; Michigan State University, East Lansing, MI (405)

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**WEDNESDAY AFTERNOON FEBRUARY 1**

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**ORAL - 09. Biocontrol of Weeds**

LOCATION: Salon B  
TIME: 02:00 PM - 02:30 PM Eastern Time

**\*SPEAKER**

- 02:00 PM Development of the Brazilian Peppertree Biological Control Agent *Pseudophilothrips ichini* (Thysanoptera: Phlaeothripidae) in Florida.** Gregory Wheeler\*; USDA, Davie, FL (406)
- 02:15 PM Allelopathic Potential of *Parthenium hysterophorus* Against Selected Weeds of Wheat Crop.** Tauseef Anwar\*<sup>1</sup>, Huma Qureshi<sup>2</sup>;  
<sup>1</sup>Department of Botany, The Islamia University of Bahawalpur, Bahawalpur-63000, Punjab, Pakistan, Bahawalpur, Pakistan, <sup>2</sup>Institute of Biological Sciences, Gomal University, Dera Ismail Khan-29050, Khyber Pakhunkhwa, Pakistan, Dera Ismail Khan, Pakistan (407)

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**WEDNESDAY AFTERNOON FEBRUARY 1**

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**SST - SST PhD - Finals**

LOCATION: Salon C  
TIME: 02:00 PM - 03:00 PM Eastern  
Time  
CHAIR: Marty Schraer  
Syngenta  
Meridian, ID  
MODERATOR: Marty Schraer  
Syngenta  
Meridian, ID

\*SPEAKER † STUDENT CONTEST

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**WEDNESDAY AFTERNOON FEBRUARY 1**

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**ORAL - 11. Soil and Environmental Aspects**

LOCATION: Salon B  
TIME: 02:30 PM - 03:00 PM Eastern  
Time  
CHAIR: David P. Russell  
Auburn University  
Madison, AL  
MODERATOR: David P. Russell  
Auburn University  
Madison, AL

\*SPEAKER

**02:30 PM Dicamba Research Update.** Thomas C. Mueller\*<sup>1</sup>,  
Larry Steckel<sup>2</sup>; <sup>1</sup>University of Tennessee,  
Knoxville, TN, <sup>2</sup>University of Tennessee, Jackson,  
TN (408)

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**WEDNESDAY AFTERNOON FEBRUARY 1**

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**Joint Student/ Photo Awards**

LOCATION: Salon III  
TIME: 05:00 PM - 07:00 PM Eastern  
Time  
MODERATOR: Mandy Bish  
University of Missouri  
Columbia, MO

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***WEDNESDAY AFTERNOON FEBRUARY 1***

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**Joint Dessert Social**

LOCATION: Foyer  
TIME: 09:00 PM - 11:00 PM Eastern  
Time

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***THURSDAY MORNING FEBRUARY 2***

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**WSSA Business Meeting/Breakfast**

LOCATION: Salon H  
TIME: 06:30 AM - 08:00 AM Eastern  
Time  
MODERATOR: A Stanley Culpepper  
University of Georgia  
Tifton, GA  
CO-MODERATOR: Carroll Moseley  
Syngenta  
Brown Summit, NC

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***THURSDAY MORNING FEBRUARY 2***

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**Registration**

LOCATION: Arlington Registration  
TIME: 08:00 AM - 10:00 AM Eastern  
Time

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**THURSDAY MORNING FEBRUARY 2**

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**ORAL - 01. Agronomic Crops - Day 2**

LOCATION: Salon III  
TIME: 08:00 AM - 12:00 PM Eastern  
Time  
CHAIR: Daljit Singh  
Bayer  
Chesterfield, MO  
MODERATOR: Daljit Singh  
Bayer  
Chesterfield, MO  
CO-MODERATOR: Craig M. Alford  
Corteva  
Ankeny, IA

