

# WSSA

2018 Annual Meeting  
January 29–February 1, 2018  
Crystal Gateway Marriott  
Arlington, VA

2019 Annual Meeting  
February 11–14, 2019  
Sheraton New Orleans  
New Orleans, LA

# WEED SCIENCE SOCIETY OF AMERICA

Fifty-Seventh Meeting

## 2017 MEETING PROGRAM

Hilton El Conquistador  
Tucson, Arizona

February 6 to 9, 2017



**WSSA Sustaining Members  
WEED SCIENCE SOCIETY  
OF AMERICA**

**PRESIDENTIAL**

BASF Corporation  
Bayer Crop Science  
Dow AgroSciences  
Dupont  
Monsanto Agricultural Company  
Syngenta Crop Protection

**LEADERS**

Helena Chemical  
Valent USA  
Winfield Solutions

**PATRONS**

Nufarm Americas Inc.  
United Phosphorus Inc.

**CONTRIBUTORS**

AMVAC Chemical Corp  
FMC Corporation  
Greenleaf Technologies  
Gylling Data Management, Inc.  
ISK Biosciences Corp  
Nichino American, Inc.  
Nippon Soda Co. Ltd.  
Pentair-Hypro

**ASSOCIATES**

ABG Ag Services  
Adjuvants Plus, Inc.  
Chemorse Ltd.  
Clariant Corporation  
Conviron  
Gandy Corporation  
Gowan Company  
Heartland Technologies  
Lehigh Agri & Bio Services, Inc.  
Marrone Bio Innovations, Inc.  
Minnesota Valley Testing Lab  
SePRO  
TKI NovaSource

**57th Meeting**  
**Weed Science Society of America**

Location of Special Committees & Activities .....	1
Local Arrangements Committee .....	1
The 2017 Program.....	2
2017 Program Committee .....	4
WSSA Committee Meetings .....	5
Summary of 2017 Program .....	6
Complete Program .....	11
Meeting Room Maps.....	66
Author Index .....	68
WSSA Board of Directors.....	85
Notes .....	88
WSSA Sustaining Members.....	Inside Back Cover

**Location of Special Committees  
and Activities  
February 2017**

Registration (Including Guests) .....	Turquoise Foyer
WSSA Board Meeting (Sat/Sun) .....	Santa Rita
WSSA Board Meeting (Thurs).....	Santa Rita

**Local Arrangements Committee  
2017 – Tucson, Arizona**

Co-Chairs .....	Bill McCloskey, Kai Umeda
-----------------	---------------------------

## **The WSSA 2017 Program**

Welcome to the 2017 Weed Science Society of America (WSSA) Annual Meeting at the Hilton El Conquistador in Tucson, Arizona. The venue is outstanding and we have an excellent program planned. Pre-conference events include the WSSA Golf Tournament at the Pusch Ridge Golf Course, located on the Hilton property. The tournament will be played on Sunday, Feb. 5th and will begin at 9:00 AM with a Shotgun Start. All proceeds from the golf tournament will go towards the Endowment Fund. A wonderful tour of the Arizona Sonoma Desert Museum will be available on Sunday afternoon from 12:30 to 5:30 p.m.

The General Session and WSSA Awards Ceremony will begin Monday, Feb. 6th at 4:00 PM in the Turquoise III room. Our General Session will begin with a welcome and opening remarks from the Director of the Arizona Department of Agriculture, The Honorable Mark Killian and will be followed by a presentation on the Future of Extension from Dr. Rich Bonanno, the Associate Dean of NC State University's College of Agriculture and Director of North Carolina's Cooperative Extension Service. Dr. Nilda Roma Burgos (representing the International Weed Science Society) will provide an update on the IWSS meetings in Prague. Dr. Kevin Bradley will make a brief presentation to Joyce Lancaster in appreciation of her amazing contributions and 18 years of outstanding service to the WSSA. The Awards Ceremony will include presentations of the WSSA Fellow and annual awards. Be sure to attend this session to help recognize all the awardees. Following the Awards Ceremony, WSSA will host an awards reception beginning around 6:00 p.m. at the outside terrace and pool area. All registered attendees are welcome and encouraged to attend. Please be sure spouses and friends that accompany you have registered so that they may attend this fun event.

For the second year, we will be conducting an MS and PhD poster contest and new for 2017, there will be MS and PhD oral presentation contests. All of the student contests will be conducted on Tuesday. Also on Tuesday morning, there will be a special session on Navigating the New Landscape of Federal Funding organized by Dr. Jim Westwood and Dr. Donn Shilling. Tuesday afternoon's symposium will be on Contributions of USDA, ARS Area Wide Projects in Weed Science

Research and Practice, organized by Dr. John Madsen. Wednesday's program will include a graduate student workshop entitled Utilizing Online Resources for the Development of a Professional Web Presence, followed by the graduate student business meeting and luncheon. Also on Wednesday, there will be an all-day symposium, Understanding and Reducing the Impact of Herbicide Off-Site Movement, organized by Dr. Bryan Young and an afternoon workshop, Teaching Undergraduate Weed Science: Strategies to Improve Learning, organized by Dr. Tom Mueller and Dr. Anita Dille. The WSSA Business meeting and the student contest awards will be held from 5:00 – 6:30 p.m. on Wednesday. On Thursday, there will be the final symposium, Precision Agriculture and Weed Science, organized by Dr. Krishna Reddy.

Special thanks to our local arrangements' co-chairs, Dr. Kai Umeda and Dr. Bill McCloskey, to Dr. Darrin Dodds, organizer of the student contests, Tony Ballard, our meeting manager, Joyce Lancaster and to all of our section chairs and moderators for their planning and work to ensure a successful meeting.

We are excited about the great participation and the many opportunities to exchange scientific information on weed science research, education and extension. We hope everyone has a productive and rewarding meeting.

Janis McFarland  
Program Chair and President-Elect

## 2017 Program Committee

General Program Chair .....	Janis McFarland
Vice Chair .....	Scott Senseman
Agronomic Crops.....	Pete Eure
Horticultural Crops .....	Colin Phillippo
Turf and Ornamentals .....	Kate Venner
Pastures, Rangelands, Forests, & Rights of Way .....	Stephen Enloe
Wildland and Aquatic Invasives .....	Mark Heilman
Regulatory Aspects .....	Jerry Wells
Teaching and Extension .....	Paul Tseng
Formulation, Adjuvant, & Application Technology.....	Bryan Young
Weed Biology and Ecology.....	Muthu Bagavathiannan
Biocontrol of Weeds.....	Doug Boyette
Physiology.....	Mithila Jugulam
Soil and Environmental Aspects .....	Travis Gannon
Integrated Weed Management.....	Ramon Leon
Sustaining Member Exhibits Session.....	James Steffel
Poster Sessions.....	Robert Nurse
Student Contest .....	Darrin Dodds

### Program Booklet and Abstracts

All those registering for the annual meeting will receive a program booklet. All registrants will receive programs at the meeting registration desk. To find the time and location of specific papers, search by the author in the author index in the back of the program.

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

## WSSA Committee Meetings

### SATURDAY, February 4

7:00 a.m. – 5:00 p.m.  
WSSA Board of Directors..... Santa Rita

### SUNDAY, February 5

7:00 a.m. – Noon  
WSSA Board of Directors..... Santa Rita

### MONDAY, February 6

7:00 a.m. – 8:00 a.m.  
WSSA Board and Committee Chairs Breakfast  
..... White Dove

8:00 a.m. – 9:00 a.m.  
Weed Science Editorial Board ..... Santa Rita

8:00 – 10:00 a.m.  
Science Policy Committee (E2) ..... Rincon

9:00 a.m. – 10:00 a.m.  
Weed Technology Editorial Board (P3) ..... Santa Rita

9:00 a.m. – 10:00 a.m.  
Sustaining Member Committee (F4) ..... Coronado 2

9:00 a.m. – 11:00 a.m.  
Herbicide Resistant Plants (E12) ..... Coronado 1

10:00 a.m. – 11:00 a.m.  
IPSM Editorial Board (P2)..... Santa Rita

10:00 a.m. – 11:00 a.m.  
Research and Competitive Grants (E6)..... Joshua Tree 1

11:00 a.m. – 12:00 noon  
Publications Board (P1) ..... Santa Rita

11:00 a.m. – 12:00 noon  
Public Awareness (E13) ..... Rincon

11:00 a.m. – 12:00 noon  
Herbicides for Minor Uses (E10)..... Joshua Tree 2

1:00 p.m. – 2:00 p.m.  
Standardized Plant Names (P22b) ..... Agave 1

1:00 p.m. – 2:00 p.m.  
Professional Development (F4) ..... Agave 2

1:00 p.m. – 2:00 p.m.  
Constitution & Operating Procedures (W10)  
..... Joshua Tree 1

1:00 p.m. – 2:00 p.m.  
 Biological Control of Weeds (W16) ..... Joshua Tree 2

1:00 p.m. – 3:00 p.m.  
 Herbicide Resistance Education (E12b) ..... Rincon

2:00 p.m. – 3:00 p.m.  
 Weed Loss Committee (E11) ..... Agave 2

2:00 p.m. – 3:00 p.m.  
 Environmental Aspects (E8) ..... Joshua Tree 1

**TUESDAY, February 7**

7:00 a.m. – 8:00 a.m.  
 Website Committee (E14) ..... Boardroom

**WEDNESDAY, February 8**

6:00 a.m. – 8:00 a.m.  
 President’s Breakfast with Regional Presidents.....  
 ..... White Dove

7:00 a.m. – 8:00 a.m.  
 USDA-ARS Meeting ..... Agave

7:00 a.m. – 9:00 a.m.  
 Finance Committee (F2) ..... Joshua Tree 1

**THURSDAY, February 9**

12:00 Noon – 3:00 p.m.  
 Board of Directors..... Santa Rita

WSSA Committee meetings are open to all WSSA members. However, some non-WSSA committee meetings (e.g., Herbicide Resistance Action Committee) are open only to invited participants. If in doubt, check at the beginning of the meeting with the Committee Chair.

**SUMMARY OF 2017 PROGRAM**

**SATURDAY MORNING, February 4**

7:00 a.m. – 5:00 p.m.  
 WSSA Board of Directors..... Santa Rita

**SUNDAY MORNING, February 5**

7:00 a.m. – 12:00 noon  
 WSSA Board of Directors..... Santa Rita

8:00 a.m. – 5:00 p.m.  
 US HRAC ..... Joshua Tree

9:00 a.m. – 1:00 p.m.  
 Golf Tournament ..... Pusch Ridge Golf Course

12:30 p.m. – 5:30 p.m.  
 Offsite Desert Museum Tour  
 ..... Arizona – Sonoma Desert Museum

**MONDAY MORNING, February 6**

7:00 a.m. – 8:00 a.m.  
 WSSA Board & Committee Chairs Breakfast  
 ..... White Dove

9:00 a.m. – 12:00 noon  
 Registration..... Turquoise Foyer

**MONDAY AFTERNOON, February 6**

1:00 p.m. – 3:30 p.m.  
 Registration ..... Turquoise Foyer

4:00 p.m. – 6:00 p.m.  
 General Session and WSSA Awards  
 Presentations ..... Turquoise III

6:00 p.m. – 8:00 p.m.  
 Welcome and Awardee’s Reception (open to all attendees and registered guests)..... Outdoor Terrace and Pool

**TUESDAY, February 7**

6:30 a.m. – 7:45 a.m.  
 Student Contest Judges Meeting & Breakfast  
 ..... White Dove

7:00 a.m. – 5:00 p.m.  
 Registration..... Turquoise Foyer

7:45 a.m. – 6:00 p.m.  
 Contest Judges Work Room..... Palo Verde

8:00 a.m. – 10:00 a.m.  
 Poster Session ..... Turquoise I&II

(Authors of even numbered posters will present)

8:00 a.m. – 10:00 a.m.  
 Poster Contest Presentations  
 (All Authors Present) ..... Turquoise I&II

8:00 a.m. – 5:00 p.m.  
 Sustaining Member Exhibits..... Turquoise I&II

9:30 a.m. – 4:30 p.m.  
 WSSA Student MS Oral Contest ..... Joshua Tree

9:30 a.m. – 5:00 p.m.  
 WSSA Student PhD Oral Contest..... Agave

10:00 a.m. – 5:00 p.m.  
 Posters on display without authors .....Turquoise I&II

10:00 a.m. – Noon  
**Special Session: Navigating the New Landscape of Federal Funding**..... Turquoise III

10:00 a.m. – 5:00 p.m.  
 Agronomic Crops..... Presidio V

10:00 a.m. – 11:15 a.m.  
 Wildland & Aquatic Invasives ..... Presidio II

1:00 p.m. – 5:00 p.m.  
**Symposium: Contributions of USDA, ARS Area Wide Projects in Weed Science Research and Practice**  
 ..... Turquoise III

1:00 p.m. – 2:15 p.m.  
 Pastures, Rangelands, Forests, and Rights of Way  
 ..... Presidio II

2:15 p.m. – 5:00 p.m.  
 Turf and Ornamental Crops ..... Presidio II

2:15 p.m. – 4:30 p.m.  
 Teaching and Extension ..... Presidio I

**WEDNESDAY, February 8**

6:00 a.m. – 8:00 a.m.  
 WSSA & Regional Presidents Breakfast .....White Dove

7:00 a.m. – 9:00 a.m.  
 USDA-ARS Meeting .....Agave

7:30 a.m. – 3:00 p.m.  
 Registration.....Turquoise Foyer

8:00 a.m. – 10:00 a.m.  
 Poster Session ..... Turquoise I&II  
 (Authors of odd-numbered posters will present)

8:00 a.m. – 5:00 p.m.  
 Sustaining Members Exhibits ..... Turquoise I&II

10:00 a.m. – 5:00 p.m.  
 Posters on display without authors ..... Turquoise I&II

10:00 a.m. – 12:00 noon  
**Graduate Student Workshop: Utilizing Online Resources for the Development of a Professional Web Presence**  
 .....Presidio IV

10:00 a.m. – 12:00 noon  
**Symposium: Understanding and Reducing the Impact of Herbicide Off-Site Movement**..... Turquoise III

10:00 a.m. – 2:45 p.m.  
 Agronomic Crops..... Presidio V

10:00 a.m. – 4:30 p.m.  
 Weed Biology & Ecology ..... Presidio I

10:00 a.m. – 1:45 p.m.  
 Integrated Weed Management..... Presidio II

12:00 noon – 1:00 p.m.  
 Graduate Student Luncheon..... Coronado

1:00 p.m. – 5:00 p.m.  
**Symposium: Understanding and Reducing the Impact of Herbicide Off-Site Movement**  
 ..... Turquoise III

2:00 p.m. – 5:00 p.m.  
**Workshop: Teaching Undergraduate Weed Science—Strategies to Improve Learning**  
 ..... Presidio II

3:30 p.m. – 4:30 p.m.  
 Biocontrol of Weeds..... Presidio V

5:00 p.m. – 6:30 p.m.  
 WSSA Business Meeting & Student Contest Awards  
 .....Presidio IV

**THURSDAY MORNING, February 9**

8:00 a.m. – 10:00 a.m.  
 Registration.....Turquoise Foyer

8:00 a.m. – 11:00 a.m.  
 Posters on Display without Authors..... Turquoise I&II

8:00 a.m. – 11:00 a.m.  
 Sustaining Members Exhibits ..... Turquoise I&II

8:00 a.m. – 12:00 noon  
**Symposium: Precision Agriculture and Weed Science**  
 ..... Turquoise III

8:00 a.m. – 9:15 a.m.  
 Regulatory Aspects ..... Presidio V

8:00 a.m. – 12:00 noon  
 Horticultural Crops .....Presidio IV

8:00 a.m. – 10:45 a.m.  
 Physiology ..... Presidio I

8:45 a.m. – 11:30 a.m.  
 Weed Biology & Ecology ..... Presidio II

9:45 a.m. – 12:00 noon  
 Formulation, Adjuvant and Application Technology .....  
 ..... Presidio V

12:00 noon – 1:00 p.m.  
**Remove Posters and Exhibits**

12:00 noon – 3:00 p.m.  
 WSSA Board of Directors..... Santa Rita

**COMPLETE PROGRAM**

**MONDAY PM, February 6  
 GENERAL SESSION**

**Location:** Turquoise Ballroom III

4:00 p.m.  
**Introduction and Announcements:** Janis McFarland,  
 President Elect, WSSA

4:10 p.m.  
**Welcome and Opening Remarks:** Honorable Mark  
 Killian, Director of the Arizona Department of  
 Agriculture

4:30 p.m.  
**The Future of Extension:** Rich Bonanno, Associate  
 Dean of North Carolina State Univ. and Director of North  
 Carolina’s Cooperative Extension Service.

4:50 p.m.  
**Update on IWSS:** Nilda Burgos

4:55 p.m.  
**Special Presentation to Joyce Lancaster:** Kevin  
 Bradley, President WSSA

5:00 p.m.  
**Presentation of Awards,** Dwight Lingenfelter, Chair,  
 Awards Committee, WSSA

5:40 p.m.  
**Presentation of Fellow and Honorary Member  
 Awards,** Krishna Reddy, Chair, Fellows and Honorary  
 Member Subcommittee, WSSA

6:00 p.m. – 8:00 p.m.  
**WSSA Awardee Reception and Member Social**  
 Location: ..... Outdoor Terrace and Pool Area

**TUESDAY to THURSDAY  
 February 7–9, 2017**

**WSSA SUSTAINING MEMBERS  
 EXHIBITS SESSION**

**Location:** Turquoise I&II  
**Chair:** James Steffel, LABServices

7:45 a.m. Tuesday Sustaining Members Exhibits Session  
 meeting to elect a Chair-Elect.

Setup 12:00 noon – 3:00 p.m. Monday



8:00 a.m. – 5:00 p.m. Tuesday, Wednesday

8:00 a.m. – 12:00 noon Thursday

Please remove exhibits by 1:00 p.m. on Thursday

## **TUESDAY February 7 POSTER SESSION**

**Location:** Turquoise I&II

**Chair:** Robert Nurse

Posters may be set up on Monday from 12:00 noon until 3:00 p.m. prior to the General Session. Authors should remove Posters by 1:00 p.m. on Thursday.

7:45 a.m. – 8:00 a.m.

**Business Meeting to elect Chair-Elect**

---

---

## **PROGRAM**

---

---

### **TUESDAY MORNING FEBRUARY 7 Poster Contest – MS Students**

#### **\*PRESENTER † STUDENT POSTER CONTEST**

†**Examining Commercial Seed Mixtures for the Presence of Weed Species.** E. G. Oseland\*, M. Biggs, M. D. Bish, K. W. Bradley; University of Missouri, Columbia, MO (1)

†**Effects of Sub-lethal Rates of Dicamba and 2,4-D on Sugarbeet.** M. A. Probst\*, C. L. Sprague; Michigan State University, East Lansing, MI (2)

†**Effective Weed Management Systems Using XtendFlex Cotton.** K. R. Russell\*<sup>1</sup>, P. A. Dotray<sup>1</sup>, J. Keeling<sup>2</sup>, S. L. Taylor<sup>2</sup>, J. D. Everitt<sup>3</sup>; <sup>1</sup>Texas Tech University, Lubbock, TX, <sup>2</sup>Texas A&M AgriLife Research, Lubbock, TX, <sup>3</sup>Monsanto, Lubbock, TX (3)

†**Managing Palmer Amaranth in Michigan: Integrating Soybean Row Widths and a Cereal Rye Cover Crop.** K. M. Rogers\*, C. L. Sprague, K. A. Renner; Michigan State University, East Lansing, MI (4)

†**Herbicide Treatment Options for Double Crop Grain Sorghum.** J. J. Albers\*, D. E. Peterson, C. R. Thompson, M. M. Hay, A. Dille; Kansas State University, Manhattan, KS (5)

†**Optimizing Herbicide and Cover Crop Programs for Integrated Weed Management in No-till Soybeans.** J. M. Bunckek\*<sup>1</sup>, J. M. Wallace<sup>1</sup>, M. J. VanGessel<sup>2</sup>, W. Curran<sup>1</sup>, D. A. Mortensen<sup>1</sup>; <sup>1</sup>Pennsylvania State University, University Park, PA, <sup>2</sup>University of Delaware, Georgetown, DE (6)

†**Integrating Biological Control with Conventional Methods for Enhanced *Tamarix* Management.** L. M. Murray\*, E. A. Lehnhoff, B. J. Schutte, C. A. Sutherland; New Mexico State University, Las Cruces, NM (7)

†**The Effects of Mulching, Tillage, and Herbicides on Weed Control and Watermelon Yield.** A. J. Price<sup>1</sup>, S. Li<sup>2</sup>, B. Guertal<sup>3</sup>, J. McElroy<sup>3</sup>, J. P. Williams\*<sup>3</sup>; <sup>1</sup>USDA-ARS, Auburn, AL, <sup>2</sup>Alabama Cooperative Extension Service, Auburn, AL, <sup>3</sup>Auburn University, Auburn, AL (8)

†**Stale Seedbeds for Summer Annual Weeds in New Mexico Chile.** A. Sanchez\*, B. J. Schutte, L. Beck, O. J. Idowu; New Mexico State University, Las Cruces, NM (9)

†**Fate of Sulfentrazone Applied to Cover Crop Species Prior to Soybean Planting.** D. M. Whalen\*, E. Oseland, S. Farrell, B. R. Barlow, Z. Trower, M. D. Bish, M. Biggs, K. W. Bradley; University of Missouri, Columbia, MO (10)

†**Utilizing Geospatial Technology to Assess Off-target Dicamba Injury and Yield Loss in Missouri Soybean Fields.** S. T. Farrell\*, K. W. Bradley, M. D. Bish, D. Shannon, E. Oseland; University of Missouri, Columbia, MO (11)

†**Novel Molecular Markers for Monitoring the Gene Flow from Herbicide-resistant Crops to Closely Related Species.** J. J. Ziggafaos\*<sup>1</sup>, R. Werle<sup>2</sup>, A. Jhala<sup>3</sup>, J. Lindquist<sup>1</sup>, M. K. Yerka<sup>1</sup>; <sup>1</sup>University of Nebraska – Lincoln, Lincoln, NE, <sup>2</sup>University of Nebraska, Lincoln, North Platte, NE, <sup>3</sup>University of Nebraska-Lincoln, Lincoln, NE (12)

**A Study of Cytochrome P450 Mediated Metabolic Resistance in *Kochia scoparia*.** A. Barker\*, O. Todd, F. E. Dayan, T. A. Gaines; Colorado State University, Fort Collins, CO (13)

---

---

## TUESDAY MORNING FEBRUARY 7

### Poster Contest – PhD Students

#### \*PRESENTER † STUDENT POSTER CONTEST

†**Effect of Degree of Water Stress on the Growth and Fecundity of Palmer amaranth.** P. Chahal\*<sup>1</sup>, S. Irmak<sup>1</sup>, A. Jhala<sup>2</sup>; <sup>1</sup>University of Nebraska – Lincoln, Lincoln, NE, <sup>2</sup>University of Nebraska-Lincoln, Lincoln, NE (14)

†**Investigating Palmer amaranth Response to Glufosinate in a North Carolina Population.** D. Copeland\*, W. J. Everman, A. C. York; North Carolina State University, Raleigh, NC (15)

†**The Effects of Palmer Amaranth Competition on Soil Moisture Availability in Soybean.** D. D. Joseph\*<sup>1</sup>, M. W. Marshall<sup>2</sup>; <sup>1</sup>Clemson University, Clemson, SC, <sup>2</sup>Clemson University, Blackville, SC (16)

†**Tolerance of GlyTol<sup>®</sup>/LibertyLink<sup>®</sup> Cotton to Various Herbicide Tank Mix Combinations.** M. T. Plumblee\*<sup>1</sup>, D. M. Dodds<sup>1</sup>, C. A. Samples<sup>2</sup>, A. B. Denton<sup>2</sup>, S. Davis<sup>2</sup>, L. X. Franca<sup>1</sup>, B. R. Wilson<sup>2</sup>; <sup>1</sup>Mississippi State University, Starkville, MS, <sup>2</sup>Mississippi State University, Mississippi State, MS (17)

†**Seed Shattering of Six Prevalent Weed Species in North Carolina.** T. A. Reinhardt\*, W. J. Everman; North Carolina State University, Raleigh, NC (18)

†**Water-seeding with Anaerobic Germination Tolerant Cultivars in Improving Crop Establishment and Weed Management in Wet Direct Seeded Rice.** B. S. Chamara\*<sup>1</sup>, B. Marambe<sup>2</sup>, V. Kumar<sup>3</sup>, B. S. Chauhan<sup>4</sup>; <sup>1</sup>Weed Science, Crop and Environmental Sciences Division, International Rice Research Institute, Philippines, Los Banos, Philippines, <sup>2</sup>Department of Crop Science, Faculty of Agriculture, University of Peradeniya, Sri Lanka, Peradeniya, Sri Lanka, <sup>3</sup>International Rice Research Institute, Los Banos, Philippines, <sup>4</sup>The University of Queensland, Gatton, Australia (19)

