WSSA

2020 Annual Meeting
Joint Meeting w/ WSWS
March 2-5, 2020
Maui, HI

2021 Annual Meeting
February 11-19, 2021
San Antonio, TX
WEED SCIENCE SOCIETY OF AMERICA
Fifty-Ninth Meeting

2019 MEETING PROGRAM
Sheraton New Orleans
New Orleans, LA

February 11-14, 2019
WSSA Sustaining Members

**PRESIDENTIAL**
- BASF Corporation
- Bayer Crop Science
- Corteva Agrisciences
- Syngenta Crop Protection

**LEADERS**
- Helena Chemical
- Valent USA
- Winfield United

**PATRONS**
- Nufarm Americas, Inc.
- United Phosphorus, Inc.
- Gylling Data Management, Inc.
- Marrone Bio Innovations, Inc.

**CONTRIBUTORS**
- AMVAC Chemical Corp
- FMC Corporation
- Greenleaf Technologies
- ISK Biosciences Corp
- Nichino American, Inc.
- TeeJet Technologies
- Nippon Soda Ltd
- Oxiteno USA
- Pentair-Hypro
- ABG Ag Services
- Adjuvants Plus, Inc.
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- Conviron
- Gandy Corporation
- Gowan Company
- Heartland Technologies
- Lehigh Agri & Bio Services, Inc.
- Minnesota Valley Testing Lab
- SePRO
- TKI NovaSource

*________ denotes paid 2019*
59th Meeting
Weed Science Society of America

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Local Arrangements Committee 2019 – New Orleans
Co-Chairs .................. Eric Webster, Daniel Stephenson
The WSSA 2019 Program

Welcome to the 2019 Weed Science Society of America (WSSA) Annual Meeting at the Sheraton New Orleans Hotel. The venue is outstanding and close to many interesting attractions in New Orleans. Pre-conference events include a tour of the National WWII Museum and the Mardi Gras World Tour.

The General Session and WSSA Awards Ceremony will begin Monday, Feb 11th at 4:00 PM in the Napoleon Ballroom. Our General Session will begin with a welcome and opening remarks from Mike Strain, the Commissioner of the Louisiana Department of Agriculture. Dr. Scott Senseman will also be providing a presidential address to the membership after an exciting and eventful year as the WSSA President.

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. 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.

We are again conducting MS and PhD student poster and oral presentation contests. All of the student contests will be conducted on Tuesday. We have a great lineup of Symposia during the conference and appreciate the enthusiasm of our membership in submitting more topic areas than we could accommodate. Look forward to some additional great topics next year. For this year, beginning on Tuesday and going through Thursday, we are going to have six symposia related to important and impactful subjects that are needing attention in Weed Science. These include: 1) Herbicide Banning: An International Forum, 2) Weed Seeds, Phytosanitary Restrictions and Trade Implications, 3) Understanding Current Status and Implications of Herbicide Resistant Weeds in Turfgrass, Ornamental and Nursery Crops, 4) Integrated Weed Management Approach to Addressing Herbicide Resistance in US Field Crop Production Regions, 5) Long Term Effects of Urbanization of the Population of a Country on the Subsequent Regulation of Agriculture and 6) Weather and the Environment: Understanding the Basics to Better Address Off-Target Pesticide Movement. We will also have a Teaching Workshop again this year on Thursday...
morning. The WSSA Business meeting and the student contest awards will be held from 5:00 – 6:45 p.m. on Wednesday evening. We hope that all members will attend to participate in the decision-making process on societal issues and board activities going into 2019.

Special thanks to our local arrangement co-chairs, Dr. Eric Webster and Dr. Daniel Stephenson. Both have been great to work with as we finalized plans for this meeting. I would also like to thank Dr. Marty Schraer and Dr. Darrin Dodds for their help in organizing the student contests. Thanks also to Dr. Scott Senseman for his help and guidance in preparing the program. We had a tremendous group of loyal and committed folks who provided great ideas on symposia this year as well as section chairs who have provided a great deal of help in organizing sections. Thanks to all of you. Finally, I would like to thank my co-program chair, Dr. Bill Curran, and our meeting manager and executive secretary, Eric Gustafson, 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 look forward to a productive and rewarding meeting.