**\*SPEAKER**

- 08:00 AM Use of a Spray Drone for Corn Harvest Aid Herbicide Applications.** Ryan D. Langemeier\*, Livia Pereira, Justin T. McCaghren, Steve Li; Auburn University, Auburn, AL (409)
- 08:15 AM Investigations of Suspected Weed Resistance to XtendiMax® Herbicide with VaporGrip® Technology.** Aruna V. Varanasi\*, Chandrashekar Aradhya, Jeffrey Herrmann, John Willis; Bayer CropScience, Chesterfield, MO (410)
- 08:30 AM Evaluation of Physical Control Strategies for Kochia (*Bassia scoparia*) Patch Management.** Shaun M. Sharpe\*, Julia Y. Leeson, Haben Asgedom Telda, Jennifer Town, Tim Dumonceaux, Krista Gill; Agriculture and Agri-Food Canada, Saskatoon, SK, Canada (411)
- 08:45 AM Response of Soybean at Different Growth Stages to Sub-lethal Rates of Imazapyr.** Michael W. Marshall\*; Clemson University, Blackville, SC (412)
- 09:00 AM Detection and Site-Specific Treatment of Late-Season Weed Escapes in Rice Using Unmanned Aerial Systems and Deep Learning.** Bholuram



Gurjar\*<sup>1</sup>, Bishwa B. Sapkota<sup>1</sup>, Isidor Ceperkovic<sup>1</sup>, Ubaldo Torres<sup>2</sup>, Matthew Kutugata<sup>1</sup>, Daniel E. Martin<sup>3</sup>, Muthukumar V. Bagavathiannan<sup>1</sup>; <sup>1</sup>Texas A&M university, College Station, TX, <sup>2</sup>Texas Tech University, College Station, TX, <sup>3</sup>United States Department of Agriculture, College Station, TX (413)

**09:15 AM Effects of Delaying Rye Cover Crop Termination on Cover Crop Biomass, Weed Suppression, and Corn Yield.** Daniel A. Boakye\*<sup>1</sup>, Parmeshwor Aryal<sup>1</sup>, Carlene A. Chase<sup>1</sup>, Muthukumar V. Bagavathiannan<sup>2</sup>, Andrea Basche<sup>3</sup>, Heather Darby<sup>4</sup>, Michael L. Flessner<sup>5</sup>, Erin Haramoto<sup>6</sup>, Ramon G. Leon<sup>7</sup>, Steven Brian Mirsky<sup>8</sup>, Alison Robertson<sup>9</sup>, Matt Ruark<sup>10</sup>, Matthew R. Ryan<sup>11</sup>, Nicholas J. Seiter<sup>12</sup>, Kelley Tilmon<sup>13</sup>, Peter Tomlinson<sup>14</sup>, John F. Tooker<sup>15</sup>, Mark VanGessel<sup>16</sup>, John M. Wallace<sup>17</sup>, Jared Adam<sup>15</sup>, Tauana Ferreira de Almeida<sup>18</sup>, Ashley Decker<sup>12</sup>, Kristen Loria<sup>11</sup>, Rashelle Matthiessen-Anderson<sup>9</sup>, Jodie M. McVane<sup>2</sup>, Fernando H. Oreja<sup>7</sup>, DeAnn Presley<sup>14</sup>, Amy Raudenbush<sup>19</sup>, Lindsey Ruhl<sup>20</sup>, Cynthia Sias<sup>5</sup>, Barbara Scott<sup>16</sup>, Ethan Sweep<sup>21</sup>, Ashley Waggoner<sup>22</sup>; <sup>1</sup>University of Florida, Gainesville, FL, <sup>2</sup>Texas A&M University, College Station, TX, <sup>3</sup>University of Nebraska, Lincoln, NE, <sup>4</sup>The University of Vermont, St. Albans, VT, <sup>5</sup>Virginia Tech, Blacksburg, VA, <sup>6</sup>University of Kentucky, Lexington, KY, <sup>7</sup>North Carolina State University, Raleigh, NC, <sup>8</sup>USDA ARS, Beltsville, MD, <sup>9</sup>Iowa State University, Ames, IA, <sup>10</sup>University of Wisconsin, Madison, WI, <sup>11</sup>Cornell University, Ithaca, NY, <sup>12</sup>University of Illinois, Urbana, IL, <sup>13</sup>Ohio State University, Wooster, OH, <sup>14</sup>Kansas State University, Manhattan, KS, <sup>15</sup>The Pennsylvania State University, University Park, PA, <sup>16</sup>University of Delaware, Georgetown, DE, <sup>17</sup>Penn State University, University Park, PA, <sup>18</sup>University of Nebraska, Lincoln, NE, <sup>19</sup>The Ohio State University, Wooster, OH, <sup>20</sup>University of Vermont, St. Albans, VT, <sup>21</sup>USDA Agricultural Research Service, Beltsville, MD, <sup>22</sup>University of Wisconsin, Mas, WI (414)