†**Field Performance of a Novel 2,4-D Tolerant Red Clover (*Trifolium pratense*).** M. Barrett, L. P. Araujo\*, L. D. Williams, G. L. Olson; University of Kentucky, Lexington, KY (20)

†**Management Strategies of Johnsongrass (*Sorghum halepense* (L.) Pers.) Resistant to Glyphosate in the Argentine Agricultural Production System.** E. Bracamonte<sup>1</sup>, E. Actis<sup>2</sup>, G. Aiassa<sup>2</sup>, R. Montserrat<sup>2</sup>, F. Pussetto<sup>2</sup>, D. Ustarroz<sup>3</sup>, P. T. Fernandez-Moreno<sup>4</sup>, R. De Prado\*<sup>5</sup>; <sup>1</sup>Faculty of Agricultural Sciences, University of Cordoba, Cordoba, Argentina, <sup>2</sup>Faculty of Agricultural Sciences-UNC, Cordoba, Argentina, <sup>3</sup>INTA EEA Manfredi, Cordoba, Argentina, <sup>4</sup>University of Cordoba, Cordoba, Spain, <sup>5</sup>Department of Agricultural Chemistry and Edaphology, University of Cordoba, Cordoba, Spain (21)

†**More Complex Native Forage Mixtures Reduce Weed Seed Bank Density Based on Their Competitive Abilities.** M. Serajchi\*<sup>1</sup>, M. P. Schellenberg<sup>2</sup>, E. G. Lamb<sup>1</sup>; <sup>1</sup>University of Saskatchewan, Saskatoon, SK, <sup>2</sup>Agriculture and Agri-Food Canada, Swift Current, SK (22)

†**Glyphosate Resistance in Giant Ragweed (*Ambrosia trifida* L.).** K. Segobye\*<sup>1</sup>, S. C. Weller<sup>2</sup>, B. Schulz<sup>1</sup>; <sup>1</sup>University of Maryland, College Park, MD, <sup>2</sup>Purdue University, West Lafayette, IN (23)

**2,4-D Dislodge from Turfgrass Vegetation Varies by Sample Collection Method.** M. Jeffries\*, T. Gannon; North Carolina State University, Raleigh, NC (24)

†**Influence of Biochar Amendments on the Sorption-desorption of Aminocyclopyrachlor in Agricultural Soils.** K. F. Mendes\*<sup>1</sup>, K. A. Spokas<sup>2</sup>, V. L. Tornisiello<sup>3</sup>; <sup>1</sup>Center of Nuclear Energy in Agriculture – University of São Paulo, Piracicaba, Brazil, <sup>2</sup>University of Minnesota, Saint Paul, MN, <sup>3</sup>University of São Paulo, Piracicaba, Brazil (25)

†**Pollen-Mediated Gene Flow from Glyphosate-Resistant to -Susceptible Giant Ragweed (*Ambrosia trifida*) under Field Conditions.** Z. A. Ganie\*, A. Jhala; University of Nebraska-Lincoln, Lincoln, NE (26)

†**Identification and Determination of Some Phenolic Compounds in Sunflower (*Helianthus annuus* L.) and Their Evaluation on Seed Germination and Seedling Growth of Some Weed and Crop Species.** S. W. Hamad\*, S. S. Wilcockson, E. J. Okello; Newcastle University, Newcastle Upon Tyne, England (27)

†**Molecular, Proteome, and Biochemical Characterization of Multiple Herbicide Resistant *Avena fatua* (L.)**. E. E. Burns\*, B. K. Keith, W. E. Dyer; Montana State University, Bozeman, MT (28)

**Investigating the 2,4-D Resistance Mechanism in Indian Hedge Mustard (*Sisymbrium orientale*) from Australia using RNA-Seq**. A. Kuepper\*<sup>1</sup>, C. Preston<sup>2</sup>, M. Figueiredo<sup>1</sup>, T. A. Gaines<sup>1</sup>; <sup>1</sup>Colorado State University, Fort Collins, CO, <sup>2</sup>University of Adelaide, Adelaide, Australia (29)

†**Flufenacet Resistance Mechanism Characterization in Grasses**. R. Duecker\*; Bayer AG, Frankfurt, Germany (30)

†**Barnyardgrass Resistant to Acetolactate Synthase and Acetyl-CoA Carboxylase Inhibitors in Paddy Rice Fields of Korea**. O. Won\*<sup>1</sup>, I. Park<sup>2</sup>, Z. Andreas<sup>3</sup>, S. Vinod<sup>4</sup>, J. Lee<sup>5</sup>, K. Park<sup>1</sup>; <sup>1</sup>Chungnam National University, Daejeon, South Korea, <sup>2</sup>Syngenta Korea Limited, JinCheon, South Korea, <sup>3</sup>Syngenta Crop Protection AG, Basel, Switzerland, <sup>4</sup>Syngenta Asia Pacific Pte. Ltd, Singapore, Singapore, <sup>5</sup>National Institute of Agricultural Sciences, Wanju, South Korea (31)

**Investigating Multiple Resistance Mechanisms of *Amaranthus palmeri* Populations from Arkansas**. R. A. Salas\*<sup>1</sup>, C. Oliveira<sup>1</sup>, J. Refatti<sup>1</sup>, L. Piveta<sup>1</sup>, R. Scott<sup>2</sup>, N. R. Burgos<sup>1</sup>; <sup>1</sup>University of Arkansas, Fayetteville, AR, <sup>2</sup>University of Arkansas-Cooperative Extension Service, Lonoke, AR (32)

---

---

## TUESDAY MORNING FEBRUARY 7

### Section 1. Agronomic Crops

#### \*PRESENTER

**International Survey of Herbicide-Resistant Weeds**. I. M. Heap\*; WeedSmart, Corvallis, OR (33)

**Confirmation and Management of Newly Evolved Glyphosate-Resistant Russian-thistle (*Slasola tragus* L.) and Horseweed (*Conyza canadensis* L.) in Montana Cereal Production**. V. Kumar\*<sup>1</sup>, P. Jha<sup>2</sup>, A. J<sup>2</sup>, C. A. Lim<sup>2</sup>, S. Leland<sup>1</sup>; <sup>1</sup>Montana State University, Huntley, MT, <sup>2</sup>Montana State University-Bozeman, Huntley, MT (34)

**Confirmation of Glyphosate, ALS- and PPO-resistant Common Ragweed in North Carolina**. B. Schrage, W.

J. Everman\*; North Carolina State University, Raleigh, NC (35)

**Dissipation of Clomazone in Organic and Mineral Soils of South Florida**. D. Odero\*, J. V. Fernandez; University of Florida, Belle Glade, FL (36)

**Mechanisms Involved in Glyphosate-Resistant Perennial Ryegrass (*Lolium perenne* L.) and Italian Ryegrass (*L. multiflorum* L.) Biotypes from Iberian Peninsula and Fitness Cost Associated to NTSR Mechanism**. P. T. Fernandez-Moreno\*<sup>1</sup>, R. Roldan-Gomez<sup>2</sup>, M. D. Osuna<sup>3</sup>, R. J. Smeda<sup>4</sup>, R. De Prado<sup>5</sup>; <sup>1</sup>University of Cordoba, Cordoba, Spain, <sup>2</sup>Department of Agricultural Chemistry and Edaphology-UNC, Cordoba, Spain, <sup>3</sup>Agrarian Research Center “Finca La Orden” Valdesequera, Badajoz, Spain, <sup>4</sup>University of Missouri, Columbia, MO, <sup>5</sup>Department of Agricultural Chemistry and Edaphology, University of Cordoba, Cordoba, Spain (37)

**Different Levels of Glyphosate-Resistant Rigid Ryegrass (*Lolium rigidum* L.) Biotypes from Southern Spain and France**. P. T. Fernandez-Moreno<sup>1</sup>, R. Roldan-Gomez<sup>2</sup>, M. D. Osuna<sup>3</sup>, R. J. Smeda<sup>4</sup>, R. De Prado\*<sup>5</sup>; <sup>1</sup>University of Cordoba, Cordoba, Spain, <sup>2</sup>Department of Agricultural Chemistry and Edaphology-UNC, Cordoba, Spain, <sup>3</sup>Agrarian Research Center “Finca La Orden” Valdesequera, Badajoz, Spain, <sup>4</sup>University of Missouri, Columbia, MO, <sup>5</sup>Department of Agricultural Chemistry and Edaphology, University of Cordoba, Cordoba, Spain (38)

**Resurrection of Glyphosate Resistant Palmer amaranth Control in Conservation Tillage Engenia Cotton; Soil Health Salvation using Herbicide Technology**. A. J. Price\*<sup>1</sup>, J. Tredaway-Ducar<sup>2</sup>, G. S. Stapleton<sup>3</sup>; <sup>1</sup>USDA-ARS, Auburn, AL, <sup>2</sup>Auburn University, Auburn, AL, <sup>3</sup>BASF, Dyersburg, TN (39)

**Characterization of a Waterhemp and a Palmer Amaranth Population with Resistance to PPO Inhibiting Herbicides**. A. Perez-Jones\*, S. Voss, R. Brinker, P. Feng; Monsanto, St Louis, MO (40)

**Pre-Emergence Herbicide Longevity on Palmer Amaranth Control in Cotton**. S. Steckel\*, J. Reeves, L. E. Steckel; University of Tennessee, Jackson, TN (41)

**Crop Safety and Weed Control Following Dicamba and Acetochlor Applications in XtendFlex® Cotton.**

L. X. Franca\*<sup>1</sup>, D. M. Dodds<sup>1</sup>, J. Bond<sup>2</sup>, D. B. Reynolds<sup>3</sup>, A. Mills<sup>4</sup>, C. A. Samples<sup>1</sup>, M. T. Plumblee<sup>1</sup>, A. B. Denton<sup>3</sup>; <sup>1</sup>Mississippi State University, Starkville, MS, <sup>2</sup>Mississippi State University, Stoneville, MS, <sup>3</sup>Mississippi State University, Mississippi State, MS, <sup>4</sup>Monsanto Company, Memphis, TN (42)

**Weed Management Systems in Enlist Cotton in the Texas High Plains.**

P. A. Dotray\*<sup>1</sup>, J. Keeling<sup>2</sup>, S. L. Taylor<sup>2</sup>, M. Lovelace<sup>3</sup>; <sup>1</sup>Texas Tech University, Lubbock, TX, <sup>2</sup>Texas A&M AgriLife Research, Lubbock, TX, <sup>3</sup>Dow AgroSciences, Lubbock, TX (43)

**Dicamba Dose Impacts on Various Maturity Group VI Soybean Cultivars.**

A. M. Growe\*, W. J. Everman; North Carolina State University, Raleigh, NC (44)

**Weed Management Programs in Oklahoma Soybean.**

T. A. Baughman\*, D. L. Teeter, C. D. Curtsinger, R. W. Peterson; Oklahoma State University, Ardmore, OK (45)

**Roundup Ready 2 Xtend Soybean Systems.**

S. A. Nolte\*; Monsanto, St. Louis, MO (46)

**Evaluation of Residual Herbicides in Soybean.**

D. L. Teeter\*, T. A. Baughman, C. D. Curtsinger, R. W. Peterson; Oklahoma State University, Ardmore, OK (47)

**Weed Management Systems in Dicamba-Tolerant Soybean.**

M. W. Marshall\*, C. H. Sanders; Clemson University, Blackville, SC (48)

**Relationship Between Aboveground Biomass and Relative Cover of Weeds in Winter Fallow Soybean.**

G. Picapietra<sup>1</sup>, M. V. Buratovich<sup>2</sup>, M. E. Cena<sup>3</sup>, H. A. Acciaresi\*<sup>4</sup>; <sup>1</sup>Instituto Nacional de Tecnología Agropecuaria, Pergamino, Argentina, <sup>2</sup>ECANA-UNNOBA, Pergamino, Argentina, <sup>3</sup>CIC, Pergamino, Argentina, <sup>4</sup>Instituto Nacional Tecnología Agropecuaria, Pergamino, Argentina (49)

**GR Canada Fleabane Dose-Response to Saflufenacil, Saflufenacil plus Glyphosate, and Metribuzin plus Saflufenacil plus Glyphosate in Soybean.**

N. Soltani\*<sup>1</sup>, C. M. Budd<sup>1</sup>, D. E. Robinson<sup>1</sup>, D. C. Hooker<sup>1</sup>, R. T. Miller<sup>2</sup>, P. H. Sikkema<sup>1</sup>; <sup>1</sup>University of Guelph, Ridgetown, ON, <sup>2</sup>BASF Canada, Guelph, ON (50)

**Halosulfuron Absorption, Translocation, and Metabolism in Dry Bean.**

P. H. Sikkema<sup>1</sup>, Z. Li<sup>1</sup>, K. C. Kessler<sup>2</sup>, M. Rodrigues Alves<sup>2</sup>, S. J. Nissen<sup>2</sup>, T. A.

Gaines<sup>2</sup>, P. Westra<sup>2</sup>, R. C. Van Acker<sup>3</sup>, D. E. Robinson<sup>1</sup>, N. Soltani\*<sup>1</sup>; <sup>1</sup>University of Guelph, Ridgetown, ON, <sup>2</sup>Colorado State University, Fort Collins, CO, <sup>3</sup>University of Guelph, Guelph, ON (51)

**Chickpea (Garbanzo Bean) Tolerance to Postemergence Broadleaf Herbicides.**

R. A. Boydston\*; USDA-ARS, Prosser, WA (52)

**Evaluation of Corn Herbicide Programs in**

**Oklahoma.** C. D. Curtsinger\*, T. A. Baughman, D. L. Teeter, R. W. Peterson; Oklahoma State University, Ardmore, OK (53)

**Thifensulfuron Resistant Mouse-ear Cress (*Arabidopsis thaliana*) Management in Winter Wheat.**

R. S. Randhawa\*<sup>1</sup>, M. L. Flessner<sup>1</sup>, C. W. Cahoon<sup>2</sup>, J. H. Westwood<sup>1</sup>; <sup>1</sup>Virginia Tech, Blacksburg, VA, <sup>2</sup>Virginia Tech, Painter, VA (54)

**Effect of Pre-plant Nitrogen (N) Rates on Wheat Yield in Corn/Sorghum-wheat Rotation.**

M. K. Bansal\*, W. J. Everman; North Carolina State University, Raleigh, NC (55)

**Grassy Weed Management in Oklahoma Winter Wheat.**

M. R. Manuchehri\*<sup>1</sup>, T. A. Baughman<sup>2</sup>, A. R. Post<sup>3</sup>; <sup>1</sup>Oklahoma State University, Stillwater, OK, <sup>2</sup>Oklahoma State University, Ardmore, OK, <sup>3</sup>North Carolina State University, Raleigh, NC (56)

**Preharvest Herbicide Application Effects on Winter Wheat.**

G. E. Powell\*, K. M. Rogers, C. L. Sprague; Michigan State University, East Lansing, MI (57)

**Efficacy and Crop Tolerance of Butte Herbicide (benzobicyclon + halosulfuron-methyl) on**

**California Water-Seeded Rice.** A. S. Godar\*<sup>1</sup>, W. Brim-DeForest<sup>2</sup>, K. Al-Khatib<sup>1</sup>; <sup>1</sup>University of California, Davis, Davis, CA, <sup>2</sup>University of California, Davis, CA (58)

**Water Quality Analysis and Effect on Efficacy of PPO-inhibiting Herbicides on Palmer amaranth in Mississippi.**

V. K. Nandula\*; USDA-ARS, Stoneville, MS (59)

**Winter Sowed Cover Crops and Diversity of Natural Weed Populations.**

M. V. Buratovich<sup>1</sup>, M. E. Cena<sup>2</sup>, G. Picapietra<sup>3</sup>, H. A. Acciaresi\*<sup>3</sup>; <sup>1</sup>ECANA-UNNOBA, Pergamino, Argentina, <sup>2</sup>CIC, Pergamino, Argentina, <sup>3</sup>Instituto Nacional de Tecnología Agropecuaria, Pergamino, Argentina (60)



**POST Herbicide Efficacy Screen on Marestalk.** D. Lingenfelter\*, W. Curran; Pennsylvania State University, University Park, PA (61)

**Hyperspectral Imaging to Detect Glyphosate-Resistant vs. Glyphosate-Susceptible *Kochia scoparia*: Implications for Site-Specific Management.** P. Jha\*<sup>1</sup>, V. Kumar<sup>1</sup>, P. Nugent<sup>2</sup>, A. Donelick<sup>2</sup>, B. Scherrer<sup>2</sup>, J. Shaw<sup>2</sup>; <sup>1</sup>Montana State University, Huntley, MT, <sup>2</sup>Montana State University, Bozeman, MT (62)

**Wheat Canopy Structure Incidence in Natural Weed Populations Emergence.** M. E. Cena<sup>1</sup>, M. V. Buratovich<sup>2</sup>, G. Picapietra<sup>3</sup>, H. A. Acciaresi\*<sup>4</sup>; <sup>1</sup>CIC, Pergamino, Argentina, <sup>2</sup>ECANA-UNNOBA, Pergamino, Argentina, <sup>3</sup>Instituto Nacional de Tecnología Agropecuaria, Pergamino, Argentina, <sup>4</sup>Instituto Nacional Tecnología Agropecuaria, Pergamino, Argentina (63)

**Dynamics of Emergence of Natural Weed Populations Under Winter Cover Crops.** M. V. Buratovich<sup>1</sup>, M. E. Cena<sup>2</sup>, G. Picapietra<sup>3</sup>, H. A. Acciaresi\*<sup>4</sup>; <sup>1</sup>ECANA-UNNOBA, Pergamino, Argentina, <sup>2</sup>CIC, Pergamino, Argentina, <sup>3</sup>Instituto Nacional de Tecnología Agropecuaria, Pergamino, Argentina, <sup>4</sup>Instituto Nacional Tecnología Agropecuaria, Pergamino, Argentina (64)

**Seed Germination of Junlerice (*Echinochloa colona*) in Response to Post-harvest Dormancy.** G. Picapietra<sup>1</sup>, M. V. Buratovich<sup>2</sup>, M. E. Cena<sup>3</sup>, H. A. Acciaresi\*<sup>4</sup>; <sup>1</sup>Instituto Nacional de Tecnología Agropecuaria, Pergamino, Argentina, <sup>2</sup>ECANA-UNNOBA, Pergamino, Argentina, <sup>3</sup>CIC, Pergamino, Argentina, <sup>4</sup>Instituto Nacional Tecnología Agropecuaria, Pergamino, Argentina (65)

**Using Multispectral Data and Random Forest Classification to Differentiate Velvetleaf from Cotton with Different Leaf Colors.** R. S. Fletcher\*, K. N. Reddy, R. B. Turley; USDA-ARS, Stoneville, MS (66)

---

---

**TUESDAY MORNING FEBRUARY 7**  
**Section 2. Horticultural Crops**

**\*PRESENTER**

**Enhanced Weed Management for Organic Vegetable Crop Production.** J. O'Sullivan\*<sup>1</sup>, R. C. Van Acker<sup>2</sup>, R. N. Riddle<sup>1</sup>, P. H. White<sup>1</sup>; <sup>1</sup>University of Guelph, Simcoe, ON, <sup>2</sup>University of Guelph, Guelph, ON (67)

**Mulch and Biochar Impacts on Organic Strawberry Yield.** S. K. Hogstad\*, G. G. Gramig; North Dakota State University, Fargo, ND (68)

**Interaction of Common Purslane and Palmer amaranth with Two Sweetpotato Cultivars.** S. Chaudhari\*, K. M. Jennings, D. W. Monks; North Carolina State University, Raleigh, NC (69)

**Field Assessments of Flumioxazin for Postemergence-Directed Applications in Chile Pepper.** B. J. Schutte\*, E. Morris; New Mexico State University, Las Cruces, NM (70)

**Field Bindweed (*Convolvulus arvensis*) Responses to PPI and PRE herbicides – A Research Summary.** L. M. Sosnoskie\*<sup>1</sup>, B. Hanson<sup>2</sup>; <sup>1</sup>University of California, Davis, CA, <sup>2</sup>Univesrity of California, Davis, CA (71)

**Field Bindweed (*Convolvulus arvensis*) Responses to POST Herbicides – A Reseach Summary.** L. M. Sosnoskie\*<sup>1</sup>, B. Hanson<sup>2</sup>; <sup>1</sup>University of California, Davis, CA, <sup>2</sup>Univesrity of California, Davis, CA (72)

**Residual Effects of Pre-plant Herbicides on Transplanted Tomatoes.** J. Angeles<sup>1</sup>, K. J. Hembree<sup>2</sup>, A. Shrestha\*<sup>1</sup>; <sup>1</sup>California State University, Fresno, CA, <sup>2</sup>University of California Cooperative Extesnion, Fresno, CA (73)

**Bicyclopyrone: Major League Weed Control in Minor League Crops.** C. L. Dunne\*<sup>1</sup>, D. Bruns<sup>2</sup>, G. D. Vail<sup>3</sup>, T. Beckett<sup>3</sup>; <sup>1</sup>Syngenta, Vero Beach, FL, <sup>2</sup>Syngenta, Columbus, OH, <sup>3</sup>Syngenta Crop Protection, Greensboro, NC (74)

**The Potential Use of Quinclorac in Annual Strawberry (*Fragaria x ananassa*) Production.** M. A. Czarnota\*; University of Georgia, Griffin, GA (75)

---

---

**TUESDAY MORNING FEBRUARY 7**  
**Section 3. Turf and Ornamental Crops**

**\*NO PRESENTATIONS**

---

---

---

---

**TUESDAY MORNING FEBRUARY 7**  
**Section 4. Pasture, Rangeland, Forest, and**  
**Rights of Way**

**\*PRESENTER**

**Mississippi Roadside Rights-of-way: An Inventory of the Vegetation.** J. D. Byrd, Jr.\*<sup>1</sup>, V. L. Maddox<sup>1</sup>, D. G. Thompson<sup>2</sup>; <sup>1</sup>Mississippi State University, Mississippi State, MS, <sup>2</sup>Mississippi Department of Transportation, Jackson, MS (76)

**Taxonomic Identity and Characterization of an Invasive *Linaria* Hybrid.** C. Miller<sup>1</sup>, S. E. Sing<sup>2</sup>, S. M. Ward\*<sup>1</sup>; <sup>1</sup>Colorado State University, Fort Collins, CO, <sup>2</sup>US Forest Service, Bozeman, MT (77)

**Green Milkweed (*Asclepias viridis*): Friend or Foe, Do We Really Know?** D. P. Russell\*<sup>1</sup>, J. D. Byrd, Jr.<sup>2</sup>, N. H. Thorne<sup>1</sup>; <sup>1</sup>Mississippi State University, Starkville, MS, <sup>2</sup>Mississippi State University, Mississippi State, MS (78)

**Bioherbicides Use in Integrated Management of Invasive Weeds in Forestry.** R. R. Prasad\*; Pacific Forestry Centre, Victoria, BC (79)

**Integrated Management of *Bromus tectorum* (Cheatgrass) with Sheep and Herbicide.** E. A. Lehnhoff\*, L. J. Rew, J. Mangold; Montana State University, Bozeman, MT (80)

**Use of Herbicides to Control Western Juniper (*Juniperus occidentalis*) in Sagebrush Community.** G. M. Sbatella\*<sup>1</sup>, S. Twelker<sup>2</sup>; <sup>1</sup>University of Wyoming, Powell, WY, <sup>2</sup>Oregon Department of Agriculture, Madras, OR (81)

---

---

**TUESDAY MORNING FEBRUARY 7**  
**Section 5. Wildland and Aquatic Invasive Plants**

**\*NO PRESENTATIONS**

---

---

**TUESDAY MORNING FEBRUARY 7**  
**Section 6. Regulatory Aspects**

**\*PRESENTER**

**Control variability in regulatory plant studies.** B. D. Kiernan\*, S. Sankula; USEPA/OPP/EFED, Washington, DC (82)

---

---

**Audrey III: A Tier II Plant Exposure Estimation Tool and Implications for Risk Assessment.** B. D. Kiernan\*, S. Sankula; USEPA/OPP/EFED, Washington, DC (83)

---

---

**TUESDAY MORNING FEBRUARY 7**  
**Section 7. Education and Extension**

**\*PRESENTER**

**Digital Book for Weed Science.** B. A. Ackley\*, A. I. Lamb; The Ohio State University, Columbus, OH (84)

**Towards the Development of a Better Undergraduate Educational Experience to Prepare Students for Careers in Weed Science.** J. Ferguson\*; Northwest Missouri State University, Maryville, MO (85)