Larry Steckel
Program Chair and President-Elect
2019 Program Committee

General Program Chair .................................. Larry Steckel
Vice Chair .................................................. William Curran
Agronomic Crops ............................................. Neha Rana
Horticultural Crops ........................................ Katie Jennings
Turf and Ornamentals ................................. Prasanta Bhowmik
Pastures, Rangelands, Forests, & Rights of Way .................................. Joe Omielan
Wildland and Aquatic Invasives .................. Chris Mudge
Regulatory Aspects ......................................... Monty Dixon
Teaching and Extension ................................. Jatinder Aulakh
Formulation, Adjuvant, & Application Technology ......................

Weed Biology and Ecology ................................... Vijay Singh
Biocontrol of Weeds ........................................ Min Rayamajhi
Physiology ..................................................... Christopher Rouse
Soil and Environmental Aspect ....................... Paul Te-Ming Tseng
Integrated Weed Management ......................... Harry Strek
Sustaining Member Exhibits Session .................. Steve Gyling
Poster Sessions ................................................ Pratap Devkota
Student Contest ............................................. Marty Schraer

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.

Posters and Sustaining Member Exhibits

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

SATURDAY, February 9
7:00 a.m. – 5:00 p.m.
WSSA Board of Directors....................... Oak Alley

SUNDAY, February 10
7:00 a.m. – Noon
WSSA Board of Directors..........................Oak Alley
1:00 p.m. – 5:00 p.m.
NIFA Fellow Advisory Committee..................Oak Alley

MONDAY, February 11
7:00 a.m. – 8:00 a.m.
WSSA Board and Committee Chairs Breakfast
........................................................................Southdown
8:00 a.m. – 9:00 a.m.
Weed Science Editorial Board (P2) .................Oakley
8:00 – 10:00 a.m.
Science Policy Committee (E2) .....................Oak Alley
9:00 a.m. – 10:00 a.m.
Endowment Fund Committee (F3) .................Gallier A/B
9:00 a.m. – 10:00 a.m.
Weed Technology Editorial Board (P3) ..........Oakley
10:00 a.m. – 12:00 noon
Herbicide Resistance Education (E12b) ........ Oak Alley
10:00 a.m. – 11:00 a.m.
Professional Development (F4) .................Gallier A/B
10:00 a.m. – 11:00 a.m.
Constitution & Operating Procedures (W10)
........................................................................Southdown
10:00 a.m. – 11:00 a.m.
Biological Control of Weeds (W16) ..........Edgewood A/B
10:00 a.m. – 11:00 a.m.
IPSM Editorial Board (P4) .........................Oakley
11:00 p.m. – 12:00 noon
Weed Loss Committee (E11) ....................Edgewood A/B
11:00 p.m. – 12:00 noon
Formulation, Adjuvant, and Application Technology Committee (W15) .........................Gallier A/B
11:00 a.m. – 12:00 noon
Publications Board (P1) .........................Oakley
1:00 p.m. – 2:00 pm
Website Committee (E14) .........................Oak Alley
1:00 p.m. – 2:00 p.m.
Sustaining Member Committee (F5) ........Edgewood A/B
1:00 p.m. – 2:00 pm
Extension Committee (W11) .......................Gallier A/B

1:00 p.m. – 4:00 p.m.
IWSS Board of Directors ......................... Oakley

2:00 p.m. – 3:00 p.m.
Herbicide Resistant Plants (E12) ............... Oak Alley

2:00 p.m. – 3:00 p.m.
Extension Award Subcommittee (W3b) ....... Southdown

3:00 p.m. – 4:00 p.m.
Herbicides for Minor Use (E10) ............... Gallier A/B

TUESDAY, February 12
7:00 a.m. – 9:00 a.m.
Public Awareness (E13) ......................... Southdown

12:00 p.m. – 1:00 p.m.
Environmental Aspects (E8) ........................ Southdown

12:00 p.m. – 2:00 p.m.
Women in Weed Science Luncheon ............ Oak Alley

5:00 p.m. – 6:00 p.m.
Federal Noxious and Invasive (E4) .............. Southdown

5:30 p.m. – 6:30 p.m.
IWSS General Session ............................ Oak Alley

WEDNESDAY, February 13
6:30 a.m. – 8:00 a.m.
President’s Breakfast with Regional Presidents.............
........................................................................ Southdown