**09:30 AM Maverick™ Corn Herbicide: Application Flexibility with Broad-Spectrum Control.** Jonathon Kohrt\*<sup>1</sup>, Garrison J. Gundy<sup>2</sup>, Trevor D. Israel<sup>3</sup>, Chad L. Smith<sup>4</sup>, John Pawlak<sup>5</sup>, Eric Ott<sup>5</sup>; <sup>1</sup>Valent USA LLC, West Des Moines, IA, <sup>2</sup>Valent U.S.A LLC, Mcpherson, KS, <sup>3</sup>Valent USA,

Harrisburg, SD, <sup>4</sup>Valent USA, Hallsville, MO,  
<sup>5</sup>Valent USA LLC, San Ramon, CA (415)

- 09:45 AM Response of North Carolina Palmer Amaranth Accessions to Very-Long-Chain-Fatty-Acid Inhibiting Herbicides.** Amanda M. Foderaro\*; Syngenta, Raleigh, NC (416)
- 10:00 AM Coffee Break**
- 10:15 AM Survey and Screening to Evaluate Herbicide Efficacy in Triple Stack Sugarbeet Cropping Systems in SE Montana.** Het Samir Desai\*<sup>1</sup>, Fabian Menalled<sup>1</sup>, Lovreet S. Shergill<sup>2</sup>; <sup>1</sup>Montana State University, Bozeman, MT, <sup>2</sup>Montana State University, Huntley, MT (417)
- 10:30 AM Multi-state Survey of Waterhemp (Amaranthus Tuberculatus) and Palmer Amaranth (Amaranthus Palmeri) in the USA on Sensitivity to Multiple Herbicides.** Daljit Singh\*<sup>1</sup>, Alejandro Perez-Jones<sup>2</sup>, Drew Tyre<sup>3</sup>, Chandrashekar Aradhya<sup>2</sup>; <sup>1</sup>Bayer, Chesterfield, MO, <sup>2</sup>Bayer Crop Science, Chesterfield, MO, <sup>3</sup>Bayer Crop Science, Lincoln, NE (418)
- 10:45 AM Evaluation of See & Spray Programs for Weed Management in Cotton Production.** William L. Patzoldt\*<sup>1</sup>, Lauren M. Lazaro<sup>1</sup>, Michael M. Houston<sup>1</sup>, Diego J. Contreras<sup>2</sup>, Wesley Everman<sup>2</sup>, Tristen H. Avent<sup>3</sup>, Jason K. Norsworthy<sup>3</sup>; <sup>1</sup>Blue River Technology, Sunnyvale, CA, <sup>2</sup>North Carolina State University, Raleigh, NC, <sup>3</sup>University of Arkansas, Fayetteville, AR (419)
- 11:00 AM A23980B: A Step Change for Residual Weed Control in Corn.** Sudeep A. Mathew\*<sup>1</sup>, Scott E. Cully<sup>2</sup>, Mark Kitt<sup>3</sup>; <sup>1</sup>Syngenta, Germantown, MD, <sup>2</sup>Syngenta Crop Protection, Marion, IL, <sup>3</sup>Syngenta, Greensboro, NC (420)
- 11:15 AM What's New in Industry.** Sudeep A. Mathew\*<sup>1</sup>, Marshall Hay<sup>2</sup>, Mark Kitt<sup>3</sup>; <sup>1</sup>Syngenta, Germantown, MD, <sup>2</sup>Syngenta Crop Protection, Vero Beach, FL, <sup>3</sup>Syngenta, Greensboro, NC (421)
- 11:30 AM Estimating Dry-down Performance of Desiccants in Lentils Using Hyperspectral Imaging.** Charles M. Geddes<sup>1</sup>, Keshav Dev Singh<sup>2</sup>, Prabahar Ravichandran\*<sup>3</sup>; <sup>1</sup>Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, <sup>2</sup>University of Saskatchewan, Lethbridge, AB, Canada,

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**THURSDAY MORNING FEBRUARY 2**

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**SYMPOSIUM - 02. Novel Technology for Weed  
Management: An Update on WSSA Member  
Activities from Around the US**

LOCATION: Salon I  
TIME: 08:00 AM - 12:00 PM Eastern  
Time  
CHAIR: Lynn M. Sosnoskie  
Cornell University  
Geneva, NY  
MODERATOR: Lynn M. Sosnoskie  
Cornell University  
Geneva, NY  
CO-MODERATOR: Marcelo L. Moretti  
Oregon State University  
Corvallis, OR