**Development of an Educational Mapping Tool for Documenting and Researching the Spread of Herbicide Resistant Weeds in the US.** A. Klodd\*<sup>1</sup>, W. Curran<sup>1</sup>, D. Miller<sup>1</sup>, S. Crawford<sup>1</sup>, D. Lingenfelter<sup>1</sup>, A. S. Davis<sup>2</sup>; <sup>1</sup>Pennsylvania State University, University Park, PA, <sup>2</sup>USDA-ARS, Urbana, IL (86)

**Development of Tools for In-service Training and Grower Outreach Regarding Resistance Management Concepts.** H. A. Sandler\*<sup>1</sup>, L. G. McDermott<sup>2</sup>, K. M. Ghantous<sup>1</sup>; <sup>1</sup>UMass Cranberry Station, East Wareham, MA, <sup>2</sup>Cornell University, Ithaca, NY (87)

**Economic Costs of Herbicide Resistant Weeds in the United States.** G. Frisvold\*; University of Arizona, Tucson, AZ (88)

**Trash to Treasure: Amaranth Reconsidered as a Source of Nutrition and Alternate Grain Product.** A. Taylor\*, J. D. Byrd, Jr., Y. Zhang, S. Chang; Mississippi State University, Mississippi State, MS (89)

---

---

**TUESDAY MORNING FEBRUARY 7**  
**Section 8. Formulation, Adjuvant and**  
**Application Technology**

**\*PRESENTER**

**Influence of Rainfastness, Adjuvant, Formulation, and Nozzle Type on Efficacy of PPO-inhibiting Herbicides on Palmer amaranth.** V. K. Nandula\*<sup>1</sup>, W. T. Molin<sup>2</sup>; <sup>1</sup>USDA-ARS, Stoneville, MS, <sup>2</sup>USDA, Stoneville, MS (90)

**Day and Night Application of 2,4-D choline salt and glyphosate: Control of Glyphosate-resistant *Conyza sumatrensis*.** G. L. Gomes\*<sup>1</sup>, C. A. Carbonari<sup>2</sup>, E. D. Velini<sup>2</sup>, U. R. Antuniassi<sup>2</sup>; <sup>1</sup>Faculdade de Ciências Agrônomicas / UNESP, Botucatu, Brazil, <sup>2</sup>Universidade Estadual Paulista, Botucatu, Brazil (91)

**A Two Year Summary of Glufosinate Efficacy Using Different Carrier Volumes and Nozzles.** S. L. Taylor\*<sup>1</sup>, P. A. Dotray<sup>2</sup>, J. Keeling<sup>1</sup>, R. Perkins<sup>3</sup>; <sup>1</sup>Texas A&M AgriLife Research, Lubbock, TX, <sup>2</sup>Texas Tech University, Lubbock, TX, <sup>3</sup>Bayer CropScience, Lubbock, TX (92)

**Non-AMS Adjuvants Effect on Dicamba+Clethodim Tank-mixture Antagonism in Control of *Palmer amaranth* and Volunteer Corn.** M. L. Bernards\*<sup>1</sup>, B. G. Young<sup>2</sup>, G. Obeart<sup>3</sup>, F. Sexton<sup>3</sup>; <sup>1</sup>Western Illinois University, Macomb, IL, <sup>2</sup>Purdue University, West Lafayette, IN, <sup>3</sup>Exacto, Inc, Sharon, WI (93)

---

---

## TUESDAY MORNING FEBRUARY 7

### Section 9. Weed Biology and Ecology

#### \*PRESENTER

**A Non-Destructive Assay for Determining Viability of Weed Seeds.** J. Wood\*, I. Marquez, B. J. Schutte; New Mexico State University, Las Cruces, NM (94)

**The Effects of Seed Shattering Date on Germinability of Redroot Pigweed (*Amaranthus retroflexus*) and Yellow Foxtail (*Setaria glauca*).** S. C. Haring\*<sup>1</sup>, M. L. Flessner<sup>1</sup>, W. J. Everman<sup>2</sup>, S. Mirsky<sup>3</sup>; <sup>1</sup>Virginia Tech, Blacksburg, VA, <sup>2</sup>North Carolina State University, Raleigh, NC, <sup>3</sup>USDA Sustainable Agricultural Systems Lab, Beltsville, MD (95)

**Post-harvest Seed Production Potential of Palmer amaranth and Waterhemp in Southern US: A Nine Site-year Experiment.** V. Singh\*<sup>1</sup>, P. A. Dotray<sup>2</sup>, L. M. Schwartz<sup>3</sup>, J. K. Norsworthy<sup>3</sup>, M. V. Bagavathiannan<sup>1</sup>; <sup>1</sup>Texas A&M University, College Station, TX, <sup>2</sup>Texas Tech University, Lubbock, TX, <sup>3</sup>University of Arkansas, Fayetteville, AR (96)

**A Replacement Series Experiment to Investigate the Competitiveness of Hybrid Toadflax.** S. M. Ward\*<sup>1</sup>, S. E. Sing<sup>2</sup>; <sup>1</sup>Colorado State University, Fort Collins, CO, <sup>2</sup>US Forest Service, Bozeman, MT (97)

**Characterization of Flowering Time Pathways in *Camelina sativa*: a Potential Winter Cover Crop for Northern Climates.** J. V. Anderson\*<sup>1</sup>, K. M. Dorn<sup>2</sup>, W. S. Chao<sup>1</sup>, D. P. Horvath<sup>1</sup>, M. Dogramaci<sup>1</sup>, M. Marks<sup>3</sup>, R. W. Gesch<sup>4</sup>, M. E. Foley<sup>5</sup>; <sup>1</sup>USDA-ARS, Fargo, ND, <sup>2</sup>Kansas State University, Manhattan, KS, <sup>3</sup>University of Minnesota, St. Paul, MN, <sup>4</sup>USDA-ARS, Morris, MN, <sup>5</sup>USDA ARS, Fargo, ND (98)

**Genetic Diverstiy of *Echinochla* spp. in Korea Inferred From New Simple Sequence Repeats.** J. Lee\*<sup>1</sup>, I. Lee<sup>1</sup>, C. Kim<sup>1</sup>, K. Park<sup>2</sup>; <sup>1</sup>National Institute of Agricultural Sciences, Wanju, South Korea, <sup>2</sup>Chungnam National University, Daejeon, South Korea (99)

**Barnyardgrass or Junglerice: Using KASP for *Echinochloa* Species Identification.** C. E. Rouse\*<sup>1</sup>, D. Pettinga<sup>2</sup>, C. Oliveira<sup>3</sup>, T. A. Gaines<sup>2</sup>, N. R. Burgos<sup>1</sup>; <sup>1</sup>University of Arkansas, Fayetteville, AR, <sup>2</sup>Colorado State University, Fort Collins, CO, <sup>3</sup>Universidade Federal de Pelotas, Pelotas, Brazil (100)

**Growth and Morphological Comparison of Glyphosate-resistant *Amaranthus palmeri*, *A. spinosus* and their Interspecific Hybrids.** W. T. Molin\*<sup>1</sup>, V. K. Nandula<sup>2</sup>, A. A. Wright<sup>3</sup>; <sup>1</sup>USDA, Stoneville, MS, <sup>2</sup>USDA-ARS, Stoneville, MS, <sup>3</sup>Mississippi State University, Stoneville, MS (101)

**Dose-response Effects of Glyphosate on Small vs Large Rosettes of Susceptible *Conyza canadensis* in a Greenhouse Experiment.** P. Ellis\*, Z. T. Beres, A. A. Snow; Ohio State University, Columbus, OH (102)

---

---

## TUESDAY MORNING FEBRUARY 7

### Section 10. Biocontrol of Weeds

#### \*PRESENTER

**A Novel Potential Option to Control the Invasive Weed *Kochia scoparia* by Using Biocontrol Agents.** G. V. Reddy\*<sup>1</sup>, G. Shrestha<sup>1</sup>, P. Jha<sup>2</sup>; <sup>1</sup>Montana State University, Conrad, MT, <sup>2</sup>Montana State University, Huntley, MT (103)

**The Potential Use of *Sorghum bicolor* (L.) Moench Shoot Extracts as a Bio-herbicide.** H. Le thi<sup>1</sup>, O. Won<sup>1</sup>, Y. Park<sup>1</sup>, J. Hwang<sup>2</sup>, S. Park<sup>1</sup>, K. Park\*<sup>1</sup>; <sup>1</sup>Chungnam National University, Daejeon, South Korea, <sup>2</sup>National Institute of Crop Science, Jeonju, South Korea (104)

---

---

TUESDAY MORNING FEBRUARY 7

Section 11. Physiology

\*PRESENTER

**Glyphosate Absorption and Translocation in Young**

**‘Gala’ Apple Trees.** I. C. Burke\*, A. J. Raeder;

Washington State University, Pullman, WA (105)

**A Glyphosate-Resistant Palmer Amaranth**  
**(*Amaranthus palmeri*) Population Confirmed in**

**California.** A. Shrestha\*<sup>1</sup>, K. M. Steinhauer<sup>1</sup>, M. To<sup>1</sup>,

S. Budhathoki<sup>1</sup>, J. Angeles<sup>1</sup>, S. Rios<sup>2</sup>, B. Hanson<sup>3</sup>;

<sup>1</sup>California State University, Fresno, CA, <sup>2</sup>University

of California Cooperative Extension, Riverside, CA,

<sup>3</sup>University of California, Davis, CA (106)

**Resistance to ALS Inhibitors in *Amaranthus***  
***tuberculatus* and *A. retroflexus* from Mississippi.** V.

K. Nandula\*<sup>1</sup>, J. Ray<sup>2</sup>; <sup>1</sup>USDA-ARS, Stoneville, MS,

<sup>2</sup>USDA, Stoneville, MS (107)

**Investigations into Suspected Clethodim-Resistant**  
**Johnsongrass and Italian Ryegrass from Mississippi.**

V. K. Nandula\*<sup>1</sup>, G. Sharma<sup>2</sup>, T. Tseng<sup>3</sup>, J. Bond<sup>4</sup>;

<sup>1</sup>USDA-ARS, Stoneville, MS, <sup>2</sup>Mississippi State

University, Mississippi State, MS, <sup>3</sup>Mississippi State

University, Starkville, MS, <sup>4</sup>Mississippi State University,

Stoneville, MS (108)

**Investigations of Multiple Herbicide Resistance in**  
**Italian Ryegrass Populations from Orchards and**

**Roadsides in California.** P. Tehranchian\*<sup>1</sup>, V. K.

Nandula<sup>2</sup>, I. M. Heap<sup>3</sup>, M. Jasieniuk<sup>1</sup>; <sup>1</sup>University of

California, Davis, CA, <sup>2</sup>USDA-ARS, Stoneville, MS,

<sup>3</sup>WeedSmart, Corvallis, OR (109)

**Identification of Candidate Resistance Genes in**  
**Multiple Herbicide Resistant *Echinochloa colona*.**

A. A. Wright\*<sup>1</sup>, R. Sasidharan<sup>2</sup>, M. Rodriguez<sup>2</sup>,

D. Peterson<sup>3</sup>, V. K. Nandula<sup>4</sup>, J. Ray<sup>5</sup>, J. Bond<sup>1</sup>, D.

Shaw<sup>3</sup>; <sup>1</sup>Mississippi State University, Stoneville, MS,

<sup>2</sup>BASF, Research Triangle Park, NC, <sup>3</sup>Mississippi

State University, Mississippi State, MS, <sup>4</sup>USDA-ARS,

Stoneville, MS, <sup>5</sup>USDA, Stoneville, MS (110)

**A Highly Sensitive Continuous Assay for**

**5-enolpyruvyl-shikimate Synthase.** S. M. Duff\*, D.

Sammons; Monsanto, St. Louis, MO (111)

**Italian Ryegrass from Iredell County, North Carolina**  
**is Resistant to Glufosinate, ACCase- and ALS-**

**inhibiting Herbicides.** W. T. Molin\*<sup>1</sup>, V. K. Nandula<sup>2</sup>,

A. A. Wright<sup>3</sup>; <sup>1</sup>USDA, Stoneville, MS, <sup>2</sup>USDA-ARS,

Stoneville, MS, <sup>3</sup>Mississippi State University, Stoneville,

MS (112)

**The EPSPS Replicon: A Prodigious Vector for Gene**  
**Copy Number Proliferation in *Amaranthus palmeri*.**

W. T. Molin\*<sup>1</sup>, C. Saski<sup>2</sup>; <sup>1</sup>USDA, Stoneville, MS,

<sup>2</sup>Clemson University, Clemson, SC (113)

**Survey of the Genomic Landscape Surrounding the**  
**EPSPS Gene in Glyphosate-resistant *Amaranthus***  
***palmeri* from Geographically Distant Locations.**

W. T. Molin\*<sup>1</sup>, M. Jugulam<sup>2</sup>, M. J. VanGessel<sup>3</sup>, R. E.

Hoagland<sup>4</sup>, W. B. McCloskey<sup>5</sup>; <sup>1</sup>USDA, Stoneville, MS,

<sup>2</sup>Kansas State University, Manhattan, KS, <sup>3</sup>University of

Delaware, Georgetown, DE, <sup>4</sup>USDA-ARS, Stoneville,

MS, <sup>5</sup>University of Arizona, Tucson, AZ (114)

**Influence of Light Intensity and Soil Moisture Levels**  
**on Control of Glyphosate-Resistant Junglerice**  
**(*Echinochloa colona*) with Postemergence Herbicides.**

K. M. Steinhauer\*, A. Shrestha; California State

University, Fresno, CA (115)

**GISH and FISH Mapping of EPSPS Copies**  
**in Interspecific Hybrids of *Amaranthus***

***spinousus* and *Amaranthus palmeri*.** M. Jugulam\*<sup>1</sup>, S.

Menzer<sup>1</sup>, D. Koo<sup>1</sup>, V. K. Nandula<sup>2</sup>, C. R. Thompson<sup>1</sup>, B.

Friebe<sup>1</sup>, B. S. Gill<sup>1</sup>; <sup>1</sup>Kansas State University, Manhattan,

KS, <sup>2</sup>USDA-ARS, Stoneville, MS (116)

**Palmer amaranth Gender Differentiation Under**  
**Abiotic Stress and Implications for Integrated**

**Control.** N. E. Korres\*, J. K. Norsworthy; University of

Arkansas, Fayetteville, AR (117)

**Defining the Locoweed-Fungal Endophyte**  
**Complex: A Common Garden Study Comparing**  
**Locoweed Growth With and Without its Fungal**

**Endophyte.** T. Sterling\*, B. K. Keith; Montana State

University, Bozeman, MT (118)

**Effect of Salinity on Cardinal Temperature of *Malva***  
***sylvestris*.** O. Ansari<sup>1</sup>, J. Gherekhloo<sup>1</sup>, B. Kamkar<sup>1</sup>, F.

Ghaderi Far<sup>1</sup>, P. T. Fernandez-Moreno<sup>2</sup>, R. De Prado\*<sup>3</sup>;

<sup>1</sup>Gorgan University of Agricultural Sciences and Natural

Resources, Gorgan, Iran, <sup>2</sup>University of Cordoba,

Cordoba, Spain, <sup>3</sup>Department of Agricultural Chemistry

and Edaphology, University of Cordoba, Cordoba, Spain

(119)



**Fitness Costs and Mechanism of Acetolactate Synthase-inhibiting Herbicide Resistance in Annual Bluegrass.** T. Tseng\*<sup>1</sup>, E. Santos<sup>2</sup>, V. K. Nandula<sup>3</sup>, E. E. Wilson<sup>2</sup>, G. Sharma<sup>2</sup>, J. D. McCurdy<sup>2</sup>; <sup>1</sup>Mississippi State University, Starkville, MS, <sup>2</sup>Mississippi State University, Mississippi State, MS, <sup>3</sup>USDA-ARS, Stoneville, MS (120)

**Germination Response of Sea Barley (*Hordeum marinum*) to Temperature.** M. Taheri<sup>1</sup>, J. Gherekhloo<sup>1</sup>, A. Siahmarguee<sup>1</sup>, O. Ansari<sup>1</sup>, P. T. Fernandez-Moreno<sup>2</sup>, R. De Prado\*<sup>3</sup>; <sup>1</sup>Gorgan University of Agricultural Sciences and Natural Resources, Gorgan, Iran, <sup>2</sup>University of Cordoba, Cordoba, Spain, <sup>3</sup>Department of Agricultural Chemistry and Edaphology, University of Cordoba, Cordoba, Spain (121)

---

---

## TUESDAY MORNING FEBRUARY 7

### Section 12. Soil and Environmental Aspects

#### \*PRESENTER

**Trends in Relative Toxicity of Herbicide Use in the United States, 1990 to 2015.** A. R. Kniss\*; University of Wyoming, Laramie, WY (122)

**Dynamics of Sulfentrazone and Flumioxazin Applied to *Eucalyptus* Harvest Residues.** C. A. Carbonari\*, G. Gomes, E. D. Velini; Universidade Estadual Paulista, Botucatu, Brazil (123)

**Effect of New Auxin Herbicide Formulations on Control of Herbicide Resistant Weeds and on Microbial Activities in the Rhizosphere.** V. K. Nandula\*<sup>1</sup>, H. L. Tyler<sup>2</sup>; <sup>1</sup>USDA-ARS, Stoneville, MS, <sup>2</sup>USDA, Stoneville, MS (124)

**Effect of Air CO<sub>2</sub> Concentration in Phytoremediation of Imidazolinone Herbicide.** L. A. Avila\*, L. P. Souza; Universidade Federal de Pelotas, Pelotas, Brazil (125)

---

---

## TUESDAY MORNING FEBRUARY 7

### Section 13. Integrated Weed Management

#### \*PRESENTER

**Herbicide Resistance and Management in Flaxleaf Fleabane (*Conyza bonariensis* (L.) Cronquist) from the Southeast Region of Cordoba, Argentina.** E. Bracamonte<sup>1</sup>, A. Leoni<sup>1</sup>, R. Tabasso<sup>1</sup>, P. Bellucini<sup>2</sup>, P. T. Fernandez-Moreno<sup>3</sup>, R. De Prado\*<sup>4</sup>; <sup>1</sup>Faculty of

Agricultural Sciences, University of Cordoba, Cordoba, Argentina, <sup>2</sup>INTA EEA Marcos Suarez, Cordoba, Argentina, <sup>3</sup>University of Cordoba, Cordoba, Spain, <sup>4</sup>Department of Agricultural Chemistry and Edaphology, University of Cordoba, Cordoba, Spain (126)

**Effect of Mixing 2,4-D and Sulfosulfuron on Wild Mustard Control.** S. Akhundi<sup>1</sup>, J. Gherekhloo<sup>1</sup>, N. Bagherani<sup>2</sup>, P. T. Fernandez-Moreno<sup>3</sup>, R. De Prado\*<sup>4</sup>; <sup>1</sup>Gorgan University of Agricultural Sciences and Natural Resources, Gorgan, Iran, <sup>2</sup>Agricultural Research Center of Glestán, Gorgan, Iran, <sup>3</sup>University of Cordoba, Cordoba, Spain, <sup>4</sup>Department of Agricultural Chemistry and Edaphology, University of Cordoba, Cordoba, Spain (127)

**Impact of Palmer amaranth on Soybean Productivity as Influenced by Varying Rates of Metribuzin and Sulfentrazone.** M. de Avellar\*<sup>1</sup>, R. Werle<sup>2</sup>; <sup>1</sup>University of Nebraska, Lincoln, Lincoln, NE, <sup>2</sup>University of Nebraska, Lincoln, North Platte, NE (128)

**Delayed Glyphosate Application for No-Till Fallow in the Driest Region of the Inland Pacific Northwest.** L. Lutchter\*; Oregon State University, Corvallis, OR (129)

**Cash Cover Crops Suppress Summer Annual Weeds.** F. Forcella\*<sup>1</sup>, R. Gesch<sup>1</sup>, D. Wyse<sup>2</sup>; <sup>1</sup>USDA, Morris, MN, <sup>2</sup>University of Minnesota, St Paul, MN (130)

**Cover Crop Species Response to Single Active Ingredient Residual Herbicides with Simulated Half-life Doses.** B. S. Heaton\*<sup>1</sup>, M. L. Bernards<sup>1</sup>, R. Werle<sup>2</sup>; <sup>1</sup>Western Illinois University, Macomb, IL, <sup>2</sup>University of Nebraska, Lincoln, North Platte, NE (131)

**Comparison of Rolled Cover Crop Mulch and Residual Fall Herbicide for Horseweed (*Conyza canadensis*) Suppression.** K. B. Pittman\*, M. L. Flessner; Virginia Tech, Blacksburg, VA (132)

**Improving Selectivity of Physical Weed Control: New Tricks for Old Dogs?** D. C. Brainard\*, S. Hitchcock Tilton; Michigan State University, East Lansing, MI (133)

---

---

## TUESDAY MORNING FEBRUARY 7

### Oral Contest – MS Students

LOCATION: Joshua Tree  
TIME: 9:30 AM – 12:00 PM  
CHAIR: Darrin Dodds  
Mississippi State University  
Mississippi State, MS

#### \*SPEAKER † STUDENT CONTEST

- 9:30 †Distribution and Control of Glyphosate-resistant Waterhemp (*Amaranthus tuberculatus* var. *rudis*) in Soybean (*Glycine max*) in Ontario.** M. G. Schryver\*<sup>1</sup>, N. Soltani<sup>2</sup>, D. C. Hooker<sup>2</sup>, D. E. Robinson<sup>2</sup>, P. J. Tranel<sup>3</sup>, P. H. Sikkema<sup>2</sup>; <sup>1</sup>University of Guelph, London, ON, <sup>2</sup>University of Guelph, Ridgetown, ON, <sup>3</sup>University of Illinois, Urbana, IL (134)
- 9:45 †Organic Weed Management Using Air-Propelled Abrasive Grit Management.** M. G. Carlson\*<sup>1</sup>, S. Clay<sup>1</sup>, F. Procetta<sup>2</sup>, S. Wortman<sup>3</sup>; <sup>1</sup>South Dakota State University, Brookings, SD, <sup>2</sup>USDA-ARS, Morris, MN, <sup>3</sup>University of Nebraska-Lincoln, Lincoln, NE (135)
- 10:00 †Effect of Common Ragweed on Soybean Growth and Yield.** E. Barnes\*<sup>1</sup>, A. Jhala<sup>2</sup>, S. Knezevic<sup>1</sup>, P. H. Sikkema<sup>3</sup>, J. Lindquist<sup>4</sup>; <sup>1</sup>University of Nebraska- Lincoln, Lincoln, NE, <sup>2</sup>University of Nebraska-Lincoln, Lincoln, NE, <sup>3</sup>University of Guelph, Ridgetown, ON, <sup>4</sup>University of Nebraska – Lincoln, Lincoln, NE (136)
- 10:15 †Effects of Interseeded Cover Crops on Weed Seed Predation in Corn.** C. Z. Youngerman\*<sup>1</sup>, A. DiTommaso<sup>1</sup>, J. Losey<sup>1</sup>, W. Curran<sup>2</sup>, S. Mirsky<sup>3</sup>, M. Ryan<sup>1</sup>; <sup>1</sup>Cornell University, Ithaca, NY, <sup>2</sup>Pennsylvania State University, University Park, PA, <sup>3</sup>USDA Sustainable Agricultural Systems Lab, Beltsville, MD (137)
- 10:30 †Cotton and Peanut Response to Fluridone.** D. L. Teeter\*<sup>1</sup>, T. A. Baughman<sup>1</sup>, P. A. Dotray<sup>2</sup>, C. D. Curtsinger<sup>1</sup>, R. W. Peterson<sup>1</sup>; <sup>1</sup>Oklahoma State University, Ardmore, OK, <sup>2</sup>Texas Tech University, Lubbock, TX (138)

**10:45 †The Effects of Cover Crop Quantity and Quality on Rolled Cover Degradation and Cash Crop Yield.** K. B. Pittman\*, M. L. Flessner; Virginia Tech, Blacksburg, VA (139)

**11:00 †Evaluating Herbicide Technologies in Oklahoma Soybean.** C. D. Curtsinger\*, T. A. Baughman, D. L. Teeter, R. W. Peterson; Oklahoma State University, Ardmore, OK (140)

**11:15 †Nicosulfuron as a Suppressant in a Living Mulch of Annual Ryegrass (*Lolium multiflorum* Lam.) in Corn (*Zea mays* L.).** T. B. Cholette\*, D. E. Robinson, D. C. Hooker, P. H. Sikkema; University of Guelph, Ridgetown, ON (141)

**11:30 †Residual Pigweed Control with VLCFA Herbicides.** M. M. Hay\*, D. E. Peterson, D. E. Shoup; Kansas State University, Manhattan, KS (142)

**11:45 †Weed Communities Shift in Response to Organic No-Till Integrated with Grazing.** S. K. Hogstad\*<sup>1</sup>, G. G. Gramig<sup>1</sup>, P. Carr<sup>2</sup>; <sup>1</sup>North Dakota State University, Fargo, ND, <sup>2</sup>Montana State University, Moccasin, MT (143)

---

---

## TUESDAY MORNING FEBRUARY 7

### Oral Contest – PhD Students

LOCATION: Agave Ballroom  
TIME: 9:30 AM – 12:00 PM  
CHAIR: Darrin Dodds  
Mississippi State University  
Mississippi State, MS

#### \*SPEAKER † STUDENT CONTEST

**9:30 †A Novel Mechanism that Confers Reduced Glyphosate Sensitivity in *Kochia scoparia*.** N. Soni\*, K. Ravet, M. Fleming, S. J. Nissen, P. Westra, T. A. Gaines; Colorado State University, Fort Collins, CO (144)

**9:45 †Methods to Enhance Germination of the Recalcitrant Giant Ragweed Seed.** N. T. Harre\*, S. C. Weller, B. G. Young; Purdue University, West Lafayette, IN (145)

- 10:00 †Transcriptome Profiles of Quinclorac-Resistant *Echinochloa colona* with Resistance to Multiple Herbicides.** C. E. Rouse\*<sup>1</sup>, C. Saski<sup>2</sup>, A. Lawton-Rauh<sup>2</sup>, N. R. Burgos<sup>1</sup>; <sup>1</sup>University of Arkansas, Fayetteville, AR, <sup>2</sup>Clemson University, Clemson, SC (146)
- 10:15 †Germination Ecology of Two Australian Biotypes of *Parthenium hysterophorus* L.: Implications for Weed Invasion.** A. A. Bajwa\*, B. S. Chauhan, S. W. Adkins; The University of Queensland, Gatton, Australia (147)
- 10:30 †Transference of Herbicide Tolerance from GM Soybean Rootstock to Conventional Soybean Scion.** Y. Chen\*, D. Doohan; Ohio State University, Wooster, OH (148)
- 10:45 †Impacts of Environmental and Biological Stressors on the Population Dynamics of Multiple Herbicide Resistant *Avena fatua* (L.).** E. E. Burns\*<sup>1</sup>, E. A. Lehnhoff<sup>2</sup>, W. E. Dyer<sup>1</sup>, F. D. Menalled<sup>1</sup>; <sup>1</sup>Montana State University, Bozeman, MT, <sup>2</sup>New Mexico State University, Las Cruces, NM (149)
- 11:00 †Dicamba- and Glyphosate-Resistant Genes are not Linked in Kochia (*Kochia scoparia*).** J. Ou\*<sup>1</sup>, P. W. Stahlman<sup>2</sup>, A. K. Fritz<sup>1</sup>, M. Jugulam<sup>1</sup>; <sup>1</sup>Kansas State University, Manhattan, KS, <sup>2</sup>Kansas State University, Hays, KS (150)
- 11:15 †Field Dissipation of S-metolachlor in Organic and Mineral Soils in the Everglades Agricultural Area of South Florida.** J. V. Fernandez\*<sup>1</sup>, D. C. Odero<sup>1</sup>, G. E. MacDonald<sup>2</sup>, J. Ferrell<sup>2</sup>, B. Sellers<sup>3</sup>, P. C. Wilson<sup>2</sup>; <sup>1</sup>University of Florida, Belle Glade, FL, <sup>2</sup>University of Florida, Gainesville, FL, <sup>3</sup>University of Florida, Ona, FL (151)
- 11:30 †First Case of Multiple-Resistance to Glyphosate and PPO-Inhibiting Herbicides in Rigid Ryegrass (*Lolium rigidum* L.) Biotypes from Spain.** P. T. Fernandez-Moreno\*<sup>1</sup>, A. M. Rojano-Delgado<sup>1</sup>, J. Menendez-Calle<sup>2</sup>, R. J. Smeda<sup>3</sup>, R. De Prado<sup>4</sup>; <sup>1</sup>University of Cordoba, Cordoba, Spain, <sup>2</sup>University of Huelva, Huelva, Spain, <sup>3</sup>University of Missouri, Columbia, MO, <sup>4</sup>Department of Agricultural Chemistry and Edaphology, University of Cordoba, Cordoba, Spain (152)

- 11:45 †Cover Crop and Weed Management in a Living Mulch Plus Reduced-Rate Herbicide System in Wide-Row Vegetables.** V. Bhaskar\*, R. Bellinder, A. DiTommaso, S. Reiners; Cornell University, Ithaca, NY (153)

---

**TUESDAY MORNING FEBRUARY 7**  
**Navigating the New Landscape of Federal Funding for Weed Science Research**

LOCATION: Turquoise III  
 TIME: 10:00 AM – 12:00 PM  
 CHAIR: James Westwood  
 Virginia Tech  
 Blacksburg, VA

**\*SPEAKER**

- 10:00 Federal Support of Weed Science Research and Extension.** M. Fitzner\*; USDA NIFA, Washington, DC (154)
- 10:20 Open Discussion: WSSA Member Input on Key Problems that Need Federal Support for Research & Extension Projects.** J. Westwood\*; Virginia Tech, Blacksburg, VA (155)
- 10:40 Mini Workshop to Provide Tips & Tricks for Being Successful in Obtaining NIFA Funding.** M. Fitzner\*; USDA NIFA, Washington, DC (156)
- 11:10 Lessons and Impressions from the 2016 Competition.** D. A. Mortensen\*; Pennsylvania State University, University Park, PA (157)
- 11:30 Panel Discussion: How to Enhance Weed Science Participation in the Federal Grants Process.** D. Shilling\*; University of Georgia, Athens, GA (158)

---

---

## TUESDAY MORNING FEBRUARY 7

### Section 1. Agronomic Crops

LOCATION: Presidio V  
TIME: 10:00 AM – 12:00 PM  
CHAIR: Pete Eure  
Syngenta Crop Protection  
Houston, TX

#### \*SPEAKER

- 10:00 Humidome: A New Method to Determine Volatility of Pesticides.** W. K. Gavlick\*; Monsanto, St Louis, MO (159)
- 10:15 Planned Comercial Formulations Containing VaporGrip Technology for Use in the Roundup Ready 2 Xtend Crop System.** A. MacInnes\*; Monsanto Company, St Louis, MO (160)
- 10:30 Weed Control with Dicamba in the Xtend Crop System.** R. J. Rector\*; Monsanto, St. Louis, MO (161)
- 10:45 A New S-metolachlor Plus Dicamba Premix as an Effective Tool in an Integrated Weed Management Program in Dicamba-tolerant Soybeans.** R. Jain\*<sup>1</sup>, B. Miller<sup>2</sup>, T. Trower<sup>2</sup>, A. J. Moses<sup>2</sup>, D. Porter<sup>2</sup>; <sup>1</sup>Syngenta Crop Protection, Vero Beach, FL, <sup>2</sup>Syngenta Crop Protection, Greensboro, NC (162)
- 11:00 Knowing When to Spray: Monitoring Surface Temperature Inversions and Daily Wind Speed and Air Temperature Profiles in Missouri.** M. D. Bish\*, K. W. Bradley; University of Missouri, Columbia, MO (163)
- 11:15 Mitigating Off-Target Applications in the Form of Drift and Tank Contamination.** D. B. Reynolds\*<sup>1</sup>, G. Kruger<sup>2</sup>, Z. Carpenter<sup>1</sup>, T. Foster<sup>1</sup>; <sup>1</sup>Mississippi State University, Mississippi State, MS, <sup>2</sup>University of Nebraska, Lincoln, NE (164)
- 11:30 Off-Target Dicamba in Tennessee: an Extension Perspective.** L. E. Steckel\*; University of Tennessee, Jackson, TN (165)
- 11:45 A Season to Remember: Our Experiences with Off-target Movement of Dicamba in Missouri.** K. W. Bradley\*; University of Missouri, Columbia, MO (166)

---

---

## TUESDAY MORNING FEBRUARY 7

### Section 5. Wildland and Aquatic Invasive Plants

LOCATION: Presidio II  
TIME: 10:00 AM – 11:45 AM  
CHAIR: Mark Heilman  
SePRO Corporation  
Carmel, IN

#### \*SPEAKER

- 10:00 Using Habitat Suitability Models to Prioritize Monitoring Efforts for Invasive Plants.** M. J. Renz\*, N. Jorgensen; University of Wisconsin Madison, Madison, WI (167)
- 10:15 Evaluation of Kudzu Control Options.** J. Omielan\*<sup>1</sup>, D. Gumm<sup>2</sup>, M. Barrett<sup>1</sup>; <sup>1</sup>University of Kentucky, Lexington, KY, <sup>2</sup>Kentucky Transportation Cabinet, Jackson, KY (168)
- 10:30 Field and Mesocosm Evaluations of Future Aquatic Herbicide Use Patterns of PROCELLACOR™.** M. A. Heilman\*; SePRO Corporation, Carmel, IN (169)
- 10:45 Evaluations of PROCELLACOR Efficacy and Selectivity for Hydrilla Control.** R. J. Richardson\*<sup>1</sup>, E. Haug<sup>1</sup>, M. A. Heilman<sup>2</sup>; <sup>1</sup>North Carolina State University, Raleigh, NC, <sup>2</sup>SePRO Corporation, Carmel, IN (170)
- 11:00 Can Reduced Rates of Rates of Glyphosate or Imazapyr Improve Torpedograss Control with Graminicides?** S. F. Enloe\*; University of Florida, Gainesville, FL (171)
- 11:15 Buffelgrass Susceptibility to Herbicides in Greenhouse Experiments.** W. B. McCloskey\*<sup>1</sup>, D. Backer<sup>2</sup>; <sup>1</sup>University of Arizona, Tucson, AZ, <sup>2</sup>Saguaro National Park, Tucson, AZ (172)
- 11:30 Section Business Meeting**

---

---

**TUESDAY AFTERNOON FEBRUARY 7**

**Oral Contest – MS Students**

LOCATION: Joshua Tree  
TIME: 1:00 PM – 4:30 PM  
CHAIR: Darrin Dodds  
Mississippi State University  
Mississippi State, MS

**\*SPEAKER † STUDENT CONTEST**

- 1:00 †Palmer Amaranth Growth in Southeastern South Dakota.** S. Clay, B. M. Van De Stroet\*; South Dakota State University, Brookings, SD (173)
- 1:15 †Greenhouse Screening and Field Characterization for Developing Auxin and Glyphosate Tolerant Tomatoes.** G. Sharma\*<sup>1</sup>, Z. Yue<sup>2</sup>, E. Avila dos Santos<sup>3</sup>, T. Tseng<sup>2</sup>; <sup>1</sup>Mississippi State University, Mississippi State, MS, <sup>2</sup>Mississippi State University, Starkville, MS, <sup>3</sup>Universidade Federal De Santa Maria, Santa Maria, Brazil (174)
- 1:30 †The Role of Late-Season Weather Events on Seed Shattering of Redroot Pigweed (*Amaranthus retroflexus*) and Common Ragweed (*Ambrosia artemisiifolia*).** S. C. Haring\*<sup>1</sup>, M. L. Flessner<sup>1</sup>, W. J. Everman<sup>2</sup>, S. Mirsky<sup>3</sup>; <sup>1</sup>Virginia Tech, Blacksburg, VA, <sup>2</sup>North Carolina State University, Raleigh, NC, <sup>3</sup>USDA Sustainable Agricultural Systems Lab, Beltsville, MD (175)
- 1:45 †Screening and Characterization for Competitive Traits among Weedy Rice Germplasm.** S. Shrestha\*, T. Tseng; Mississippi State University, Starkville, MS (176)
- 2:00 †Evaluation of Post Emergence Herbicides for Goldenrod(*Solidago spp.*) Management in Wildbluerry Fields.** M. Farooq\*; Nova Scotia Agricultural College, Truro, NS (177)
- 2:15 †Confirmation and Mechanism of Resistance to Glyphosate in *Eleusine indica* from Brazil.** H. K. Takano\*, R. S. Oliveira Jr, J. Constantin; Maringa State University, Maringa, Brazil (178)

- 2:30 †The Effect of Safened Sulfonlyurea Herbicides on ALS-sensitive Field Corn Hybrids.** O. W. Carter\*<sup>1</sup>, E. P. Prostko<sup>1</sup>, J. W. Davis<sup>2</sup>; <sup>1</sup>University of Georgia, Tifton, GA, <sup>2</sup>University of Georgia, Griffing, GA (179)
- 2:45 †A Pooled Whole-genome Sequencing Approach to Characterizing ALS-Inhibitor Resistance in Mouse-ear Cress (*Arabidopsis thaliana*).** R. S. Randhawa\*<sup>1</sup>, M. L. Flessner<sup>1</sup>, J. H. Westwood<sup>1</sup>, C. W. Cahoon<sup>2</sup>, D. C. Haak<sup>1</sup>; <sup>1</sup>Virginia Tech, Blacksburg, VA, <sup>2</sup>Virginia Tech, Painter, VA (180)
- 3:00 Break**
- 3:30 †Efficacy of Aquathol and KFD-94-10 for Curlyleaf Pondweed (*Potamogeton crispus*) Control Under Simulated Fall Conditions.** M. F. Ortiz\*<sup>1</sup>, J. Scarpin<sup>2</sup>, S. J. Nissen<sup>1</sup>, C. J. Gray<sup>3</sup>; <sup>1</sup>Colorado State University, Fort Collins, CO, <sup>2</sup>Universidade de Sao Paulo/ESALQ, Piracicaba, Brazil, <sup>3</sup>UPI, Peyton, CO (181)
- 3:45 †De novo Transcriptome Assembly and Analysis of 4-hydroxyphenylpyruvate Dioxygenase Inhibitor Herbicide Resistance in *Amaranthus tuberculatus*.** D. Kohlhasse\*<sup>1</sup>, M. Owen<sup>1</sup>, M. Graham<sup>2</sup>; <sup>1</sup>Iowa State University, Ames, IA, <sup>2</sup>USDA-ARS, Ames, IA (182)
- 4:00 †Herbicide Efficacy on Different Morphological Types of the Water Primrose Complex (*Ludwigia uruguayensis*) in Florida.** A. Banu\*, S. F. Enloe, C. C. Jacono; University of Florida, Gainesville, FL (183)
- 4:15 †Ploidy Plasticity: Exploring Novel Mechanisms of Stress Tolerance in a Global Invader.** A. L. Smith\*, D. C. Haak, D. Z. Atwater, J. N. Barney; Virginia Tech, Blacksburg, VA (184)



---

---

**TUESDAY AFTERNOON FEBRUARY 7**

**Oral Contest – PhD Students**

LOCATION: Agave Ballroom  
TIME: 1:00 PM – 5:00 PM  
CHAIR: Darrin Dodds  
Mississippi State University  
Mississippi State, MS

**\*SPEAKER † STUDENT CONTEST**

**1:00 Absorption and Translocation of Clopyralid in Strawberry and Black Medic.** S. M. Sharpe\*<sup>1</sup>, N. Boyd<sup>2</sup>, P. Dittmar<sup>1</sup>, R. Darnell<sup>1</sup>, G. E. MacDonald<sup>1</sup>, J. Ferrell<sup>1</sup>; <sup>1</sup>University of Florida, Gainesville, FL, <sup>2</sup>University of Florida, Balm, FL (185)

**1:15 †Indaziflam and Imazapic Interception and Sorption by Downy Brome (*Bromus tectorum*), Medusahead (*Taeniatherum caput-medusae*), and Ventenata (*Ventenata dubia*) Thatch.** P. V. Da Silva\*<sup>1</sup>, S. L. Clark<sup>2</sup>, D. J. Sebastian<sup>2</sup>, S. J. Nissen<sup>2</sup>; <sup>1</sup>Universidade de Sao Paulo/ESALQ, Piracicaba, Brazil, <sup>2</sup>Colorado State University, Fort Collins, CO (186)

**1:30 Genotypic and Phenotypic Diversity of Glyphosate Resistant Giant Ragweed (*Ambrosia trifida*).** J. C. Walker, III\*<sup>1</sup>, T. Tseng<sup>1</sup>, D. B. Reynolds<sup>2</sup>, D. Shaw<sup>2</sup>; <sup>1</sup>Mississippi State University, Starkville, MS, <sup>2</sup>Mississippi State University, Mississippi State, MS (187)

**1:45 †Characterization of Abiotic Stress Tolerant Weedy Rice for Improvement of Rice.** S. D. Stallworth\*<sup>1</sup>, T. Tseng<sup>2</sup>; <sup>1</sup>Mississippi State University, Mississippi State, MS, <sup>2</sup>Mississippi State University, Starkville, MS (188)

**2:00 †Are All Auxin Herbicides Created Equal? Investigating Differences Between 2,4-D and Dicamba.** C. L. McCauley\*, B. G. Young; Purdue University, West Lafayette, IN (189)

**2:15 Hyperpectral Reflectance Spectroscopy for Multiple Crop and Weed Species Differentiation.** N. T. Basinger\*, K. M. Jennings, D. W. Monks, E. L. Hestir, W. J. Everman, D. L. Jordan; North Carolina State University, Raleigh, NC (190)

**2:30 †Palmer Amaranth Control and Tolerance of Sweetpotato (*Ipomoea batatas*) to Flumioxazin/Pyroxasulfone.** S. C. Beam\*<sup>1</sup>, K. M. Jennings<sup>2</sup>, D. W. Monks<sup>2</sup>, M. D. Waldschmidt<sup>2</sup>, N. T. Basinger<sup>2</sup>, M. B. Bertucci<sup>2</sup>, S. J. McGowen<sup>2</sup>; <sup>1</sup>Virginia Tech, Blacksburg, VA, <sup>2</sup>North Carolina State University, Raleigh, NC (191)

**2:45 †Potential Crop Injury with Early Post Applications in XtendFlex Cotton.** C. A. Samples\*<sup>1</sup>, D. M. Dodds<sup>2</sup>, G. Kruger<sup>3</sup>, D. B. Reynolds<sup>1</sup>, J. T. Irby<sup>1</sup>, A. Catchot<sup>1</sup>, S. Davis<sup>1</sup>, M. T. Plumblee<sup>2</sup>, L. X. Franca<sup>2</sup>, B. R. Wilson<sup>1</sup>, J. T. Fowler Jr.<sup>4</sup>; <sup>1</sup>Mississippi State University, Mississippi State, MS, <sup>2</sup>Mississippi State University, Starkville, MS, <sup>3</sup>University of Nebraska, Lincoln, NE, <sup>4</sup>Monsanto Company, St. Louis, MO (192)

**3:00 Break**

**3:30 †Influence of Droplet size on Lactofen and Acifluorfen Effectiveness for Palmer amaranth Control.** L. X. Franca\*<sup>1</sup>, D. M. Dodds<sup>1</sup>, G. R. Kruger<sup>2</sup>, T. Butts<sup>3</sup>, C. A. Samples<sup>4</sup>, M. T. Plumblee<sup>1</sup>, A. B. Denton<sup>4</sup>, B. R. Wilson<sup>4</sup>, S. Davis<sup>4</sup>; <sup>1</sup>Mississippi State University, Starkville, MS, <sup>2</sup>University of Nebraska, North Plate, NE, <sup>3</sup>University of Nebraska – Lincoln, Lincoln, NE, <sup>4</sup>Mississippi State University, Mississippi State, MS (193)

**3:45 †Chemical Programs for Annual Bluegrass Seedhead Suppression on Golf Greens.** J. R. Brewer\*, S. Rana, S. Askew; Virginia Tech, Blacksburg, VA (194)

**4:00 †Herbicide Programs for *Rubus* sp. Control in Low-maintenance Turf.** J. M. Craft\*, J. R. Brewer, S. Askew; Virginia Tech, Blacksburg, VA (195)

**4:15 †Changing the ‘hack and squirt’ Paradigm for Woody Invasive Plant Control.** C. A. Lastinger\*<sup>1</sup>, S. F. Enloe<sup>2</sup>; <sup>1</sup>University of Florida, Lakeland, FL, <sup>2</sup>University of Florida, Gainesville, FL (196)

**4:30 †Comparing Rangeland Herbicides for Residual Weed Control and Native Species Tolerance.** S. L. Clark\*, D. J. Sebastian, S. J. Nissen; Colorado State University, Fort Collins, CO (197)

**4:45 †Influence of Grafting on the Critical Period for Weed Control in Watermelon.** M. B. Bertucci\*<sup>1</sup>, K. M. Jennings<sup>1</sup>, D. W. Monks<sup>1</sup>, D. L. Jordan<sup>1</sup>, F. J. Louws<sup>1</sup>, J. R. Schultheis<sup>2</sup>; <sup>1</sup>North Carolina State University, Raleigh, NC, <sup>2</sup>NC State University, Raleigh, NC (198)

---

---

**TUESDAY AFTERNOON FEBRUARY 7**  
**Symposium: Contributions of USDA, ARS**  
**Areawide Projects in Weed Science**  
**Research and Practice**

LOCATION: Turquoise III  
TIME: 1:00 PM – 5:00 PM  
CHAIR: John Madsen  
USDA ARS  
Davis, CA

**\*SPEAKER**

- 1:00 What is an Areawide Pest Management Program, and When is it Needed?** R. James\*; USDA-ARS, Beltsville, MD (199)
- 1:20 The California Delta: Awash in Weeds Amidst a Drought.** J. D. Madsen\*; USDA ARS, Davis, CA (200)
- 1:45 TAME Melaleuca.** P. Pratt\*; USDA-ARS, Albany, CA (201)
- 2:10 TEAM Leafy Spurge – A Long-term Success.** R. G. Lym\*; North Dakota State University, Fargo, ND (202)
- 2:35 Developing Decision Support Approaches for Areawide Control of Invasive Annual Grasses on Rangelands.** R. Sheley\*; USDA-ARS, Burns, OR (203)
- 3:00 Break**
- 3:30 Why an Areawide Approach is Key to Addressing Herbicide Resistance in Grain Crop Production Systems.** A. S. Davis\*; USDA-ARS, Urbana, IL (204)

**3:55 Factors Influencing Farmer Decision Making in Areawide Weed Management.** G. Frisvold\*; University of Arizona, Tucson, AZ (205)

**4:20 Concluding Remarks: The Future of Areawide Projects in USDA.** R. James\*; USDA-ARS, Beltsville, MD (206)

---

---

**TUESDAY AFTERNOON FEBRUARY 7**  
**Section 1. Agronomic Crops**

LOCATION: Presidio V  
TIME: 1:00 PM – 5:00 PM  
CHAIR: Pete Eure  
Syngenta Crop Protection  
Houston, TX

**\*SPEAKER**

- 1:00 Cotton and Peanut Responses to 2,4-D and Dicamba Applied PRE and POST.** S. Li\*<sup>1</sup>, R. G. Leon<sup>2</sup>; <sup>1</sup>Auburn University, Auburn, AL, <sup>2</sup>University of Florida, Jay, FL (207)
- 1:15 Effect of Simulated Metribuzin Drift on Cotton and Soybean.** T. B. Buck\*<sup>1</sup>, D. Stephenson<sup>2</sup>, B. C. Woolam<sup>2</sup>; <sup>1</sup>LSU AgCenter, Baton Rouge, LA, <sup>2</sup>LSU AgCenter, Alexandria, LA (208)
- 1:30 Evaluation of Residual Herbicides for Interseeding Cover Crops in Corn.** W. Curran\*<sup>1</sup>, J. M. Wallace<sup>1</sup>, S. Mirsky<sup>2</sup>, M. Ryan<sup>3</sup>; <sup>1</sup>Pennsylvania State University, University Park, PA, <sup>2</sup>USDA Sustainable Agricultural Systems Lab, Beltsville, MD, <sup>3</sup>Cornell University, Ithaca, NY (209)
- 1:45 Response of Common Waterhemp and Corn to a Premix of Atrazine, Bicyclopyrone, Mesotrione, and S-metolachlor (Acuron®).** D. Sarangi\*, A. Jhala; University of Nebraska-Lincoln, Lincoln, NE (210)
- 2:00 New Premix Herbicide for Use in Corn.** G. A. Elmore\*; Monsanto, St. Louis, MO (211)
- 2:15 Minimizing Risk of Metribuzin Injury to Soybeans in Weed Management Systems.** N. Rana\*<sup>1</sup>, K. Kretzmer<sup>1</sup>, P. Feng<sup>2</sup>; <sup>1</sup>Monsanto Company, Chesterfield, MO, <sup>2</sup>Monsanto, St Louis, MO (212)