**\*SPEAKER**

- 08:00 AM Novel Technology for Weed Management -  
Symposium Introduction.** Lynn M. Sosnoskie\*<sup>1</sup>,  
Marcelo L. Moretti<sup>2</sup>; <sup>1</sup>Cornell University, Geneva,  
NY, <sup>2</sup>Oregon State University, Corvallis, OR (423)
- 08:09 AM Identifying and Overcoming Barriers of  
Adoption for Robotic Weed Control  
Implementation in Specialty Crops.** Matthew A.  
Cutulle\*<sup>1</sup>, Lynn M. Sosnoskie<sup>2</sup>, Thierry E.  
Besancon<sup>3</sup>, Nathan Boyd<sup>4</sup>, Sushila Chaudhari<sup>5</sup>,  
Matthew B. Bertucci<sup>6</sup>, Joe Maja<sup>7</sup>, Tara Wade<sup>8</sup>,  
Felipe Silva<sup>9</sup>, Laura Pineda-Bermudez<sup>2</sup>; <sup>1</sup>Clemson  
University, Charleston, SC, <sup>2</sup>Cornell University,  
Geneva, NY, <sup>3</sup>Rutgers University, Chatsworth, NJ,  
<sup>4</sup>University of Florida, Balm, FL, <sup>5</sup>Michigan State  
University, East Lansing, MI, <sup>6</sup>University of  
Arkansas, Fayetteville, AR, <sup>7</sup>Clemson University,  
Blackville, SC, <sup>8</sup>University of Florida, Gainesville,  
FL, <sup>9</sup>Clemson University, Clemson, SC (424)
- 08:27 AM Smart Weed Control in Vegetables with Band  
Steaming.** Steve Fennimore\*; University of  
California - Davis, Salinas, CA (425)

- 08:45 AM Electrical Weed Control in Perennial Cropping Systems.** Marcelo L. Moretti\*; Oregon State University, Corvallis, OR (426)
- 09:03 AM Electrical Weeding and Inter-row Mowing in Annual Crops.** Annika Rowland\*<sup>1</sup>, Lynn M. Sosnoskie<sup>2</sup>, Chris J. Pelzer<sup>1</sup>, Matthew R. Ryan<sup>1</sup>; <sup>1</sup>Cornell University, Ithaca, NY, <sup>2</sup>Cornell University, Geneva, NY (427)
- 09:21 AM The Future of Precision Weed Management in Specialty Crops.** Nathan Boyd\*<sup>1</sup>, Arnold W. Schumann<sup>2</sup>, Ana Claudia Buzanini<sup>3</sup>; <sup>1</sup>University of Florida, Balm, FL, <sup>2</sup>University of Florida, Lake Alfred, FL, <sup>3</sup>University of Florida, Wimauma, FL (428)
- 09:39 AM Weed Control Efficacy and Perennial Crop Tolerance Using an Herbicide Sprayer Based on Chlorophyll Fluorescence Sensing in Perennial Crops.** Thierry E. Besancon\*<sup>1</sup>, Lynn M. Sosnoskie<sup>2</sup>, Wesley M. Bouchelle<sup>1</sup>, Elizabeth C. Maloney<sup>2</sup>, Bethany M. Schulteis<sup>3</sup>; <sup>1</sup>Rutgers University, Chatsworth, NJ, <sup>2</sup>Cornell University, Geneva, NY, <sup>3</sup>Cornell University, Ithaca, NY (429)
- 09:57 AM Coffee Break**
- 10:12 AM See & Spray Ultimate - A New Tool for Weed Management in Agronomic Crops.** Lauren M. Lazaro\*<sup>1</sup>, William L. Patzoldt<sup>1</sup>, Scott Brown<sup>1</sup>, Jesaelen Gizotti de Moraes<sup>1</sup>, Michael M. Houston<sup>2</sup>, Gaylia Ostermier<sup>3</sup>, Chad Yagow<sup>3</sup>; <sup>1</sup>Blue River Technology, Sunnyvale, CA, <sup>2</sup>Blue River Technology, Stoneville, MS, <sup>3</sup>John Deere, Urbandale, IA (430)
- 10:30 AM Advances in Unmanned Aerial Systems-based Spray Applications, 2023.** Vijay Singh\*<sup>1</sup>, Dhiraj Srivastava<sup>2</sup>, Vipin Kumar<sup>2</sup>, Daniel E. Martin<sup>3</sup>, William Reynolds<sup>4</sup>; <sup>1</sup>Virginia Tech, Painter, VA, <sup>2</sup>Virginia Polytechnic Institute and State University, Painter, VA, <sup>3</sup>United States Department of Agriculture, College Station, TX, <sup>4</sup>LeadingEdge Aerial Technologies, New Smyrna Beach, FL (431)
- 10:48 AM Current Status of Harvest Weed Seed Control Research in the Eastern United States.** Michael L. Flessner\*<sup>1</sup>, Prashant Jha<sup>2</sup>, Lovreet S. Shergill<sup>3</sup>, Lynn M. Sosnoskie<sup>4</sup>, Muthukumar V. Bagavathiannan<sup>5</sup>, Wesley Everman<sup>6</sup>, Eugene P. Law<sup>7</sup>, Lauren M. Lazaro<sup>8</sup>, Steven Brian Mirsky<sup>9</sup>,