- 2:30 Can Weeds Overtopping Soybean or Adzuki Beans be Mechanically Pulled to Reduce Seed Inputs?** M. Simard\*<sup>1</sup>, R. E. Nurse<sup>2</sup>, E. R. Page<sup>2</sup>; <sup>1</sup>Agriculture and Agri-Food Canada, Quebec, QC, <sup>2</sup>Agriculture and Agri-Food Canada, Harrow, ON (213)
- 2:45 Effect of Acifluorfen, Chlorimuron, and Lactofen Application Timing on Soybean.** D. Stephenson\*<sup>1</sup>, B. C. Woolam<sup>1</sup>, T. B. Buck<sup>2</sup>; <sup>1</sup>LSU AgCenter, Alexandria, LA, <sup>2</sup>LSU AgCenter, Baton Rouge, LA (214)
- 3:00 Break**
- 3:30 Soybean Flower and Pod Response to Diphenyl Ether Herbicides.** S. C. Beam\*, M. L. Flessner, K. B. Pittman; Virginia Tech, Blacksburg, VA (215)
- 3:45 Evaluation of Liberty Link Soybean Weed Control Programs.** R. W. Peterson\*<sup>1</sup>, T. A. Baughman<sup>1</sup>, T. L. Grey<sup>2</sup>, D. L. Teeter<sup>1</sup>, C. D. Curtsinger<sup>1</sup>; <sup>1</sup>Oklahoma State University, Ardmore, OK, <sup>2</sup>University of Georgia, Tifton, GA (216)
- 4:00 Bicyclopyrone + Bromoxynil Herbicide: Introducing a New Postemergence Herbicide for Broadleaf Weed Control in Cereals.** S. M. Schraer\*<sup>1</sup>, P. Forster<sup>2</sup>, D. Porter<sup>3</sup>, M. Saini<sup>3</sup>, T. Beckett<sup>3</sup>; <sup>1</sup>Syngenta Crop Protection, Meridian, ID, <sup>2</sup>Syngenta Crop Protection, Eaton, CO, <sup>3</sup>Syngenta Crop Protection, Greensboro, NC (217)
- 4:15 Trifludimoxazin: A New PPO Inhibitor That Controls PPO Resistant Weed Biotypes.** G. R. Armel\*<sup>1</sup>, K. Hanzlik<sup>2</sup>, M. Witschel<sup>3</sup>, D. S. Hennigh<sup>1</sup>, S. Bowe<sup>1</sup>, A. Simon<sup>2</sup>, R. Liebl<sup>1</sup>, L. Mankin<sup>1</sup>; <sup>1</sup>BASF Corporation, Research Triangle Park, NC, <sup>2</sup>BASF Corporation, Limburgerhof, Germany, <sup>3</sup>BASF Corporation, Ludwigshafen, Germany (218)
- 4:30 Novel PPO Herbicide Tolerant Trait Provides Robust Crop Tolerance to Multiple PPO Herbicides.** R. Aponte<sup>1</sup>, L. Mankin\*<sup>2</sup>, S. Tresch<sup>1</sup>, J. Lerchl<sup>1</sup>, M. Witschel<sup>3</sup>, T. Mietzner<sup>3</sup>, G. R. Armel<sup>2</sup>, R. Liebl<sup>4</sup>; <sup>1</sup>BASF SE, Limburgerhof, Germany, <sup>2</sup>BASF Corporation, Research Triangle Park, NC, <sup>3</sup>BASF SE, Ludwigshafen, Germany, <sup>4</sup>BASF Corporation, Raleigh, NC (219)

- 4:45 Next Generation PPO Herbicides Deliver Broad-spectrum Weed Control Including Grass and PPO Resistant Biotypes.** L. Parra<sup>1</sup>, T. Seiser<sup>1</sup>, D. S. Hennigh<sup>2</sup>, S. Bowe<sup>2</sup>, G. R. Armel<sup>2</sup>, L. Mankin<sup>3</sup>, R. Liebl\*<sup>2</sup>; <sup>1</sup>BASF SE, Limburgerhof, Germany, <sup>2</sup>BASF Corporation, Research Triangle Park, NC, <sup>3</sup>BASF Corp., Research Triangle Park, NC (220)

---

**TUESDAY AFTERNOON FEBRUARY 7**  
**Section 4. Pasture, Rangeland, Forest, and Rights of Way**

LOCATION: Presidio II  
 TIME: 1:00 PM – 2:15 PM  
 CHAIR: Stephen Enloe  
 University of Florida  
 Gainesville, FL

**\*SPEAKER**

- 1:00 Loblolly and Longleaf Pine Tolerance and Residual Weed Control Following Site Preparation with Mixes Containing Esplanade and Method.** A. W. Ezell\*, A. B. Self; Mississippi State University, Starkville, MS (221)
- 1:15 Use of Indaziflam for Herbaceous Weed Control in Longleaf Pine Plantings.** A. W. Ezell\*, A. B. Self; Mississippi State University, Starkville, MS (222)
- 1:30 Extending the Duration of Annual, Biennial, and Perennial Weed Control on Non-Cropland with Indaziflam Tank Mixes.** D. J. Sebastian\*, S. L. Clark, P. J. Meiman, S. J. Nissen; Colorado State University, Fort Collins, CO (223)
- 1:45 Managing *Ventenata dubia* Along the Invasion Curve: Farmer, Rancher and Land Manager Perspectives Shape Future Education Efforts.** T. Prather\*<sup>1</sup>, J. M. Wallace<sup>2</sup>, P. Watson<sup>1</sup>, N. Norton<sup>3</sup>, K. Painter<sup>1</sup>; <sup>1</sup>University of Idaho, Moscow, ID, <sup>2</sup>Pennsylvania State University, University Park, PA, <sup>3</sup>Palouse Land Trust, Moscow, ID (224)
- 2:00 Section Business Meeting**



---

---

## TUESDAY AFTERNOON FEBRUARY 7

### Section 3. Turf and Ornamental Crops

LOCATION: Presidio II  
TIME: 2:15 PM – 5:00 PM  
MODERATOR: Kai Umeda  
University of Arizona  
Phoenix, AZ

#### \*SPEAKER

- 2:15 A Three-year Study of Roughstalk Bluegrass Control with Methiozolin and Other Herbicides.** S. Askew\*, S. Rana; Virginia Tech, Blacksburg, VA (225)
- 2:30 Application Temperature Impact on Efficacy of Postemergence Broadleaf Herbicides.** J. Derr\*; Virginia Tech, Virginia Beach, VA (226)
- 2:45 Arylex™ Active: A New, Innovative Herbicide for the Control of Broadleaf Weeds in Turfgrass.** V. F. Peterson\*<sup>1</sup>, J. Breuninger<sup>2</sup>, A. L. Alexander<sup>3</sup>, D. Loughner<sup>4</sup>; <sup>1</sup>Dow AgroSciences, Fort Collins, CO, <sup>2</sup>Dow AgroSciences, Indianapolis, IN, <sup>3</sup>Dow AgroSciences, Atlanta, GA, <sup>4</sup>Dow AgroSciences, Lawrenceville, NJ (227)
- 3:00 Break**
- 3:30 Control of Turfgrass Weeds with Two New Arylex™ Active Formulations (GF-3566 and GF-2687) in Cool and Warm Season Turfgrass.** V. F. Peterson\*<sup>1</sup>, J. Breuninger<sup>2</sup>, A. L. Alexander<sup>3</sup>, D. Loughner<sup>4</sup>; <sup>1</sup>Dow AgroSciences, Fort Collins, CO, <sup>2</sup>Dow AgroSciences, Indianapolis, IN, <sup>3</sup>Dow AgroSciences, Atlanta, GA, <sup>4</sup>Dow AgroSciences, Lawrenceville, NJ (228)
- 3:45 Pinoxaden: A New Herbicide for Tropical Signalgrass (*Urochloa subquadriflora*) Management in Bermudagrass Turf.** N. G. Young\*<sup>1</sup>, R. G. Leon<sup>2</sup>, J. R. James<sup>3</sup>; <sup>1</sup>Turfgrass Environmental Research Inc., Fort Lauderdale, FL, <sup>2</sup>University of Florida, Jay, FL, <sup>3</sup>Syngenta Crop Protection, Greensboro, NC (229)
- 4:00 Selective Summer Grass Weed Control in Desert Turf.** K. Umeda\*; University of Arizona, Phoenix, AZ (230)

**4:15 Postemergence Contact Herbicide Evaluation for Municipal Use in Response to Community Concerns.** C. Wilen\*; University of California Cooperative Extension, San Diego, CA (231)

**4:30 Soil Organic Matter and Volumetric Water Content as Explanatory Variables for Off Target Herbicide Injury.** T. Gannon, M. Jeffries, S. Brinton\*; North Carolina State University, Raleigh, NC (232)

**4:45 Section Business Meeting**

---

---

## TUESDAY AFTERNOON FEBRUARY 7

### Section 7. Education and Extension

LOCATION: Presidio 1  
TIME: 2:15 PM – 4:30 PM  
CHAIR: Te-Ming Paul Tseng  
Mississippi State University  
Starkville, MS

#### \*SPEAKER

- 2:15 The Global Herbicide Resistance Action Committee – Industry Engagement and Commitment.** M. A. Peterson\*<sup>1</sup>, A. Cotie<sup>2</sup>, M. Horak<sup>3</sup>, A. Landes<sup>4</sup>, G. le Goupil<sup>5</sup>, T. Obrigawitch<sup>6</sup>, D. Refsell<sup>7</sup>, M. Bonnet<sup>8</sup>, S. Shinn<sup>9</sup>; <sup>1</sup>Dow AgroSciences, West Lafayette, IN, <sup>2</sup>Bayer Crop Science, Raleigh, NC, <sup>3</sup>Monsanto, St. Louis, MO, <sup>4</sup>BASF, Limburgerhof, Germany, <sup>5</sup>Syngenta Crop Protection, Basel, Switzerland, <sup>6</sup>DuPont Crop Protection, Wilmington, DE, <sup>7</sup>Sumitomo Chemical, Walnut Creek, CA, <sup>8</sup>Arysta LifeScience, Ougrée, Belgium, <sup>9</sup>FMC, Philadelphia, PA (233)
- 2:30 Zero Tolerance: Replicating a Community-based Herbicide Resistance Management Model from Arkansas.** M. V. Bagavathiannan\*<sup>1</sup>, J. K. Norsworthy<sup>2</sup>, T. Barber<sup>3</sup>, R. L. Nichols<sup>4</sup>, K. Smith<sup>5</sup>; <sup>1</sup>Texas A&M University, College Station, TX, <sup>2</sup>University of Arkansas, Fayetteville, AR, <sup>3</sup>University of Arkansas, Little Rock, AR, <sup>4</sup>Cotton Inc., Cary, NC, <sup>5</sup>FMC Corporation, Groveton, TX (234)

- 2:45 Next-gen Students: A Hands-on Approach to Teaching Molecular Biology and Genomics for Weed Science.** J. Westwood\*<sup>1</sup>, H. Mehl<sup>2</sup>, D. C. Haak<sup>1</sup>; <sup>1</sup>Virginia Tech, Blacksburg, VA, <sup>2</sup>Virginia Tech, Suffolk, VA (235)
- 3:00 Break**
- 3:30 Stigmas revealed: Improved visualization using photo-stacking.** R. F. Norris\*; University of California, Davis, CA (236)
- 3:45 Fenceline Vegetation Management: A Teaching Module for Extension Agents.** D. P. Russell\*<sup>1</sup>, J. D. Byrd, Jr.<sup>2</sup>; <sup>1</sup>Mississippi State University, Starkville, MS, <sup>2</sup>Mississippi State University, Mississippi State, MS (237)
- 4:00 Establishment of a Weed Science Graduate Program at the Agriculture and Forestry University, Nepal.** A. Shrestha\*<sup>1</sup>, S. Sah<sup>2</sup>, S. Dhakal<sup>2</sup>, S. Marahatta<sup>2</sup>, V. R. Duwadi<sup>3</sup>, C. Bhattachan<sup>3</sup>, A. Thapa<sup>3</sup>; <sup>1</sup>California State University, Fresno, CA, <sup>2</sup>Agriculture and Forestry University, Rampur, Nepal, <sup>3</sup>Winrock International, Lalitpur, Nepal (238)
- 4:15 Section Business Meeting**

**WEDNESDAY MORNING FEBRUARY 8  
Graduate Student Workshop: Utilizing Online  
Resources for the Development of a  
Professional Web Presence**

LOCATION: Presidio IV  
 TIME: 10:00 AM – 12:00 PM  
 CHAIR: Nicholas Basinger  
 North Carolina State University  
 Raleigh, NC

**WEDNESDAY MORNING FEBRUARY 8  
Symposium: Understanding and Reducing the  
Impact of Herbicide Off-Site Movement**

LOCATION: Turquoise III  
 TIME: 10:00 AM – 4:40 PM  
 CHAIR: Bryan Young  
 Purdue University  
 West Lafayette, IN

\*SPEAKER

- 10:00 Symposium Overview and Goals.** B. G. Young\*; Purdue University, West Lafayette, IN (239)
- 10:10 A Retail Perspective on the Challenges and Costs Associated with Managing Pesticide Applications.** J. A. Bunting\*; Growmark, Bloomington, IL (240)
- 10:35 A State Regulatory Perspective on Mitigating, Investigating, and Enforcing Off-Target Herbicide Movement.** D. E. Scott\*; Office of Indiana State Chemist, West Lafayette, IN (241)
- 11:00 Assessing Pesticide Risks To Plants: An Overview of EPA's Standard Approach to Plant Risk Assessments.** E. Odenkirchen\*, F. Farruggia, A. Overstreet; EPA, Washington, DC (242)
- 11:25 Case Studies Illustrating EPA's Process for Evaluating Plant Risk Mitigation Strategies.** F. Farruggia\*, E. Odenkirchen, A. Overstreet; EPA, Washington, DC (243)
- 11:50 Discussion**
- 12:00 Lunch**
- 1:00 The Mechanics of Drift Reduction Technologies.** J. Ferguson\*; Northwest Missouri State University, Maryville, MO (244)
- 1:25 The Chemistry in Drift Reduction Technologies.** S. Sun\*; Croda, New Castle, DE (245)
- 1:50 Review of Herbicide Interactions: Predictable Trends or Interaction Soup?** B. G. Young\*; Purdue University, West Lafayette, IN (246)
- 2:15 Experimental Design and Data Analysis for Herbicide Interaction Research.** A. R. Kniss\*; University of Wyoming, Laramie, WY (247)
- 2:40 Discussion**
- 3:00 Break**
- 3:30 Panel Discussion**
- 4:20 Meeting the Challenge: How Do We Move Forward?** M. Barrett\*; University of Kentucky, Lexington, KY (248)

---

---

## WEDNESDAY MORNING FEBRUARY 8

### Section 1. Agronomic Crops

LOCATION: Presidio V  
TIME: 10:00 AM – 12:00 PM  
CHAIR: Pete Eure  
Syngenta Crop Protection  
Houston, TX

#### \*SPEAKER

- 10:00 Time of Day and Temperature Influence Palmer amaranth Efficacy with Glufosinate.** D. Copeland\*, W. J. Everman; North Carolina State University, Raleigh, NC (249)
- 10:15 Controlling PPO-resistant Palmer amaranth Using Preemergence Herbicides.** T. A. Reinhardt\*, D. Copeland, W. J. Everman; North Carolina State University, Raleigh, NC (250)
- 10:30 PPO-resistant Palmer amaranth: What We Have Learned After One Year of On-farm Research in Arkansas.** T. Barber\*<sup>1</sup>, J. K. Norsworthy<sup>2</sup>, R. Scott<sup>3</sup>; <sup>1</sup>University of Arkansas, Little Rock, AR, <sup>2</sup>University of Arkansas, Fayetteville, AR, <sup>3</sup>University of Arkansas-Cooperative Extension Service, Lonoke, AR (251)
- 10:45 A Survey of BMP Adoption for Resistance Management in U.S. Row Crops.** J. K. Norsworthy\*<sup>1</sup>, M. Owen<sup>2</sup>, J. Gunsolus<sup>3</sup>, W. J. Everman<sup>4</sup>, D. E. Ervin<sup>5</sup>, G. Frisvold<sup>6</sup>, T. Hurley<sup>7</sup>, R. Jussaume<sup>8</sup>, S. Welcher<sup>9</sup>; <sup>1</sup>University of Arkansas, Fayetteville, AR, <sup>2</sup>Iowa State University, Ames, IA, <sup>3</sup>University of Minnesota, St. Paul, MN, <sup>4</sup>North Carolina State University, Raleigh, NC, <sup>5</sup>Portland State University, Portland, OR, <sup>6</sup>University of Arizona, Tucson, AZ, <sup>7</sup>University of Minnesota, St Paul, MN, <sup>8</sup>Michigan State University, East Lansing, MI, <sup>9</sup>USDA, Beltsville, MD (252)
- 11:00 How Far is Argentina from Managing Herbicide Resistant Weeds Compared to USA and Australia?** C. G. Rubione\*; Claudio Rubione, Ciudad Autónoma de Buenos Aires, Argentina (253)

- 11:15 Socio-economic Factors Affecting Farmer Use of Weed Best Management Practices.** G. Frisvold\*<sup>1</sup>, D. E. Ervin<sup>2</sup>, W. J. Everman<sup>3</sup>, J. Gunsolus<sup>4</sup>, T. Hurley<sup>5</sup>, R. Jussaume<sup>6</sup>, J. K. Norsworthy<sup>7</sup>, M. Owen<sup>8</sup>, K. Dentzman<sup>6</sup>; <sup>1</sup>University of Arizona, Tucson, AZ, <sup>2</sup>Portland State University, Portland, OR, <sup>3</sup>North Carolina State University, Raleigh, NC, <sup>4</sup>University of Minnesota, St. Paul, MN, <sup>5</sup>University of Minnesota, St Paul, MN, <sup>6</sup>Michigan State University, East Lansing, MI, <sup>7</sup>University of Arkansas, Fayetteville, AR, <sup>8</sup>Iowa State University, Ames, IA (254)

- 11:30 Rinskor™ Active, a Novel Herbicide Alternative for Global Weed Control in Rice.** M. Morell\*<sup>1</sup>, R. K. Mann<sup>1</sup>, N. M. Carranza<sup>2</sup>, N. Dalla Valle<sup>3</sup>, D. Le<sup>4</sup>, H. Perry<sup>5</sup>, O. Shevchuk<sup>6</sup>, M. Yadav<sup>7</sup>; <sup>1</sup>Dow AgroSciences LLC, Indianapolis, IN, <sup>2</sup>Dow AgroSciences, Ibague, Colombia, <sup>3</sup>Dow AgroSciences, Bologna, Italy, <sup>4</sup>Dow AgroSciences, Ho Chi Minh, Vietnam, <sup>5</sup>Dow AgroSciences LLC, Greenville, MS, <sup>6</sup>Dow AgroSciences, Valbonne, France, <sup>7</sup>Dow AgroSciences, Mumbai, India (255)

- 11:45 Provisia (TM) Rice System – New Technology for Control of Red Rice and other Grasses.** C. D. Youmans\*<sup>1</sup>, S. Tan<sup>2</sup>, A. Rhodes<sup>3</sup>, J. Guice<sup>4</sup>, J. Schultz<sup>5</sup>, D. Westberg<sup>2</sup>; <sup>1</sup>BASF Crop., Dyersburg, TN, <sup>2</sup>BASF Corp., RTP, NC, <sup>3</sup>BASF Corp., Madison, MS, <sup>4</sup>BASF Corp., Winnesboro, LA, <sup>5</sup>BASF Corp., North Little Rock, AR (256)

---

---

## WEDNESDAY MORNING FEBRUARY 8

### Section 9. Weed Biology and Ecology

LOCATION: Presidio 1  
TIME: 10:00 AM – 12:00 PM  
CHAIR: Muthukumar Bagavathiannan  
Texas A&M University  
College Station, TX

#### \*SPEAKER

- 11:00 Methodology, an Important Yet Often Ignored Component of Invasive Plant Impact Quantification.** D. R. Tekiela\*, J. N. Barney; Virginia Tech, Blacksburg, VA (257)

**10:15 Differing Impacts of CO<sub>2</sub> and Drought Due to Competitive Interactions Between Annual and Perennial Grass.** L. J. Rew\*<sup>1</sup>, C. Larson<sup>1</sup>, E. A. Lehnhoff<sup>2</sup>; <sup>1</sup>Montana State University, Bozeman, MT, <sup>2</sup>New Mexico State University, Las Cruces, NM (258)

**10:30 A Chrono-geographical Assessment of Glyphosate resistance in Canadian Populations of *Conyza canadensis* L.** E. R. Page\*<sup>1</sup>, C. Grainger<sup>2</sup>, F. Tardif<sup>2</sup>, I. Rajcan<sup>2</sup>, M. Laforest<sup>3</sup>, R. E. Nurse<sup>1</sup>; <sup>1</sup>Agriculture and Agri-Food Canada, Harrow, ON, <sup>2</sup>University of Guelph, Guelph, ON, <sup>3</sup>Agriculture and Agri-Food Canada, Saint-Jean-sur-Richelieu, ON (259)

**10:45 Assessing Spatial Factors Influencing Evolution of Herbicide Resistance in a Population With an Individual Based Model.** P. Hegedus\*, B. D. Maxwell; Montana State University, Bozeman, MT (260)

**11:00 Glyphosate-resistant and -susceptible Junglerice (*Echinochloa colona*) Biotype Responses to Temperature and Shade.** L. M. Sosnoskie\*<sup>1</sup>, B. Hanson<sup>2</sup>; <sup>1</sup>University of California, Davis, CA, <sup>2</sup>University of California, Davis, CA (261)

**11:15 Differential Tolerance of a Glyphosate-Resistant and a -Susceptible Type of Junglerice (*Echinochloa colona*) to Environmental Stresses and Inter-specific Competition.** A. Shrestha\*, L. L. de Souza, R. Cox, P. Yang, K. M. Steinhauer, S. Budhathoki; California State University, Fresno, CA (262)

**11:30 Managing glyphosate-resistant Common Ragweed (*Ambrosia artemisiifolia* L.): Effect of Glyphosate-phenoxy Tank-mixes on Growth, Fecundity and Seed Viability.** J. Bae\*<sup>1</sup>, R. E. Nurse<sup>1</sup>, M. Simard<sup>2</sup>, E. R. Page<sup>1</sup>; <sup>1</sup>Agriculture and Agri-Food Canada, Harrow, ON, <sup>2</sup>Agriculture and Agri-Food Canada, Saint-Jean-sur-Richelieu, QC (263)

**11:45 Confirmation and Control of Glyphosate Resistance in Weedy Sunflower (*Helianthus annuus*) in Texas Row Crops.** V. Singh\*<sup>1</sup>, L. Etheredge<sup>2</sup>, J. McGinty<sup>3</sup>, G. D. Morgan<sup>1</sup>, M. V. Bagavathiannan<sup>1</sup>; <sup>1</sup>Texas A&M University, College Station, TX, <sup>2</sup>Monsanto, Llano, TX, <sup>3</sup>Texas A&M University, Corpus Christi, TX (264)

---

---

## WEDNESDAY MORNING FEBRUARY 8

### Section 13. Integrated Weed Management

LOCATION: Presidio II  
TIME: 10:00 AM – 12:00 PM  
CHAIR: Ramon Leon  
University of Florida  
Jay, FL  
MODERATOR: Daniela Ribeiro  
Monsanto  
Chesterfield, MO

#### \*SPEAKER

**10:00 The impact of field demonstration programs in changing farmer thinking and behavior for weed resistance management.** H. J. Streck\*<sup>1</sup>, G. Chancrin<sup>2</sup>, D. Kerlen<sup>3</sup>, H. Naunheim<sup>3</sup>, M. Verbiest<sup>4</sup>, R. Beffa<sup>1</sup>; <sup>1</sup>Bayer CropScience AG, Frankfurt, Germany, <sup>2</sup>Bayer S.A.S., Lyon, France, <sup>3</sup>Bayer CropScience AG, Langenfeld, Germany, <sup>4</sup>Bayer CropScience NV, Diegem, Belgium (265)

**10:15 Weed Management in Lettuce: Why Herbicide Resistant Weeds are a Nonissue.** S. A. Fennimore\*; University of California Davis, Salinas, CA (266)

**10:30 Influence of Wheat Crop Production on the Efficacy of Harvest Weed Seed Control Systems.** M. J. Walsh\*<sup>1</sup>, J. Broster<sup>2</sup>, C. Aves<sup>3</sup>; <sup>1</sup>University of Sydney, Narrabri, Australia, <sup>2</sup>Charles Sturt University, Wagga Wagga, Australia, <sup>3</sup>University of Melbourne, Dookie, Australia (267)

**10:45 Stacking Intra-row Cultivation Tools for Increased Efficacy: Evidence of Synergy.** B. Brown\*, E. Gallandt; University of Maine, Orono, ME (268)

**11:00 Farmer Perspectives and Expectations: What is Thought About Herbicide-resistant Weed Management.** M. D. Owen\*<sup>1</sup>, W. J. Everman<sup>2</sup>, J. Gunsolus<sup>3</sup>, J. K. Norsworthy<sup>4</sup>, K. Dentzman<sup>5</sup>, G. Frisvold<sup>6</sup>, R. Jussaume<sup>5</sup>, T. Hurley<sup>3</sup>, S. Wechsler<sup>7</sup>; <sup>1</sup>Iowa State University, Ames, IA, <sup>2</sup>North Carolina State University, Raleigh, NC, <sup>3</sup>University of Minnesota, St. Paul, MN, <sup>4</sup>University of Arkansas, Fayetteville, AR, <sup>5</sup>Michigan State University, East Lansing, MI, <sup>6</sup>University of Arizona, Tucson, AZ, <sup>7</sup>USDA, Washington DC, MD (269)

**11:15 The Role of Fall Cover Cropping in Diversifying Weed Management of Horseweed in Conservation Tillage Systems.** J. M. Wallace\*<sup>1</sup>, W. Curran<sup>1</sup>, M. J. VanGessel<sup>2</sup>, D. A. Mortensen<sup>1</sup>, J. M. Bunchek<sup>1</sup>; <sup>1</sup>Pennsylvania State University, University Park, PA, <sup>2</sup>University of Delaware, Georgetown, DE (270)

**11:30 Neighbor and Community Effects of Herbicide Resistance Management: A National Survey of Farm Operators.** D. E. Ervin\*<sup>1</sup>, K. Dentzman<sup>2</sup>, W. J. Everman<sup>3</sup>, G. Frisvold<sup>4</sup>, J. Gunsolus<sup>5</sup>, R. Jussaume<sup>2</sup>, J. K. Norsworthy<sup>6</sup>, T. Hurley<sup>7</sup>, M. Owen<sup>8</sup>, S. Wechsler<sup>9</sup>; <sup>1</sup>Portland State University, Portland, OR, <sup>2</sup>Michigan State University, East Lansing, MI, <sup>3</sup>North Carolina State University, Raleigh, NC, <sup>4</sup>University of Arizona, Tucson, AZ, <sup>5</sup>University of Minnesota, St. Paul, MN, <sup>6</sup>University of Arkansas, Fayetteville, AR, <sup>7</sup>University of Minnesota, St Paul, MN, <sup>8</sup>Iowa State University, Ames, IA, <sup>9</sup>U.S. Dept Agriculture, Washington, DC, DC (271)

**11:45 Cover Crops for Weed Suppression in Kansas Cropping Systems.** A. Dille\*, C. Ahlquist, D. E. Peterson; Kansas State University, Manhattan, KS (272)

**1:00 Community Participation in Herbicide Resistance Surveying: A Case Study in California Rice.** W. B. Brim-DeForest\*<sup>1</sup>, A. S. Godar<sup>2</sup>, A. J. Fischer<sup>2</sup>, K. Al-Khatib<sup>3</sup>; <sup>1</sup>University of California, Yuba City, CA, <sup>2</sup>University of California, Davis, Davis, CA, <sup>3</sup>University of California Davis, Davis, CA (273)

**1:15 Evaluation of Pre- and Post-emergence Herbicides for Weed Control in Cassava Systems.** F. Ekeleme\*<sup>1</sup>, A. Dixon<sup>2</sup>, S. Hauser<sup>3</sup>, G. Atser<sup>3</sup>, S. C. Weller<sup>4</sup>, H. Usman<sup>5</sup>, P. M. Olorunmaiye<sup>6</sup>, D. Korieocha<sup>7</sup>; <sup>1</sup>International Institute of Tropical Agriculture, Ibadan, Germany, <sup>2</sup>International Institute of Tropical Agriculture, Free Town, Sierra Leone, <sup>3</sup>International Institute of Tropical Agriculture, Ibadan, Germany, <sup>4</sup>Purdue University, West Lafayette, IN, <sup>5</sup>University of Agriculture Makurdi, Makurdi, Germany, <sup>6</sup>Federal University of Agriculture, Abeokuta, Germany, <sup>7</sup>National Root Crops Research Institute, Umudike, Germany (274)

**1:30 Venice mallow (*Hibiscus trionum*) control in dry edible beangrown for seed.** G. M. Sbatella\*; University of Wyoming, Powell, WY (275)

**1:45 Interactions Among Cultivation, Weeds, and Diseases in Organic Peanut Production: Has a Paradigm been Broken?** W. C. Johnson III\*<sup>1</sup>, A. K. Culbreath<sup>2</sup>; <sup>1</sup>USDA-ARS, Tifton, GA, <sup>2</sup>Univeristy of Georgia, Tifton, GA (276)

**2:00 Managing Weeds in Inzen Sorghum: A New Technology.** C. R. Thompson\*<sup>1</sup>, R. S. Currie<sup>2</sup>, P. W. Stahlman<sup>3</sup>; <sup>1</sup>Kansas State University, Manhattan, KS, <sup>2</sup>Kansas State University, Garden City, KS, <sup>3</sup>Kansas State University, Hays, KS (277)

**2:15 Brake® Herbicide: Optimizing the Performance of a Cotton Weed Control System.** K. R. Briscoe\*; SePRO Corporation, Whitakers, NC (278)

**2:30 Section Business Meeting**

---

## WEDNESDAY AFTERNOON FEBRUARY 8

### Section 1. Agronomic Crops

LOCATION: Presidio V  
TIME: 1:00 PM – 2:45 PM  
CHAIR: Pete Eure  
Syngenta Crop Protection  
Houston, TX

\*SPEAKER



---

---

## WEDNESDAY AFTERNOON FEBRUARY 8

### Section 9. Weed Biology and Ecology

LOCATION: Presidio 1  
TIME: 1:00 PM – 4:30 PM  
CHAIR: Muthukumar Bagavathiannan  
Texas A&M University  
College Station, TX

#### \*SPEAKER

- 1:00 Palmer amaranth (*Amaranthus palmeri*) Adaptations to Cropping Systems: Looking Beyond Glyphosate-resistance.** W. Bravo<sup>1</sup>, R. G. Leon<sup>\*2</sup>, J. Ferrell<sup>1</sup>, M. Mulvaney<sup>2</sup>, W. Wood<sup>2</sup>; <sup>1</sup>University of Florida, Gainesville, FL, <sup>2</sup>University of Florida, Jay, FL (279)
- 1:15 A Neighbour's Light Will Stress You Out.** A. McKenzie-Gopsill<sup>1</sup>, S. Amirsadeghi<sup>2</sup>, C. J. Swanton<sup>\*2</sup>; <sup>1</sup>Agriculture and Agri-Food Canada, Charlottetown, PE, <sup>2</sup>University of Guelph, Guelph, ON (280)
- 1:30 Plant Competition and the Concept of an Energy Imbalance.** C. J. Swanton<sup>\*1</sup>, E. R. Page<sup>2</sup>, A. McKenzie-Gopsill<sup>3</sup>; <sup>1</sup>University of Guelph, Guelph, ON, <sup>2</sup>Agriculture and Agri-Food Canada, Harrow, ON, <sup>3</sup>Agriculture and Agri-Food Canada, Charlottetown, PE (281)
- 1:45 Effects of N Form and Crop Diversity on Weed-crop Competition.** R. G. Smith<sup>\*</sup>, N. Warren, E. Hobbie; University of New Hampshire, Durham, NH (282)
- 2:00 Weed Seed Bank Density in No-Till System.** M. A. Haidar<sup>\*</sup>; American University of Beirut, Beirut, Lebanon (283)
- 2:15 Weedy Rice Management in Direct Seeded Rice Systems.** V. Kumar<sup>\*</sup>, O. Namuco, J. Lawas-Opeña, K. P. Valencia, T. Migo; International Rice Research Institute, Los Banos, Philippines (284)
- 2:30 Tillage and Cover Crop Effects on Seed Persistence of Powell amaranth and Large Crabgrass.** M. Frost<sup>\*</sup>, D. C. Brainard, K. A. Renner, L. Tiemann; Michigan State University, East Lansing, MI (285)

**2:45 Influences of Cover Crop Seeding Rate and Species Selection on Winter Annual Weeds Prior to Soybean.** E. Haramoto<sup>\*</sup>, M. Allen; University of Kentucky, Lexington, KY (286)

#### 3:00 Break

- 3:30 Solarization in the Northeast Controls Weeds and Does Not Harm Soil Microbes.** S. K. Birthisel<sup>\*</sup>, E. Gallandt; University of Maine, Orono, ME (287)
- 3:45 Pasteurization of Mushroom Compost Reduces Weed Seed Viability.** K. M. Vollmer<sup>\*</sup>, M. J. VanGessel; University of Delaware, Georgetown, DE (288)
- 4:00 Time of Wild Oat Panicle Clipping on Seed Viability.** K. Harker<sup>\*1</sup>, B. D. Tidemann<sup>1</sup>, J. T. ODonovan<sup>1</sup>, C. J. Willenborg<sup>2</sup>, S. J. Shirliffe<sup>2</sup>, E. N. Johnson<sup>2</sup>, L. A. Michielsen<sup>1</sup>, P. L. Reid<sup>1</sup>, E. A. Sroka<sup>1</sup>, J. A. Zuidhof<sup>1</sup>; <sup>1</sup>Agriculture & Agri-Food Canada, Lacombe, AB, <sup>2</sup>University of Saskatchewan, Saskatoon, SK (289)
- 4:15 Identifying Potential Target Weeds for Harvest Weed Seed Control in Western Canada.** B. D. Tidemann<sup>\*1</sup>, L. M. Hall<sup>2</sup>, K. Harker<sup>1</sup>, H. J. Beckie<sup>3</sup>, E. N. Johnson<sup>4</sup>, F. Stevenson<sup>5</sup>; <sup>1</sup>Agriculture & Agri-Food Canada, Lacombe, AB, <sup>2</sup>University of Alberta, Edmonton, AB, <sup>3</sup>Agriculture & Agri-Food Canada, Saskatoon, SK, <sup>4</sup>University of Saskatchewan, Saskatoon, SK, <sup>5</sup>Private Consultant, Saskatoon, SK (290)

---

---

## WEDNESDAY AFTERNOON FEBRUARY 8

### Section 13. Integrated Weed Management

LOCATION: Presidio II  
TIME: 1:00 PM – 1:45 PM  
CHAIR: Ramon Leon  
University of Florida  
Jay, FL  
MODERATOR: Daniela Ribeiro  
Monsanto  
Chesterfield, MO

#### \*SPEAKER

**1:00 Integrated Harrington Seed Destructor: How Effective Is It?** L. M. Schwartz\*<sup>1</sup>, J. K. Norsworthy<sup>1</sup>, M. J. Walsh<sup>2</sup>; <sup>1</sup>University of Arkansas, Fayetteville, AR, <sup>2</sup>University of Sydney, Narrabri, Australia (291)

**1:15 Black Grass (*Alopecurus myosuroides* Huds.) Resistance to ALS- Inhibitors: A Case Study Approach to Study Causes and Predict Weed Resistance to Herbicides.** J. Herrmann\*<sup>1</sup>, R. Beffa<sup>2</sup>, H. Strek<sup>2</sup>, M. Hess<sup>2</sup>, B. Peters<sup>2</sup>, O. Richter<sup>1</sup>; <sup>1</sup>TU Braunschweig, Braunschweig, Germany, <sup>2</sup>Bayer AG, Frankfurt, Germany (292)

**1:30 Section Business Meeting**

---

---

**WEDNESDAY AFTERNOON FEBRUARY 8**  
**Teaching Undergraduate Weed Science: Strategies to Improve Learning**

LOCATION: Presidio II  
TIME: 2:00 PM – 5:00 PM  
CHAIR: Thomas Mueller  
University of Tennessee  
Knoxville, TN

**\*SPEAKER**

**2:00 Teaching Undergraduate Weed Science: Strategies to Improve Learning.** T. C. Mueller\*;  
University of Tennessee, Knoxville, TN (293)

**2:15 Teaching Weed Science: a New Faculty Perspective.** E. Haramoto\*;  
University of Kentucky, Lexington, KY (294)

**2:30 Field Scouting and Developing Weed Management Recommendations: Hands-on at the Agronomy Learning Farm.** A. Dille\*;  
Kansas State University, Manhattan, KS (295)

**2:50 Weed Identification in Weed Science Teaching: A Continuum of Approaches.** A. DiTommaso\*;  
Cornell University, Ithaca, NY (296)

**3:10 How to Successfully Incorporate Team Projects into your Undergraduate Weed Science Class.** T. C. Mueller\*, S. A. Senseman;  
University of Tennessee, Knoxville, TN (297)

**4:00 How to Write Exam and Quiz Questions to Accurately Assess Student Learning.** T. C. Mueller\*;  
University of Tennessee, Knoxville, TN (298)

---

---

**WEDNESDAY AFTERNOON FEBRUARY 8**  
**Section 10. Biocontrol of Weeds**

LOCATION: Presidio V  
TIME: 3:30 PM – 4:30 PM  
CHAIR: Clyde Boyette  
USDA-ARS  
Stoneville, MS

**\*SPEAKER**

**3:30 *Melaleuca quinquenervia* Seed Rain Dynamics Before and After Biocontrol Introduction: An Experience from Florida.** M. B. Rayamajhi\*;  
Invasive PLant Research Laboratory, Fort Lauderdale, FL (299)

**3:45 In Vitro Growth Effects of Sorgoleone (sorghum root exudate) on Different Wheat and Weed Species.** M. K. Bansal\*, W. J. Everman;  
North Carolina State University, Raleigh, NC (300)

**4:00 Improvement of Fungal Bioherbicidal Efficacy Using a Formulation-Based Approach.** C. D. Boyette\*, R. E. Hoagland, K. C. Stetina;  
USDA-ARS, Stoneville, MS (301)

**4:15 Section Business Meeting**

---

---

**THURSDAY MORNING FEBRUARY 9**  
**Symposium: Precision Agriculture and Weed Science**

LOCATION: Turquoise III  
TIME: 8:00 AM – 12:00 PM  
CHAIR: Krishna Reddy  
USDA-ARS  
Stoneville, MS

**\*SPEAKER**

**8:00 Precision Agriculture and Weed Science— Opportunities and Challenges.** R. James\*;  
USDA-ARS, Beltsville, MD (302)

**8:10 Geographic Information System Database for Pigweed Distribution in the Southeastern United States.** R. S. Fletcher\*, K. N. Reddy;  
USDA-ARS, Stoneville, MS (303)

**8:35 Discussion**

**8:40 Development and Testing of an Electronic Plant Species Identification System.** G. E. Meyer\*, T. R. Riddle; University of Nebraska, Lincoln, NE (304)

**9:05 Discussion**

**9:10 Identifying Resilience Thresholds With Automated On-Farm Experimentation Using Precision Agriculture Technologies.** B. D. Maxwell\*; Montana State University, Bozeman, MT (305)

**9:35 Discussion**

**9:40 Low-altitude Remote Sensing for Precision Weed Management.** Y. Huang\*, K. N. Reddy; USDA-ARS, Stoneville, MS (306)

**10:05 Discussion**

**10:10 Break**

**10:25 Using Satellite Remote Sensing to Map Changes in Aquatic Invasive Plant Cover in the Sacramento-San Joaquin River Delta of California.** C. S. Potter\*; NASA, Moffett Field, CA (307)

**10:50 Discussion**

**10:55 Landscape Level Weed Monitoring in the Florida Everglades Using Digital Aerial Sketch Mapping.** L. Rodgers\*; South Florida Water Management District, West Palm Beach, FL (308)

**11:20 Discussion**

**11:25 Moving to Truly Integrated Weed Management Using Advanced Technologies.** S. Young\*; Cornell University, Ithaca, NY (309)

**11:50 Final Comments**

---

---

**THURSDAY MORNING FEBRUARY 9**  
**Section 2. Horticultural Crops**

LOCATION: Presidio IV  
TIME: 8:00 AM – 12:00 PM  
CHAIR: Colin Phillippo  
Michigan State University  
East Lansing, MI

**\*SPEAKER**

**8:00 Field Bindweed Suppression in Processing Tomatoes with Sub-surface Trifluralin Applications.** L. M. Sosnoskie<sup>1</sup>, B. Hanson<sup>2</sup>; <sup>1</sup>University of California, Davis, CA, <sup>2</sup>University of California, Davis, CA (310)

**8:15 Weed Management in Asparagus with New Herbicides.** B. H. Zandstra\*, C. J. Phillippo; Michigan State University, East Lansing, MI (311)

**8:30 Bicyclopyrone in Vegetable Crop Weed Management.** C. J. Phillippo\*, B. H. Zandstra; Michigan State University, East Lansing, MI (312)

**8:45 Weed Management in Vegetable Crops with Bicyclopyrone.** C. Hu<sup>\*1</sup>, Y. Chen<sup>1</sup>, D. Bruns<sup>2</sup>, D. Doohan<sup>1</sup>; <sup>1</sup>Ohio State University, Wooster, OH, <sup>2</sup>Syngenta, Columbus, OH (313)

**9:00 Response of Vegetable Crops to Preplant Glufosinate Applications.** A. S. Leiva Soto<sup>\*1</sup>, R. J. Edwards<sup>2</sup>, E. Chapman<sup>2</sup>, C. Hu<sup>1</sup>, D. Doohan<sup>1</sup>; <sup>1</sup>Ohio State University, Wooster, OH, <sup>2</sup>Department of Horticulture and Crop Science, The Ohio State University, Wooster, OH (314)

**9:15 Dissipation of Fomesafen in Florida Strawberry Production.** T. V. Reed<sup>\*1</sup>, P. C. Wilson<sup>1</sup>, N. Boyd<sup>2</sup>; <sup>1</sup>University of Florida, Gainesville, FL, <sup>2</sup>University of Florida, Balm, FL (315)

**9:30 Mint Tolerance to Linuron Applied as a Dormant and Early Postemergence Treatment.** S. C. Weller<sup>\*1</sup>, R. A. Boydston<sup>2</sup>, J. Colquhoun<sup>3</sup>, C. Mallory-Smith<sup>4</sup>, A. Hulting<sup>4</sup>, R. Wilson<sup>5</sup>; <sup>1</sup>Purdue University, West Lafayette, IN, <sup>2</sup>USDA-ARS, Prosser, WA, <sup>3</sup>University of Wisconsin, Madison, WI, <sup>4</sup>Oregon State University, Corvallis, OR, <sup>5</sup>University of California, Tulelake, CA (316)

**9:45 Herbicide Testing in Douglas Fir Nurseries.** T. W. Miller\*; Washington State University, Mount Vernon, WA (317)

**10:00 Break**

**10:30 Use and Benefits of Simazine in Fruit and Nut Crops through 2015.** R. S. Fawcett\*; Fawcett Consulting, Huxley, IA (318)



**10:45 Acetyl-CoA Carboxylase Overexpression in Herbicide Resistant Crabgrass (*Digitaria sanguinalis*).** R. E. Nurse<sup>\*1</sup>, K. Obeid<sup>2</sup>, E. R. Page<sup>1</sup>, M. Simard<sup>3</sup>, M. LaForest<sup>3</sup>; <sup>1</sup>Agriculture and Agri-Food Canada, Harrow, ON, <sup>2</sup>Ontario Ministry of Agriculture, Food and Rural Affairs, Harrow, ON, <sup>3</sup>Agriculture and Agri-Food Canada, Saint-Jean-sur-Richelieu, QC (319)

**11:00 A Cover Crop Mixture for Weed and Sting Nematode Management.** C. A. Chase\*, S. B. Coplin; University of Florida, Gainesville, FL (320)

**11:15 Challenges Using Roller-crimped Rye and Vetch Cover Crops in No-till Snap Bean.** M. Williams II<sup>\*1</sup>, R. A. Boydston<sup>2</sup>; <sup>1</sup>USDA-ARS, Urbana, IL, <sup>2</sup>USDA-ARS, Prosser, WA (321)

**11:30 Preemergence Herbicides in Cover Crops During the Fallow Period for Weed Control in Leafy Brassica Crops.** P. J. Dittmar<sup>\*1</sup>, N. Boyd<sup>2</sup>; <sup>1</sup>University of Florida, Gainesville, FL, <sup>2</sup>University of Florida, Balm, FL (322)

**11:45 Section Business Meeting**

---

---

**THURSDAY MORNING FEBRUARY 9**  
**Section 6. Regulatory Aspects**

LOCATION: Presidio V  
TIME: 8:00 AM – 9:15 AM  
CHAIR: Jerry Wells  
Syngenta  
Greensboro, NC

**\*SPEAKER**

**8:00 Exploring the Potential for a Regulatory Change to Encourage Diversity in Herbicide Use.** S. B. Powles<sup>1</sup>, T. A. Gaines<sup>\*2</sup>; <sup>1</sup>University of Western Australia, Perth, Australia, <sup>2</sup>Colorado State University, Fort Collins, CO (323)

**8:15 A Bioeconomic Analysis of Triazine Herbicide Use in U.S. Corn and Grain Sorghum.** D. C. Bridges\*; Abraham Baldwin Agricultural College, Tifton, GA (324)

**8:30 Weed Science in China: Opportunities and Challenges.** L. Jiang, Z. Li\*; China Agricultural University, Beijing, Peoples Republic (325)

**8:45 The U.S. EPA's Herbicide Resistance Management Approach.** B. J. Chism<sup>\*1</sup>, J. Becker<sup>2</sup>, A. Jones<sup>2</sup>; <sup>1</sup>US Environmental Protection Agency, Point of Rocks, MD, <sup>2</sup>US Environmental Protection Agency, Washington, DC (326)

**9:00 Section Business Meeting**

---

---

**THURSDAY MORNING FEBRUARY 9**  
**Section 11. Physiology**

LOCATION: Presidio 1  
TIME: 8:00 AM – 11:00 AM  
CHAIR: Mithila Jugulam  
Kansas State University  
Manhattan, KS

**\*SPEAKER**

**8:00 Field-Evolved Resistance of Downy Brome (*Bromus tectorum*) to Imazamox in Cereal Production.** P. Jha<sup>\*1</sup>, V. Kumar<sup>1</sup>, A. J<sup>2</sup>, S. Leland<sup>1</sup>; <sup>1</sup>Montana State University, Huntley, MT, <sup>2</sup>Montana State University-Bozeman, Huntley, MT (327)

**8:15 Confirmation and Characterization of a Glufosinate-resistant Italian Ryegrass Population From a California Grain Field.** P. Tehranchian<sup>\*1</sup>, I. M. Heap<sup>2</sup>, M. Jasieniuk<sup>1</sup>; <sup>1</sup>University of California, Davis, CA, <sup>2</sup>WeedSmart, Corvallis, OR (328)

**8:30 Mechanisms Conferring Herbicide Resistance in a Multiple-resistant Waterhemp (*Amaranthus rudis*) Population from Missouri.** L. S. Shergill\*, M. D. Bish, K. W. Bradley; University of Missouri, Columbia, MO (329)

**8:45 Characterization of Glyphosate-Resistant Russian-thistle (*Salsola tragus* L.) Populations in Montana and Pacific Northwest.** V. Kumar<sup>\*1</sup>, P. Jha<sup>2</sup>, J. F. Spring<sup>3</sup>, A. J<sup>2</sup>, V. K. Nandula<sup>4</sup>, K. N. Reddy<sup>4</sup>, D. Lyon<sup>3</sup>, I. C. Burke<sup>3</sup>; <sup>1</sup>Montana State University, Huntley, MT, <sup>2</sup>Montana State University-Bozeman, Huntley, MT, <sup>3</sup>Washington State University, Pullman, WA, <sup>4</sup>USDA-ARS, Stoneville, MS (330)