Mark VanGessel<sup>10</sup>; <sup>1</sup>Virginia Tech, Blacksburg, VA, <sup>2</sup>Iowa State University, Ames, IA, <sup>3</sup>Montana State University, Huntley, MT, <sup>4</sup>Cornell University, Geneva, NY, <sup>5</sup>Texas A&M University, College Station, TX, <sup>6</sup>North Carolina State University, Raleigh, NC, <sup>7</sup>University of Delaware, Beltsville, MD, <sup>8</sup>Blue River Technology, Sunnyvale, CA, <sup>9</sup>USDA ARS, Beltsville, MD, <sup>10</sup>University of Delaware, Georgetown, DE (432)

**11:06 AM Implementing Harvest Weed Seed Control Strategies in the Midwestern and Southern U.S.**  
Prashant Jha\*<sup>1</sup>, Jason K. Norsworthy<sup>2</sup>, Vipin Kumar<sup>3</sup>, Karla L. Gage<sup>4</sup>, Steven Brian Mirsky<sup>5</sup>, Muthukumar V. Bagavathiannan<sup>6</sup>, Michael L. Flessner<sup>7</sup>, Michael Walsh<sup>8</sup>, Avery J. Bennett<sup>1</sup>, Alexis L. Meadows<sup>1</sup>, Austin H. Schleich<sup>1</sup>; <sup>1</sup>Iowa State University, Ames, IA, <sup>2</sup>University of Arkansas, Fayetteville, AR, <sup>3</sup>Kansas State University, Hays, KS, <sup>4</sup>Southern Illinois University Carbondale, Carbondale, IL, <sup>5</sup>USDA ARS, Beltsville, MD, <sup>6</sup>Texas A&M University, College Station, TX, <sup>7</sup>Virginia Tech, Blacksburg, VA, <sup>8</sup>University of Sydney, Narrabri, Australia (433)

**11:24 AM Current Status of Harvest Weed Seed Control Research in the Northern Great Plains and Pacific Northwest Region of the United States.**  
Lovreet S. Shergill\*<sup>1</sup>, Todd A. Gaines<sup>2</sup>, Ian Burke<sup>3</sup>, Drew J. Lyon<sup>3</sup>, Judit Barroso<sup>4</sup>, Eric P. Westra<sup>2</sup>; <sup>1</sup>Montana State University, Huntley, MT, <sup>2</sup>Colorado State University, Fort Collins, CO, <sup>3</sup>Washington State University, Pullman, WA, <sup>4</sup>Oregon State University, Adams, OR (434)

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***THURSDAY MORNING FEBRUARY 2***

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**ORAL - 04. Pasture, Range, Forest, & Rights of ways, Wildland, and Aquatic Invasive plants**

LOCATION: Salon II  
TIME: 09:00 AM - 11:30 AM Eastern Time  
CHAIR: Scott A. Nolte  
Texas A&M AgriLife Extension  
College Station, TX  
MODERATOR: Scott A. Nolte