- 9:00 Glyphosate Resistant *Echinochloa* spp. from Tennessee and Mississippi – Molecular Analysis.** V. K. Nandula\*<sup>1</sup>, D. A. Giacomini<sup>2</sup>, J. Ray<sup>3</sup>, J. Bond<sup>4</sup>, L. E. Steckel<sup>5</sup>, P. J. Tranel<sup>2</sup>; <sup>1</sup>USDA-ARS, Stoneville, MS, <sup>2</sup>University of Illinois, Urbana, IL, <sup>3</sup>USDA, Stoneville, MS, <sup>4</sup>Mississippi State University, Stoneville, MS, <sup>5</sup>University of Tennessee, Jackson, TN (331)
- 9:15 RNA-Seq Analysis of *Amaranthus palmeri* Transcriptomic Response to Glufosinate.** R. A. Salas\*<sup>1</sup>, C. Saski<sup>2</sup>, R. E. Noorai<sup>2</sup>, A. Lawton-Rauh<sup>2</sup>, S. Srivastava<sup>1</sup>, R. L. Nichols<sup>3</sup>, N. R. Burgos<sup>1</sup>; <sup>1</sup>University of Arkansas, Fayetteville, AR, <sup>2</sup>Clemson University, Clemson, SC, <sup>3</sup>Cotton Inc., Cary, NC (332)
- 9:30 Transcriptome Profiles of Cytochrome P450s in Multiple-resistant *Echinochloa colona* in Response to Propanil.** N. R. Burgos\*<sup>1</sup>, S. Srivastava<sup>1</sup>, C. E. Rouse<sup>1</sup>, R. E. Noorai<sup>2</sup>, A. Lawton-Rauh<sup>2</sup>, C. Saski<sup>2</sup>; <sup>1</sup>University of Arkansas, Fayetteville, AR, <sup>2</sup>Clemson University, Clemson, SC (333)
- 9:45 Progress in the Characterization of Herbicide Detoxification Mechanisms in Rye-grass Resistant to ALs- and ACCase-inhibitors.** R. Beffa\*; Bayer AG, Frankfurt, Germany (334)
- 10:00 Using the Genome of *Kochia scoparia* to Inform Crop Improvement Research.** P. Westra\*, T. A. Gaines, F. E. Dayan; Colorado State University, Fort Collins, CO (335)
- 10:15 Lack of Effect of Glyphosate on Mineral Nutrition, Amino Acid Content, and Yield in Glyphosate-Resistant Soybean and Corn.** S. O. Duke\*<sup>1</sup>, K. N. Reddy<sup>2</sup>, A. M. Rimando<sup>1</sup>, J. V. Cizdziel<sup>3</sup>, M. M. Williams<sup>4</sup>, J. E. Maul<sup>5</sup>; <sup>1</sup>USDA, ARS, Oxford, MS, <sup>2</sup>USDA-ARS, Stoneville, MS, <sup>3</sup>University of Mississippi, Oxford, MS, <sup>4</sup>USDA, ARS, Urbana, IL, <sup>5</sup>USDA, ARS, Maryland, MD (336)
- 10:30 A Depsipeptide from the Pathogenic Fungi *Burkholderia* sp. A396 Targets Plant Histone Deacetylases.** F. E. Dayan\*<sup>1</sup>, D. Owens<sup>2</sup>, C. Carbonari<sup>3</sup>, G. Giovanna<sup>3</sup>, R. Asolkar<sup>4</sup>, L. Boddy<sup>4</sup>; <sup>1</sup>Colorado State University, Fort Collins, CO, <sup>2</sup>University of Hawaii, Honolulu, HI, <sup>3</sup>Sao

Paulo State University, Botucatu, Brazil, <sup>4</sup>Marrone BioInnovations, Davis, CA (337)

**10:45 Section Business Meeting**

---

**THURSDAY MORNING FEBRUARY 9**  
**Section 9. Weed Biology and Ecology**

LOCATION: Presidio II  
 TIME: 8:45 AM – 11:30 AM  
 CHAIR: Muthukumar Bagavathiannan  
 Texas A&M University  
 College Station, TX

**\*SPEAKER**

- 8:45 Seed Production and Retention of *Amaranthus palmeri* and *Echinochloa crus-galli* in Soybean at Harvest.** L. M. Schwartz\*, J. K. Green, J. K. Norsworthy; University of Arkansas, Fayetteville, AR (338)
- 9:00 Knowledge of Palmer amaranth Biology, Phenology, and Photochemistry Aids Development of Sound Management Strategies.** N. E. Korres\*, J. K. Norsworthy; University of Arkansas, Fayetteville, AR (339)
- 9:15 Population Structure of Weedy Rice in Japan.** T. Imaizumi\*; National Agriculture and Food Research Organization, Tsukuba, Japan (340)
- 9:30 Population Dynamics of Adaptive Evolution to Herbicide Stress in *Amaranthus palmeri*.** A. Lawton-Rauh\*<sup>1</sup>, J. D. Burton<sup>2</sup>, N. R. Burgos<sup>3</sup>, R. L. Nichols<sup>4</sup>, A. O. Disharoon<sup>1</sup>, K. E. Beard<sup>1</sup>; <sup>1</sup>Clemson University, Clemson, SC, <sup>2</sup>North Carolina State University, Raleigh, NC, <sup>3</sup>University of Arkansas, Fayetteville, AR, <sup>4</sup>Cotton Inc., Cary, NC (341)
- 9:45 Towards a Novel Control Strategy for Dioecious Amaranths: Identification of Gender-Specific DNA Sequences.** A. Sadeque, P. J. Brown, P. J. Tranel\*; University of Illinois, Urbana, IL (342)
- 10:00 Break**
- 10:15 Overexpression of a Native EPSPS Gene Can Enhance Fitness in *Arabidopsis thaliana*: Implications for Glyphosate-resistant Weeds.** Z. T. Beres, X. Yang, L. Jin, D. M. Mackey, J. T. Parrish, W. Zhao, A. A. Snow\*; Ohio State University, Columbus, OH (343)

**10:30 Induction of Biochemical and Molecular Seed Defenses by a Seed Decay Pathogen in Dormant Wild Oat and Wheat Caryopses.** E. Fuerst\*<sup>1</sup>, M. S. James<sup>1</sup>, A. T. Pollard<sup>1</sup>, P. A. Okubara<sup>2</sup>; <sup>1</sup>Washington State University, Pullman, WA, <sup>2</sup>USDA-ARS, Washington State University, Pullman, WA (344)

**10:45 Weed Control Programs for Conyza summatrensis glyphosate-resistant biotypes in Enlist E3™ soybeans in Argentina.** R. L. Frene\*; Dow AgroSciences, Buenos Aires, Argentina (345)

**11:00 60% of Organic Farmers in the Eastern Cornbelt Believe that Weeds Can Be Controlled Through Soil Balancing: Does the Evidence Match the Appeal?** C. Herms\*<sup>1</sup>, S. Culman<sup>2</sup>, M. Kleinhenz<sup>2</sup>, V. Chaganti<sup>2</sup>, D. Doohan<sup>2</sup>; <sup>1</sup>Ohio State University/OARDC, Wooster, OH, <sup>2</sup>Ohio State University, Wooster, OH (346)

**11:15 Section Business Meeting**

---

---

**THURSDAY MORNING FEBRUARY 9**  
**Section 8. Formulation, Adjuvant and Application Technology**

LOCATION: Presidio V  
TIME: 9:45 AM – 12:00 PM  
CHAIR: Bryan Young  
Purdue University  
West Lafayette, IN

**\*SPEAKER**

**9:45 The Herbicidal Activity of Coronatine to *Amaranthus retroflexus* L., *Cyperus iria* L., and *Digitaria sanguinalis* L.** Z. Li, L. Jiang\*; China Agricultural University, Beijing, Peoples Republic (347)

**10:00 Use of Unmanned Aerial Systems (UAS) for Precision Weed Detection and Management in Row Crops: Progress Made at TAMU.** A. Rana\*<sup>1</sup>, M. Lonesome<sup>2</sup>, S. C. Popescu<sup>2</sup>, D. Cope<sup>2</sup>, J. Valasek<sup>2</sup>, M. Bishop<sup>2</sup>, S. Yeyin<sup>3</sup>, A. Thomasson<sup>3</sup>, M. V. Bagavathiannan<sup>2</sup>; <sup>1</sup>Virginia Tech, Virginia Beach, VA, <sup>2</sup>Texas A&M University, College Station, TX, <sup>3</sup>TAMU, College Station, TX (348)

**10:15 Quantitative Assessment of Spray Deposition and Canopy Penetration with Fluorescent Tracers.** J. A. Gillilan<sup>1</sup>, M. Ledebuhr<sup>2</sup>, G. K. Dahl<sup>3</sup>, R. Edwards<sup>4</sup>, S. Wedryk<sup>5</sup>, J. J. Skelton\*<sup>6</sup>; <sup>1</sup>WinField Solutions, Springfield, TN, <sup>2</sup>Application Insight, LLC, Lansing, MI, <sup>3</sup>Winfield, River Falls, WI, <sup>4</sup>WinField Solutions, Eagan, MN, <sup>5</sup>WinField Solutions, Shoreview, MN, <sup>6</sup>WinField Solutions, Franklin, TN (349)

**10:30 Tractor Speed and Boom Height Effects on Spray Coverage.** E. P. Prostko\*, G. C. Rains; University of Georgia, Tifton, GA (350)

**10:45 Nozzle Orientation, Pressure, and Nozzle Flow Rate Effects on Spray Coverage on Artificial Collectors.** J. Ferguson\*<sup>1</sup>, C. C. ODonnell<sup>2</sup>, A. J. Hewitt<sup>2</sup>; <sup>1</sup>Northwest Missouri State University, Maryville, MO, <sup>2</sup>The University of Queensland, Gatton, Australia (351)

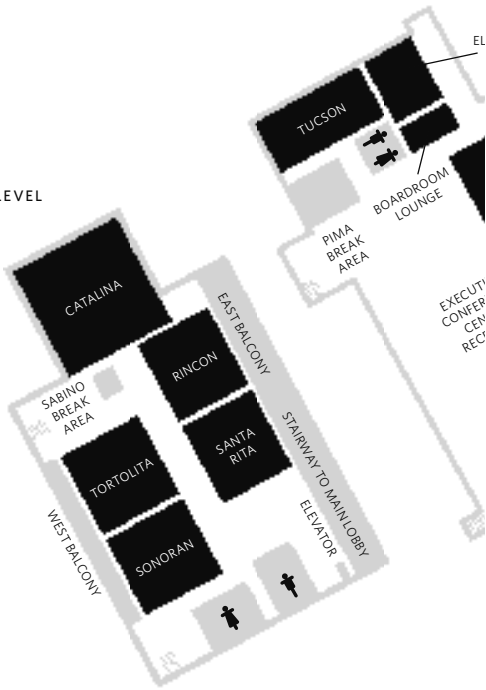
**11:00 Introducing StrikeLock™; A Novel Adjuvant System.** G. K. Dahl\*<sup>1</sup>, R. Edwards<sup>2</sup>, J. A. Gillilan<sup>3</sup>, A. Clark<sup>1</sup>, E. P. Spandl<sup>4</sup>, J. V. Gednalske<sup>1</sup>; <sup>1</sup>Winfield, River Falls, WI, <sup>2</sup>WinField Solutions, Eagan, MN, <sup>3</sup>WinField Solutions, Springfield, TN, <sup>4</sup>Winfield, St. Paul, MN (352)

**11:15 VaporGrip Technology; How it Works and its Benefits.** A. MacInnes\*; Monsanto Company, St Louis, MO (353)

**11:30 Simulated Spray Tank-contamination with 2,4-D and Dicamba Combinations on Glyphosate- and Dicamba-resistant Soybean.** M. L. Moretti\*<sup>1</sup>, J. M. Young<sup>1</sup>, W. G. Johnson<sup>1</sup>, A. G. Hager<sup>2</sup>, S. P. Conley<sup>3</sup>, K. W. Bradley<sup>4</sup>, L. E. Steckel<sup>5</sup>, D. B. Reynolds<sup>6</sup>, J. K. Norsworthy<sup>7</sup>, G. R. Kruger<sup>8</sup>, B. G. Young<sup>1</sup>; <sup>1</sup>Purdue University, West Lafayette, IN, <sup>2</sup>University of Illinois, Urbana, IL, <sup>3</sup>University of Wisconsin, Madison, WI, <sup>4</sup>University of Missouri, Columbia, MO, <sup>5</sup>University of Tennessee, Jackson, TN, <sup>6</sup>Mississippi State University, Mississippi State, MS, <sup>7</sup>University of Arkansas, Fayetteville, AR, <sup>8</sup>University of Nebraska, North Platte, NE (354)

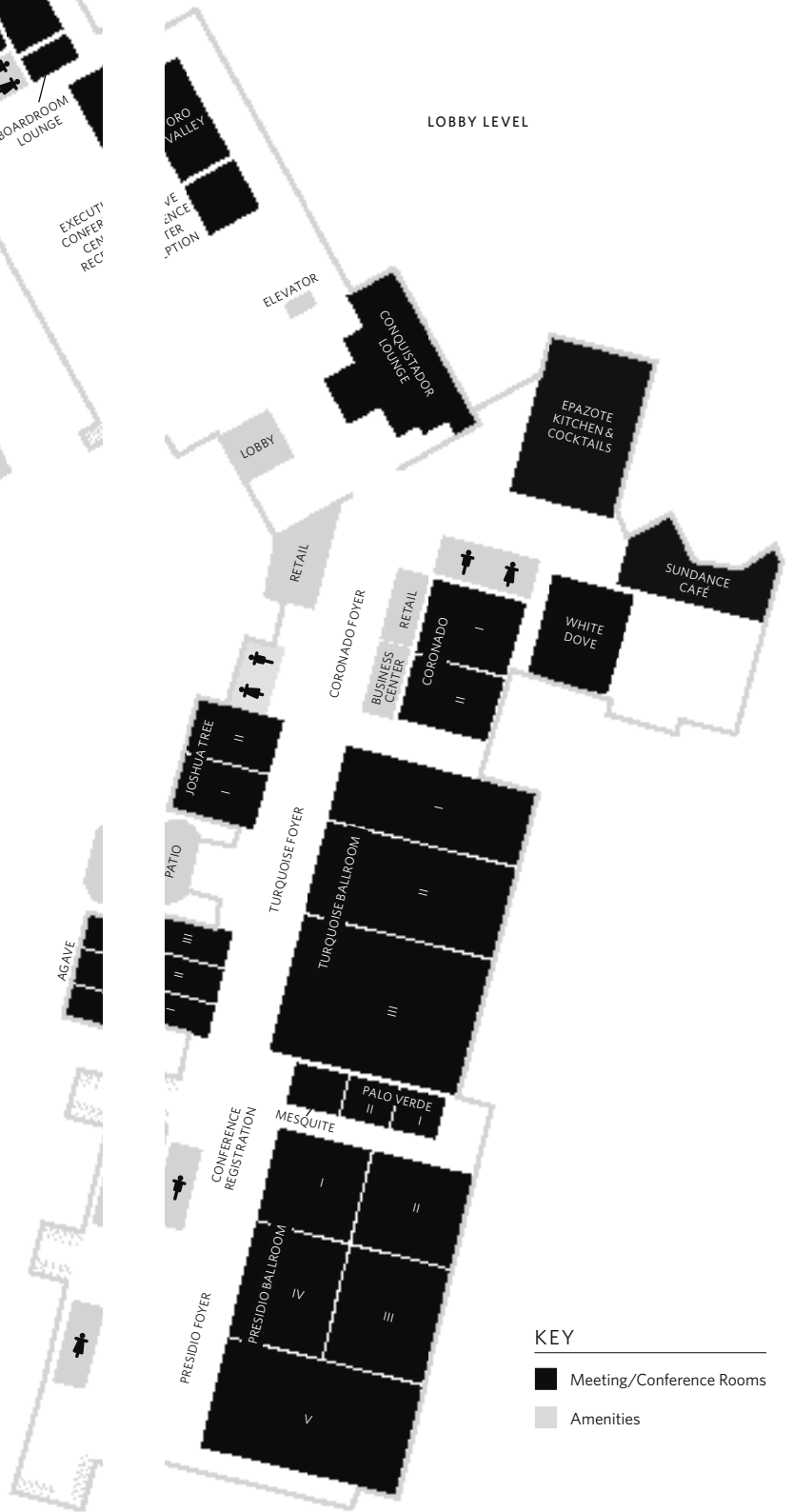
**11:45 Section Business Meeting**

UPPER LEVEL



CONQUISTADOR BOARDROOM

LOBBY LEVEL



**Hilton**

TUCSON EL CONQUISTADOR  
GOLF & TENNIS RESORT

KEY

■ Meeting/Conference Rooms

■ Amenities

## AUTHOR INDEX

### A

Acciaresi, H. A. ....	49, 60, 63, 64, 65
Ackley, Bruce A. ....	84
Actis, Elio ....	21
Adkins, Steve W. ....	147
Ahlquist, Chelsea ....	272
Aiassa, Gonzalo ....	21
Akhundi, Sahar ....	127
Al-Khatib, Kassim ....	58, 273
Albers, Jeffrey J. ....	5
Alexander, Anita L. ....	227, 228
Allen, Matthew ....	286
Amirsadeghi, Sassan ....	280
Anderson, James V. ....	98
Andreas, Zoschke ....	31
Angeles, Jorge ....	73, 106
Ansari, Omid ....	119, 121
Antuniassi, Ulisses R. ....	91
Aponte, Raphael ....	219
Araujo, Lucas P. ....	20
Armel, Gregory R. ....	218, 219, 220
Askew, Shawn ....	194, 195, 225
Asolkar, Ratnakar ....	337
Atser, Godwin ....	274
Atwater, Daniel Z. ....	184
Aves, Charlotte ....	267
Avila, Luis A. ....	125
Avila dos Santos, Ericmar ....	174

### B

Backer, Dana ....	172
Bae, Jichul ....	263
Bagavathiannan, Muthukumar V. ....	96, 234, 264, 347
Bagherani, Naser ....	127
Bajwa, Ali A. ....	147
Bansal, Manish K. ....	55, 300
Banu, Afsari ....	183
Barber, Tom ....	234, 251
Barker, Abigail ....	13
Barlow, Blake R. ....	10
Barnes, Ethann ....	136
Barney, Jacob N. ....	184, 257
Barrett, Michael ....	20, 168, 248
Basinger, Nicholas T. ....	190, 191
Baughman, Todd A. ....	45, 47, 53, 56, 138, 140, 216

Beam, Shawn C. ....	191, 215
Beard, Kristin E. ....	341
Beck, Leslie ....	9
Becker, Jonathan ....	326
Beckett, Tom ....	74, 217
Beckie, Hugh J. ....	290
Beffa, Roland ....	265, 292, 334
Bellinder, Robin ....	153
Bellucini, Pablo ....	126
Beres, Zachery T. ....	102, 343
Bernards, Mark L. ....	93, 131
Bertucci, Matthew B. ....	191, 198
Bhaskar, Vinay ....	153
Bhattachan, Chhan ....	238
Biggs, Meghan ....	1, 10
Birthisel, Sonja K. ....	287
Bish, Mandy D. ....	1, 10, 11, 163, 329
Bishop, Michael ....	347
Boddy, Louis ....	337
Bond, Jason ....	42, 108, 110, 331
Bonnet, Marc ....	233
Bowe, Steven ....	218, 220
Boyd, Nathan ....	185, 315, 322
Boydston, Rick A. ....	52, 316, 321
Boyette, Clyde D. ....	301
Bracamonte, Enzo ....	21, 126
Bradley, Kevin W. ....	1, 10, 11, 163, 166, 329, 353
Brainard, Daniel C. ....	133, 285
Bravo, Washington ....	279
Breuninger, Jamie ....	227, 228
Brewer, John R. ....	194, 195
Bridges, David C. ....	324
Brim-DeForest, Whitney ....	58, 273
Brinker, Ron ....	40
Brinton, Scott ....	232
Briscoe, Kyle R. ....	278
Broster, John ....	267
Brown, Bryan ....	268
Brown, Patrick J. ....	342
Bruns, Dain ....	74, 313
Buck, Trace B. ....	208, 214
Budd, Chris M. ....	50
Budhathoki, Samikshya ....	106, 262
Bunchek, Jess M. ....	6, 270
Bunting, Jeffrey A. ....	240
Buratovich, Maria V. ....	49, 60, 63, 64, 65
Burgos, Nilda R. ....	32, 100, 146, 332, 333, 341

Burke, Ian C. ....	105, 330
Burns, Erin E. ....	28, 149
Burton, James D. ....	341
Butts, Thomas ....	193
Byrd, Jr., John D. ....	76, 78, 89, 237

## C

Cahoon, Charlie W. ....	54, 180
Carbonari, Caio A. ....	91, 123, 337
Carlson, Michael G. ....	135
Carpenter, Zac ....	164
Carr, Patrick ....	143
Carranza, Nelson M. ....	255
Carter, Oliver W. ....	179
Catchot, Angus ....	192
Cena, Maria E. ....	49, 60, 63, 64, 65
Chaganti, Vijay ....	346
Chahal, Parminder ....	14
Chamara, Buddhika S. ....	19
Chancrin, Guillaume ....	265
Chang, Sam ....	89
Chao, Wun S. ....	98
Chapman, Ellen ....	314
Chase, Carlene A. ....	320
Chaudhari, Sushila ....	69
Chauhan, Bhagirath S. ....	19, 147
Chen, Yin ....	148, 313
Chism, Bill J. ....	326
Cholette, Taïga B. ....	141
Cizdziel, James V. ....	336
Clark, Andrea ....	351
Clark, Shannon L. ....	186, 197, 223
Clay, Sharon ....	135, 173
Colquhoun, Jed ....	316
Conley, Shawn P. ....	353
Constantin, Jamil ....	178
Cope, Dale ....	347
Copeland, Drake ....	15, 249, 250
Coplin, Samuel B. ....	320
Cotie, Arlene ....	233
Cox, Ryan ....	262
Craft, Jordan M. ....	195
Crawford, Stephen ....	86
Culbreath, Albert K. ....	276
Culman, Steve ....	346
Curran, William ....	6, 61, 86, 137, 209, 270
Currie, Randall S. ....	277

Curtsinger, Casey D. ....	45, 47, 53, 138, 140, 216
Czarnota, Mark A. ....	75

## D

Da Silva, Paulo V. ....	186
Dahl, Gregory K. ....	348, 351
Dalla Valle, Natalino ....	255
Darnell, Rebecca ....	185
Davis, Adam S. ....	86, 204
Davis, Jerry W. ....	179
Davis, Savana ....	17, 192, 193
Dayan, Franck E. ....	13, 335, 337
de Avellar, Matheus ....	128
De Prado, Rafael ..... 21, 37, 38, 119, 121, 126, 127, 152	
de Souza, Larissa L. ....	262
Denton, Andrew B. ....	17, 42, 193
Dentzman, Katherine ....	254, 269, 271
Derr, Jeffrey ....	226
Dhakal, Suman ....	238
Dille, Anita ....	5, 272, 295
Disharoon, Andrew O. ....	341
DiTommaso, Antonio ....	137, 153, 296
Dittmar, Peter J. ....	185, 322
Dixon, Alfred ....	274
Dodds, Darrin M. ....	17, 42, 192, 193
Dogramaci, Munevver ....	98
Donelick, Andrew ....	62
Doohan, Douglas ....	148, 313, 314, 346
Dorn, Kevin M. ....	98
Dotray, Peter A. ....	3, 43, 92, 96, 138
Duecker, Rebecka ....	30
Duff, Stephen M. ....	111
Duke, Stephen O. ....	336
Dunne, Cheryl L. ....	74
Duwadi, Vrigu R. ....	238
Dyer, William E. ....	28, 149

## E

Edwards, Richard J. ....	314
Edwards, Ryan ....	348, 351
Ekeleme, Friday ....	274
Ellis, Paul ....	102
Elmore, Greg A. ....	211
Enloe, Stephen F. ....	171, 183, 196
Ervin, David E. ....	252, 254, 271
Etheredge, Luke ....	264
Everitt, John D. ....	3



Everman, Wesley J. .... 15, 18, 35, 44, 55, 95, 175, 190,  
249, 250, 252, 254, 269, 271, 300  
Ezell, Andrew W. .... 221, 222

## F

Farooq, Muhammad Hammad ..... 177  
Farrell, Shea T. .... 10, 11  
Farruggia, Frank ..... 242, 243  
Fawcett, Richard S. .... 318  
Feng, Paul ..... 40, 212  
Fennimore, Steven A. .... 266  
Ferguson, J Connor ..... 85, 244, 350  
Fernandez, Jose V. .... 36, 151  
Fernandez-Moreno, Pablo T. .... 21, 37, 38, 119, 121,  
126, 127, 152  
Ferrell, Jason ..... 151, 185, 279  
Figueiredo, Marcelo ..... 29  
Fischer, Albert J. .... 273  
Fitzner, Michael ..... 154, 156  
Fleming, Margareth ..... 144  
Flessner, Michael L. .... 54, 95, 132, 139, 175, 180, 215  
Fletcher, Reginald S. .... 66, 303  
Foley, Michael E. .... 98  
Forcella, Frank ..... 130  
Forster, Pete ..... 217  
Foster, Trae ..... 164  
Fowler Jr., John T. .... 192  
Franca, Lucas X. .... 17, 42, 192, 193  
Frene, Rafael L. .... 345  
Friebe, Bernd ..... 116  
Frisvold, George ..... 88, 205, 252, 254, 269, 271  
Fritz, Allan K. .... 150  
Frocella, Frank ..... 135  
Frost, Markah ..... 285  
Fuerst, E. Patrick ..... 344