Texas A&M AgriLife  
Extension  
College Station, TX

CO-MODERATOR: Byron B. Sleugh  
Corteva Agriscience  
Carmel, IN

**\*SPEAKER**

- 09:00 AM Will it Dye or Die? Effects of Application Speed on Droplet Distribution and Swath Width of Boomless Nozzles.** Kayla L. Broster\*, Thomas H. Duncan, John D. Byrd, Jr.; Mississippi State University, Starkville, MS (435)
- 09:15 AM Chemical Control of Terrestrial Alligatorweed in Mississippi.** Gray Turnage\*; Mississippi State University, Starkville, MS (436)
- 09:30 AM Assessment of Reverse Cut Stem Treatments for Difficult to Control Tropical Vines.** Stephen F. Enloe\*; University of Florida, Gainesville, FL (437)
- 09:45 AM Aquatic Weed Control Research Update.** Benjamin P. Sperry\*; US Army Corps of Engineers, Gainesville, FL (438)
- 10:00 AM Coffee Break**
- 10:15 AM Smutgrass (Sporobolus Indicus) Identification and Management with Unmanned Aerial Systems.** Zachary S. Howard\*<sup>1</sup>, Scott A. Nolte<sup>2</sup>, Daniel E. Martin<sup>3</sup>, Chenghai Yang<sup>3</sup>; <sup>1</sup>Texas A&M University, College Station, TX, <sup>2</sup>Texas A&M AgriLife Extension, College Station, TX, <sup>3</sup>United States Department of Agriculture, College Station, TX (439)
- 10:30 AM How Much Pre-plant Weed Suppression is Practical for Riparian Forest Buffer Establishment?** Arthur E. Gover\*, Emily N. Rojik; Penn State, University Park, PA (440)
- 10:45 AM Evaluation of Factors That Influence Herbicide Spray Retention on Floating and Emergent Aquatic Vegetation.** Christopher R. Mudge\*<sup>1</sup>, Benjamin P. Sperry<sup>2</sup>, Michael W. Durham<sup>3</sup>, Kurt D. Getsinger<sup>4</sup>; <sup>1</sup>U.S. Army Engineer Research & Development Center, Baton Rouge, LA, <sup>2</sup>US Army Corps of Engineers, Gainesville, FL, <sup>3</sup>University of Florida, Gainesville, FL, <sup>4</sup>U.S. Army Engineer

Research and Development Center, Vicksburg, MS  
(441)

**11:00 AM Control of Wolftail Sedge (*Carex cherokeensis*)  
in Forages.** David P. Russell\*; Auburn University,  
Madison, AL (442)

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***THURSDAY MORNING FEBRUARY 2***

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**ORAL - 06. Teaching and Extension**

**LOCATION:** Salon J  
**TIME:** 09:00 AM - 12:00 PM Eastern  
Time  
**CO-MODERATOR:** Debalin Sarangi  
University of Minnesota  
St. Paul, MN

**\*SPEAKER**

- 09:00 AM Preventing Preventable Problems on the Farm.**  
Eric P. Prostko\*; University of Georgia, Tifton,  
GA (443)
- 09:15 AM And You Think Pigweed Control is a  
Challenge!!** John D. Byrd, Jr.\*, Kayla L. Broster,  
Thomas H. Duncan; Mississippi State University,  
Starkville, MS (444)
- 09:30 AM US-Herbicide Resistance Action Committee  
(HRAC): Who We Are and What We Do?**  
Zahoor A. Ganie<sup>1</sup>, Greg Elmore<sup>2</sup>, Lowell Sandell<sup>3</sup>,  
Chandrashekar Aradhya\*<sup>4</sup>; <sup>1</sup>FMC, Newark, DE,  
<sup>2</sup>Bayer Crop Science, Saint Louis, MO, <sup>3</sup>Corteva,  
Ashland, NE, <sup>4</sup>Bayer Crop Science, Chesterfield,  
MO (445)
- 09:45 AM Public Parks, Family Farms, and Cover Crops:  
Implementing Ecological Weed Management  
with Diverse Stakeholders in Oregon Hazelnuts.**  
Steven Haring\*, Marissa Lane-Massee, Cal  
Penkauskas, Alejandro Brambila, Ari Brown,  
Lauren Hallett; University of Oregon, Eugene, OR  
(446)
- 10:00 AM Coffee Break**

- 10:15 AM Challenges with Co-existence of Multiple Herbicide-Resistant Soybean Traits.** Amit J. Jhala\*; University of Nebraska Lincoln, Lincoln, NE (447)
- 10:30 AM Climate Change and Weed Management: Synthesizing Information for New York Farmers.** Caroline Marschner\*<sup>1</sup>, Sharon Bachman<sup>2</sup>, Catalina Ferreria-Dias<sup>3</sup>, Isabella Colucci<sup>1</sup>, Rebecca Stup<sup>1</sup>, Claire Liu<sup>1</sup>, Antonio DiTommaso<sup>1</sup>; <sup>1</sup>Cornell University, Ithaca, NY, <sup>2</sup>Cornell Cooperative Extension, East Aurora, NY, <sup>3</sup>Cornell University, Santa Ana, CA (448)
- 10:45 AM Advancing Physical Weed Control: Farmers Love Field Days, But On-farm Research is Very Challenging.** Eric R. Gallandt\*<sup>1</sup>, Daniel C. Brainard<sup>2</sup>; <sup>1</sup>University of Maine, Orono, ME, <sup>2</sup>Michigan State University, East Lansing, MI (449)
- 11:00 AM A Story of Success and Challenges in Eradicating Palmer Amaranth (*Amaranthus palmeri*) in Minnesota.** Debalin Sarangi\*<sup>1</sup>, Eric Y. Yu<sup>1</sup>, Anthony Brusa<sup>2</sup>, Shane Blair<sup>3</sup>, Monika Chandler<sup>3</sup>, Denise Thiede<sup>3</sup>, Anthony Cortilet<sup>3</sup>, Melissa Wilson<sup>1</sup>, Jeffrey Gunsolus<sup>1</sup>, Roger Becker<sup>1</sup>, Thomas J. Peters<sup>4</sup>; <sup>1</sup>University of Minnesota, St. Paul, MN, <sup>2</sup>University of Minnesota, Saint Paul, MN, <sup>3</sup>Minnesota Department of Agriculture, St. Paul, MN, <sup>4</sup>North Dakota State University, Fargo, ND (450)

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***THURSDAY AFTERNOON FEBRUARY 2***

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**US-HRAC Meeting**

LOCATION: Salon K  
TIME: 12:00 PM - 04:00 PM Eastern Time

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***THURSDAY AFTERNOON FEBRUARY 2***

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**WSSA Board of Directors Meeting**



LOCATION: Alexandria  
TIME: 02:00 PM - 04:00 PM Eastern  
Time  
MODERATOR: Carroll Moseley  
Syngenta  
Brown Summit, NC  
CO-MODERATOR: Gregory K. Dahl  
Winfield United  
Eagan, MN

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***THURSDAY AFTERNOON FEBRUARY 2***

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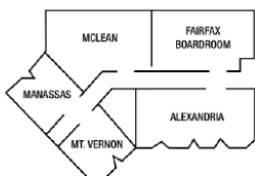
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**NEWSS Board of Directors Meeting**

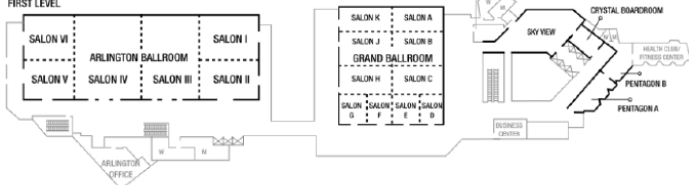
LOCATION: Crystal Boardroom  
TIME: 02:00 PM - 04:00 PM Eastern  
Time  
MODERATOR: Wesley Everman  
North Carolina State University  
Raleigh, NC

**Crystal Gateway Marriott**

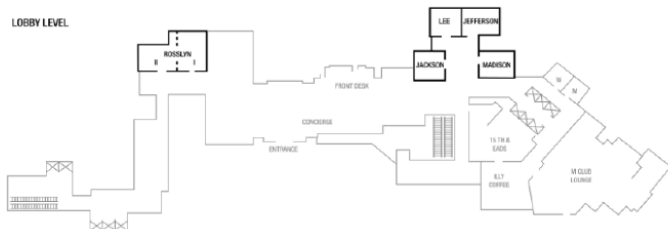
SECOND LEVEL



FIRST LEVEL



LOBBY LEVEL



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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.

## PERSONAL TIME SCHEDULE

Time	Monday	Tuesday	Wednesday	Thursday
6:30				
7:00				
7:30				
8:00		Poster Session	Poster Session	
8:30				
9:00				
9:15				
9:30				
9:45				
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3:45				
4:00	General Session and Awards Presentation			
4:15				
4:30				
4:45				
5:00				
5:30				
6:00				
6:30				
7:00				
7:30			Awards Reception	
8:00				
8:30				
9:00				

## NOTES

## NOTES