## G

Gaines, Todd A. .... 13, 29, 51, 100, 144, 323, 335  
Gallandt, Eric ..... 268, 287  
Ganie, Zahoor A. .... 26  
Gannon, Travis ..... 24, 232  
Gavlick, Walter K. .... 159  
Gednalske, Joe V. .... 351  
Gesch, Russ W. .... 98, 130  
Ghaderi Far, Farshid ..... 119  
Ghantous, Katherine M. .... 87  
Gherekhloo, Javid ..... 119, 121, 127

Giacomini, Darci A. .... 331  
Gill, Bikram S. .... 116  
Gillilan, Jo A. .... 348, 351  
Giovanna, Gomes ..... 337  
Godar, Amar S. .... 58, 273  
Gomes, Giovanna L. .... 91, 123  
Graham, Michelle ..... 182  
Grainger, Chris ..... 259  
Gramig, Greta G. .... 68, 143  
Gray, Cody J. .... 181  
Green, Jeremy K. .... 338  
Grey, Tim L. .... 216  
Growe, Anthony M. .... 44  
Guertal, Beth ..... 8  
Guice, J. .... 256  
Gumm, Dustin ..... 168  
Gunsolus, Jeff ..... 252, 254, 269, 271

## H

Haak, David C. .... 180, 184, 235  
Hager, Aaron G. .... 353  
Haidar, Mustapha A. .... 283  
Hall, Linda M. .... 290  
Hamad, Saber W. .... 27  
Hanson, Bradley ..... 71, 72, 106, 261, 310  
Hanzlik, Kristin ..... 218  
Haramoto, Erin ..... 286, 294  
Haring, Steven C. .... 95, 175  
Harker, K. Neil ..... 289, 290  
Harre, Nick T. .... 145  
Haug, Erika ..... 170  
Hauser, Stefan ..... 274  
Hay, Marshall M. .... 5, 142  
Heap, Ian M. .... 33, 109, 328  
Heaton, Brent S. .... 131  
Hegedus, Paul ..... 260  
Heilman, Mark A. .... 169, 170  
Hembree, Kurt J. .... 73  
Hennigh, David S. .... 218, 220  
Herms, Catherine ..... 346  
Herrmann, Johannes ..... 292  
Hess, Martin ..... 292  
Hestir, Erin L. .... 190  
Hewitt, Andrew J. .... 350  
Hitchock Tilton, Sam ..... 133  
Hoagland, Robert E. .... 114, 301  
Hobbie, Erik ..... 282

Hogstad, Samantha K. .... 68, 143  
 Hooker, David C. .... 50, 134, 141  
 Horak, Michael ..... 233  
 Horvath, David P. .... 98  
 Hu, Chengsong ..... 313, 314  
 Huang, Yanbo ..... 306  
 Hulting, Andrew ..... 316  
 Hurley, Terrance ..... 269  
 Hurley, Terry ..... 252, 254, 271  
 Hwang, Jae-bok ..... 104

## I

Idowu, Omololu J. .... 9  
 Imaizumi, Toshiyuki ..... 340  
 Irby, Jon T. .... 192  
 Irmak, Suat ..... 14

## J

J, Anjani ..... 34, 327, 330  
 Jacono, Colette C. .... 183  
 Jain, Rakesh ..... 162  
 James, John R. .... 229  
 James, Matthew S. .... 344  
 James, Rosalind ..... 199, 206, 302  
 Jasieniuk, Marie ..... 109, 328  
 Jeffries, Matthew ..... 24, 232  
 Jennings, Katherine M. .... 69, 190, 191, 198  
 Jha, Prashant ..... 34, 62, 103, 327, 330  
 Jhala, Amit ..... 12, 14, 26, 136, 210  
 Jiang, Linjian ..... 325, 346  
 Jin, Lin ..... 343  
 Johnson, Eric N. .... 289, 290  
 Johnson, William G. .... 353  
 Johnson III, Wiley C. .... 276  
 Jones, Arnet ..... 326  
 Jordan, David L. .... 190, 198  
 Jorgensen, Niels ..... 167  
 Joseph, Dwayne D. .... 16  
 Jugulam, Mithila ..... 114, 116, 150  
 Jussaume, Raymond ..... 252, 254, 269, 271

## K

Kamkar, Behnam ..... 119  
 Keeling, J. Wayne ..... 3, 43, 92  
 Keith, Barbara K. .... 28, 118  
 Kerlen, Dirk ..... 265  
 Kessler, Kallie C. .... 51

Kiernan, Brian D. .... 82, 83  
 Kim, Chang-Seok ..... 99  
 Kleinhenz, Matthew ..... 346  
 Klodd, Annie ..... 86  
 Knezevic, Stevan ..... 136  
 Kniss, Andrew R. .... 122, 247  
 Kohlhase, Daniel ..... 182  
 Koo, Dal-Hoe ..... 116  
 Korieocha, Davidson ..... 274  
 Korres, Nicholas E. .... 117, 339  
 Kretzmer, Keith ..... 212  
 Kruger, Greg R. .... 164, 192, 193, 353  
 Kuepper, Anita ..... 29  
 Kumar, Vipin ..... 34, 62, 327, 330  
 Kumar, Virender ..... 19, 284

## L

LaForest, Martin ..... 259, 319  
 Lamb, Alyssa I. .... 84  
 Lamb, Eric G. .... 22  
 Landes, Andreas ..... 233  
 Larson, Christian ..... 258  
 Lastering, Cody A. .... 196  
 Lawas-Opeña, Jhoana ..... 284  
 Lawton-Rauh, Amy ..... 146, 332, 333, 341  
 Le, Duy ..... 255  
 le Goupil, Gael ..... 233  
 Le Thi, Hien ..... 104  
 Ledebuhr, Mark ..... 348  
 Lee, In-Yong ..... 99  
 Lee, Jeongran ..... 31, 99  
 Lehnhoff, Erik A. .... 7, 80, 149, 258  
 Leiva Soto, Andrea S. .... 314  
 Leland, Shane ..... 34, 327  
 Leon, Ramon G. .... 207, 229, 279  
 Leoni, Alejandro ..... 126  
 Lerchl, Jens ..... 219  
 Li, Steve ..... 8, 207  
 Li, Zhaohu ..... 325, 346  
 Li, Zhenyi ..... 51  
 Liebl, Rex ..... 218, 219, 220  
 Lim, Charlemagne A. .... 34  
 Lindquist, John ..... 12, 136  
 Lingenfelter, Dwight ..... 61, 86  
 Lonesome, Malambo ..... 347  
 Losey, John ..... 137  
 Loughner, Dan ..... 227, 228



Louws, Frank J. ....	198
Lovelace, Mike .....	43
Lutcher, Larry .....	129
Lym, Rodney G. ....	202
Lyon, Drew .....	330

## M

MacDonald, Gregory E. ....	151, 185
MacInnes, Alison .....	160, 352
Mackey, David M. ....	343
Maddox, Victor L. ....	76
Madsen, John D. ....	200
Mallory-Smith, Carol .....	316
Mangold, Jane .....	80
Mankin, Luke .....	218, 219, 220
Mann, Richard K. ....	255
Manuchehri, Misha R. ....	56
Marahatta, Santosh .....	238
Marambe, Buddhi .....	19
Marks, M. David .....	98
Marquez, Israel .....	94
Marshall, Michael W. ....	16, 48
Maul, Jude E. ....	336
Maxwell, Bruce D. ....	260, 305
McCauley, Cara L. ....	189
McCloskey, William B. ....	114, 172
McCurdy, James D. ....	120
McDermott, Laura G. ....	87
McElroy, Joseph .....	8
McGinty, Josh .....	264
McGowen, Samuel J. ....	191
McKenzie-Gopsill, Andrew .....	280, 281
Mehl, Hillary .....	235
Meiman, Paul J. ....	223
Menalled, Fabian D. ....	149
Mendes, Kassio F. ....	25
Menendez-Calle, Julio .....	152
Menzer, Seth .....	116
Meyer, George E. ....	304
Michielsen, Larry A. ....	289
Mietzner, Thomas .....	219
Migo, Teodoro .....	284
Miller, Brett .....	162
Miller, Christopher .....	77
Miller, Doug .....	86
Miller, Robert T. ....	50
Miller, Timothy W. ....	317

Mills, Anthony .....	42
Mirsky, Steven .....	95, 137, 175, 209
Molin, William T. ....	90, 101, 112, 113, 114
Monks, David W. ....	69, 190, 191, 198
Montserrat, Rodrigo .....	21
Morell, Mauricio .....	255
Moretti, Marcelo L. ....	353
Morgan, Gaylon D. ....	264
Morris, Edward .....	70
Mortensen, David A. ....	6, 157, 270
Moses, Adrian J. ....	162
Mueller, Thomas C. ....	293, 297, 298
Mulvaney, Michael .....	279
Murray, Leeland M. ....	7

## N

Namuco, Ofelia .....	284
Nandula, Vijay K. ....	59, 90, 101, 107, 108, 109, 110, 112, 116, 120, 124, 330, 331
Naunheim, Hans-Peter .....	265
Nichols, Robert L. ....	234, 332, 341
Nissen, Scott J. ....	51, 144, 181, 186, 197, 223
Nolte, Scott A. ....	46
Noorai, Rooksana E. ....	332, 333
Norris, Robert F. ....	236
Norsworthy, Jason K. ....	96, 117, 234, 251, 252, 254, 269, 271, 291, 338, 339, 353
Norton, Nicholas .....	224
Nugent, Paul .....	62
Nurse, Rob E. ....	213, 259, 263, 319

## O

O'Sullivan, John .....	67
Obear, Glen .....	93
Obeid, Kristen .....	319
Obrigawitch, Tim .....	233
Odenkirchen, Edward .....	242, 243
Odero, Dennis C. ....	36, 151
ODonnell, Chris C. ....	350
ODonovan, John T. ....	289
Okello, Edward J. ....	27
Okubara, Patricia A. ....	344
Oliveira, Claudia .....	32, 100
Oliveira Jr, Rubem S. ....	178
Olorunmaiye, Patience M. ....	274
Olson, Gene L. ....	20
Omielan, Joe .....	168

Ortiz, Mirella F. ....	181
Oseland, Eric G. ....	1, 10, 11
Osuna, Maria D. ....	37, 38
Ou, Junjun ....	150
Overstreet, Anne ....	242, 243
Owen, Micheal ....	182, 252, 254, 269, 271
Owens, Daniel ....	337

## P

Page, Eric R. ....	213, 259, 263, 281, 319
Painter, Kathleen ....	224
Park, Inkon ....	31
Park, Kee Woong ....	31, 99, 104
Park, Sang Un ....	104
Park, Yun Ji ....	104
Parra, Liliana ....	220
Parrish, Jason T. ....	343
Perez-Jones, Alejandro ....	40
Perkins, Russ ....	92
Perry, Hunter ....	255
Peters, Bodo ....	292
Peterson, Dallas E. ....	5, 142, 272
Peterson, Daniel ....	110
Peterson, Mark A. ....	233
Peterson, Robert W. ....	45, 47, 53, 138, 140, 216
Peterson, Vanelle F. ....	227, 228
Petinga, Dean ....	100
Phillippo, Colin J. ....	311, 312
Picapietra, Gabriel ....	49, 60, 63, 64, 65
Pittman, Kara B. ....	132, 139, 215
Piveta, Leonard ....	32
Plumlee, Michael T. ....	17, 42, 192, 193
Pollard, Anne T. ....	344
Popescu, Sorin C. ....	347
Porter, Don ....	162, 217
Post, Angela R. ....	56
Potter, Christopher S. ....	307
Powell, Gary E. ....	57
Powles, Stephen B. ....	323
Prasad, Raj R. ....	79
Prather, Timothy ....	224
Pratt, Paul ....	201
Preston, Christopher ....	29
Price, Andrew J. ....	8, 39
Probst, Michael A. ....	2
Prostko, Eric P. ....	179, 349
Pussetto, Federico ....	21

## R

Raeder, Alan J. ....	105
Rains, Glen C. ....	349
Rajcan, Istvan ....	259
Rana, Aman ....	347
Rana, Neha ....	212
Rana, Sandeep ....	194, 225
Randhawa, Ranjeet S. ....	54, 180
Ravet, Karl ....	144
Ray, Jeffrey ....	107, 110, 331
Rayamajhi, Min B. ....	299
Rector, Ryan J. ....	161
Reddy, Gadi V. ....	103
Reddy, Krishna N. ....	66, 303, 306, 330, 336
Reed, Thomas V. ....	315
Reeves, Julie ....	41
Refatti, Joao Paulo ....	32
Refsell, Dawn ....	233
Reid, Patty L. ....	289
Reiners, Stephen ....	153
Reinhardt, Theresa A. ....	18, 250
Renner, Karen A. ....	4, 285
Renz, Mark J. ....	167
Rew, Lisa J. ....	80, 258
Reynolds, Daniel B. ....	42, 164, 187, 192, 353
Rhodes, A. ....	256
Richardson, Robert J. ....	170
Richter, Otto ....	292
Riddle, Rachel N. ....	67
Riddle, Tiffany R. ....	304
Rimando, Agnes M. ....	336
Rios, Sonia ....	106
Robinson, Darren E. ....	50, 51, 134, 141
Rodgers, LeRoy ....	308
Rodrigues Alves, Marcelo ....	51
Rodriguez, Marianela ....	110
Rogers, Kelsey M. ....	4, 57
Rojano-Delgado, Antonia M. ....	152
Roldan-Gomez, Rafael ....	37, 38
Rouse, Christopher E. ....	100, 146, 333
Rubione, Claudio G. ....	253
Russell, David P. ....	78, 237
Russell, Kyle R. ....	3
Ryan, Matthew ....	137, 209

## S

Saini, Monika ....	324, 420, 531, 558
--------------------	--------------------

Sadeque, Ahmed .....	342
Sah, Shrawan .....	238
Saini, Monika .....	217
Salas, Reiofeli A. ....	32, 332
Sammons, Doug .....	111
Samples, Chase A. ....	17, 42, 192, 193
Sanchez, Adriana .....	9
Sanders, Colton H. ....	48
Sandler, Hilary A. ....	87
Sankula, Sujatha .....	82, 83
Santos, Ericmar .....	120
Sarangi, Debalin .....	210
Sasidharan, Rajkumar .....	110
Saski, Chris .....	113, 146, 332, 333
Sbatella, Gustavo M. ....	81, 275
Scarpin, Jessica .....	181
Schellenberg, Michael P. ....	22
Scherrer, Bryan .....	62
Schraer, Stephen M. ....	217
Schrage, Brandon .....	35
Schryver, Mike G. ....	134
Schultheis, Jonathan R. ....	198
Schultz, J. ....	256
Schulz, Burkhard .....	23
Schutte, Brian J. ....	7, 9, 70, 94
Schwartz, Lauren M. ....	96, 291, 338
Scott, David E. ....	241
Scott, Robert .....	32, 251
Sebastian, Derek J. ....	186, 197, 223
Segobye, Kabelo .....	23
Seiser, Tobias .....	220
Self, Andrew B. ....	221, 222
Sellers, Brent .....	151
Senseman, Scott A. ....	297
Serajchi, Mostafa .....	22
Sexton, Frank .....	93
Shannon, Donald .....	11
Sharma, Gourav .....	108, 120, 174
Sharpe, Shaun M. ....	185
Shaw, David .....	110, 187
Shaw, Joe .....	62
Sheley, Roger .....	203
Shergill, Lovreet S. ....	329
Shevchuk, Oleg .....	255
Shilling, Donn .....	158
Shinn, Sandra .....	233
Shirliffe, Steven J. ....	289

Shoup, Douglas E. ....	142
Shrestha, Anil .....	73, 106, 115, 238, 262
Shrestha, Govinda .....	103
Shrestha, Swati .....	176
Siahmarguee, Asieh .....	121
Sikkema, Peter H. ....	50, 51, 134, 136, 141
Simard, Marie-Josée .....	213, 263, 319
Simon, Anja .....	218
Sing, Sharlene E. ....	77, 97
Singh, Vijay .....	96, 264
Skelton, Joshua J. ....	348
Smeda, Reid J. ....	37, 38, 152
Smith, Alyssa L. ....	184
Smith, Kenneth .....	234
Smith, Richard G. ....	282
Snow, Allison A. ....	102, 343
Soltani, Nader .....	50, 51, 134
Soni, Neeta .....	144
Sosnoskie, Lynn M. ....	71, 72, 261, 310
Souza, Luiza P. ....	125
Spandl, Eric P. ....	351
Spokas, Kurt A. ....	25
Sprague, Christy L. ....	2, 4, 57
Spring, John F. ....	330
Srivastava, Subodh .....	332, 333
Sroka, Elizabeth A. ....	289
Stahlman, Phillip W. ....	150, 277
Stallworth, Shandrea D. ....	188
Stapleton, Gregory S. ....	39
Steckel, Lawrence E. ....	41, 165, 331, 353
Steckel, Sandy .....	41
Steinhauer, Katrina M. ....	106, 115, 262
Stephenson, Daniel .....	208, 214
Sterling, Tracy .....	118
Stetina, Kenneth C. ....	301
Stevenson, F. Craig .....	290
Strek, Harry J. ....	265, 292
Sun, Susan .....	245
Sutherland, Carol A. ....	7
Swanton, Clarence J. ....	280, 281

## T

Tabasso, Rodrigo .....	126
Taheri, Mohammad .....	121
Takano, Hudson K. ....	178
Tan, S. ....	256
Tardif, Francois .....	259

Taylor, Alesa .....	89
Taylor, Seth L. ....	3, 43, 92
Teeter, Dylon L. ....	45, 47, 53, 138, 140, 216
Tehranchian, Parsa .....	109, 328
Tekiela, Daniel R. ....	257
Thapa, Arun .....	238
Thomasson, Alex .....	347
Thompson, Curtis R. ....	5, 116, 277
Thompson, Dave G. ....	76
Thorne, Nolan H. ....	78
Tidemann, Breanne D. ....	289, 290
Tiemann, Lisa .....	285
To, Mala .....	106
Todd, Olivia .....	13
Tornisielo, Valdemar L. ....	25
Tranel, Patrick J. ....	134, 331, 342
Tredaway-Ducar, Joyce .....	39
Tresch, Stefan .....	219
Trower, Tim .....	162
Trower, Zach .....	10
Tseng, Te-Ming Paul .....	108, 120, 174, 176, 187, 188
Turley, Rickie B. ....	66
Twelker, Sasha .....	81
Tyler, Heather L. ....	124

## U

Umeda, Kai .....	230
Usman, Hughes .....	274
Ustarroz, Diego .....	21

## V

Vail, Gordon D. ....	74
Valasek, John .....	347
Valencia, Katherine P. ....	284
Van Acker, Rene C. ....	51, 67
Van De Stroet, Brian M. ....	173
VanGessel, Mark J. ....	6, 114, 270, 288
Velini, Edivaldo D. ....	91, 123
Verbiest, Marc .....	265
Vinod, Shivrain .....	31
Vollmer, Kurt M. ....	288
Voss, Steven .....	40

## W

Waldschmidt, Matthew D. ....	191
Walker, III, James C. ....	187
Wallace, John M. ....	6, 209, 224, 270

Walsh, Michael J. ....	267, 291
Ward, Sarah M. ....	77, 97
Warren, Nicholas .....	282
Watson, Philip .....	224
Wechsler, Seth .....	269, 271
Wedryk, Stephanie .....	348
Welcher, Seth .....	252
Weller, Stephen C. ....	23, 145, 274, 316
Werle, Rodrigo .....	12, 128, 131
Westberg, D. ....	256
Westra, Philip .....	51, 144, 335
Westwood, James H. ....	54, 155, 180, 235
Whalen, Derek M. ....	10
White, Peter H. ....	67
Wilcockson, Stephen S. ....	27
Wilen, Cheryl .....	231
Willenborg, Christian J. ....	289
Williams, Jacob P. ....	8
Williams, Linda D. ....	20
Williams II, Martin M. ....	321, 336
Wilson, Bradley R. ....	17, 192, 193
Wilson, Erin E. ....	120
Wilson, Patrick C. ....	151, 315
Wilson, Robert .....	316
Witschel, Matthias .....	218, 219
Won, Ok Jae .....	31, 104
Wood, Joseph .....	94
Wood, Wes .....	279
Woolam, Brandi C. ....	208, 214
Wortman, Sam .....	135
Wright, Alice A. ....	101, 110, 112
Wyse, Don .....	130

## Y

Yadav, Mayank .....	255
Yang, Pahoua .....	262
Yang, Xiao .....	343
Yerka, Melinda K. ....	12
Yeyin, Shi .....	347
York, Alan C. ....	15
Youmans, Clete D. ....	256
Young, Bryan G. ....	93, 145, 189, 239, 246, 353
Young, Julie M. ....	353
Young, Neil G. ....	229
Young, Steve .....	309
Youngerman, Connor Z. ....	137
Yue, Ziming .....	174

## Z

Zandstra, Bernard H. ....	311, 312
Zhang, Yan .....	89
Zhao, Wanying .....	343
Ziggafoos, Jake J. ....	12
Zuidhof, Jennifer A. ....	289

## 2016-2017 WSSA Board of Directors

**President:** Kevin Bradley (2016), University of Missouri, 201 Waters Hall, Columbia, MO 65211

**President-Elect:** Janis McFarland (2016), Syngenta Crop Protection, 410 Swing Rd., Greensboro, NC 27409

**Vice-President:** Scott Senseman (2016), University of Tennessee, 2434 Joe Johnson Drive, 252 Ellington Plant Building, Knoxville, TN 37996

**Past-President:** Dallas Peterson (2016), Kansas State Univ., 2014 Throckmorton Hall, Manhattan, KS 66506

**Secretary:** Hilary Sandler, (2018) UMASS Cranberry Station, PO Box 569, East Wareham, MA 02538

**Treasurer:** Rick Boydston (2018), USDA-ARS, 24106 N. Bunn Rd., Prosser, WA 99350

**Director of Publications:** Sarah Ward (2019), Colorado State Univ., C-127 Plant Science Bldg., Ft. Collins, CO 80523

**Constitution and Operating Procedures:** (2019) Mark Bernards, Western Illinois University, 1 University Circle, Macomb, IL 61455

**Member-at-Large:** Bryan Young (2019), Purdue University, Lilly Hall of Life Sciences, West Lafayette, IN 47907

**Member-at-Large:** Andrew Kniss (2018) Univ. of Wyoming, 1000 E. University Ave., Laramie, WY 82071

**Director of Science Policy:** Lee Van Wychen, National and Regional Weed Science Societies, 5720 Glenmullen Pl., Alexandria, VA 22303

**Graduate Student Representative:** Nick Basinger (2017) North Carolina State University, Raleigh, NC 27606

**Aquatic Plant Management Society:** Rob Richardson (2017), NC State University, 4401B Williams Hall, Raleigh, NC 57695

**CWSS:** Eric Page (2017), Agriculture and Agri-Food Canada, 2585 County Rd 20, Harrow, ON N0R 1G0

**NCWSS Representative:** Reid Smeda (2018), University of Missouri, 204 Waters Hall, Columbia, MO 65211

**NEWSS Representative:** Prasanta Bhowmik (2017) University of Massachusetts, Stockbridge Hall, Amherst, MA 01003

**SWSS Representative:** Eric Palmer (2017) Syngenta Crop Protection, 410 Swing Rd., Greensboro, NC 27409

**WSWS Representative:** Marty Schraer (2017), Syngenta, 152 E Cassidy Dr., Meridian, ID 83646

**Executive Secretary:** Joyce Lancaster, Allen Press, Inc., 810 East 10th Street, Lawrence, KS 66044-7050

## PERSONAL TIME SCHEDULE

Time	Monday	Tuesday	Wednesday	Thursday	
7:30					
8:00		Poster Session	Poster Session		
8:15					
8:30					
8:45					
9:00					
9:15					
9:30					
9:45					
10:00					
10:15					
10:30					
10:45					
11:00					
11:15					
11:30					
11:45					
Noon					
1:00					
1:15					
1:30					
1:45					
2:00					
2:15					
2:30					
2:45					
3:00					
3:15					
3:30					
3:45					
4:00					
4:15	General Session and Awards Presentation				
4:30					
4:45					
5:00					
5:15			WSSA Business Meeting		
5:30					
5:45					
6:00	WSSA Awardee Reception				
6:15					
6:30					
6:45					
7:00					
7:15					
7:30					
7:45					
8:00					
8:15					
8:30					
8:45					



## NOTES