7:00 a.m. – 9:00 a.m.
Finance Committee (F2) .......................... Southdown

12:00 noon – 2:00 p.m.
Graduate Student Workshop/ Luncheon ........ Oak Alley

12:00 noon – 1:00 p.m.
Standardized Plant Names (P22b) .............. Southdown

5:15 p.m. – 7:00 p.m.
WSSA Business Meeting/ Student Awards ........ Oak Alley

THURSDAY, February 14
7:00 a.m. – 9:00 a.m.
Research and Competitive Grants (E6) ........ Southdown

7:00 a.m. – 9:00 a.m.
Graduate Students Breakfast/ Seminar ........ Oak Alley

1:00 pm – 5:30 p.m.
Board of Directors .................................. Oak Alley
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 2019 PROGRAM

SATURDAY MORNING, February 9
7:00 a.m. – 5:00 p.m.
WSSA Board of Directors............................... Oak Alley

SUNDAY MORNING, February 10
7:00 a.m. – 12:00 noon
WSSA Board of Directors............................... Oak Alley
9:00 a.m. – 11:00 a.m.
Mardi Gras Tour........................................... Hotel Lobby
12:00 noon – 3:00 p.m.
The National WWII Museum Tour .............. Hotel Lobby

MONDAY, February 11
7:00 a.m. – 8:00 a.m.
WSSA Board & Committee Chairs Breakfast
............................................................. Southdown
9:00 a.m. – 3:30 p.m.
Registration................................................. Napoleon Foyer
4:00 p.m. – 6:00 p.m.
General Session and WSSA Awards Presentations
.....................................................Napoleon Ballroom B123
6:00 p.m. – 8:00 p.m.
Welcome and Awardee’s Reception (open to all attendees and registered guests) ................. Armstrong Foyer

TUESDAY, February 12
6:30 a.m. – 7:45 a.m.
Student Contest Judges Meeting & Breakfast
............................................................. Oak Alley
7:00 a.m. – 5:00 p.m.
Registration................................................. Napoleon Foyer
7:45 a.m. – 6:00 p.m.
Contest Judges Work Room............................ Poydras
8:00 a.m. – 10:00 a.m.
Poster Session ...................................... Napoleon Ballroom D123
(Authors of even numbered posters will present)
8:00 a.m. – 5:00 p.m.  
Sustaining Member Exhibits  
............................................ Napoleon Ballroom D123

10:15 a.m. – 4:00 p.m.  
WSSA Student M.S. Oral Contest Session I  
............................................. Napoleon Ballroom C2

10:15 a.m. – 2:30 p.m.  
WSSA Student M.S. Oral Contest Session II  
............................................. Napoleon Ballroom C3

10:00 a.m. – 5:00 p.m.  
WSSA Student Ph.D. Oral Contest Session I  
............................................. Napoleon Ballroom A2

10:15 a.m. – 5:00 p.m.  
WSSA Student Ph.D. Oral Contest Session II  
............................................. Napoleon Ballroom A3

10:00 a.m. – 5:00 p.m.  
Posters on display without authors  
............................................. Napoleon Ballroom D123

8:00 a.m. – 2:00 p.m.  
Symposium: Herbicide Banning: An International Forum  
............................................. Napoleon Ballroom B123

8:00 a.m. – 5:00 p.m.  
Agronomic Crops  
............................................. Borgne

8:00 a.m. – 11:30 a.m.  
Wildland and Aquatic Invasive Plants  
............................................. Maurepas

11:30 a.m. – 12:00 noon  
Pasture, Range, Forest, ROW  
............................................. Maurepas

1:00 p.m. – 3:00 p.m.  
Turf and Ornamental Crops  
............................................. Maurepas

3:15 p.m. – 5:00 p.m.  
Symposium: Weed Seed in Grain Samples and Trade  
............................................. Napoleon Ballroom B123

5:30 p.m. – 7:00 p.m.  
IWSS General Session  
............................................. Oak Alley

**WEDNESDAY, February 13**

7:00 a.m. – 8:00 a.m.  
WSSA & Regional Presidents Breakfast  
............................................. Oak Alley

7:30 a.m. – 4:00 p.m.  
Registration  
............................................. Napoleon Foyer

8:00 a.m. – 10:00 a.m.  
Poster Session  
............................................. Napoleon Ballroom D123  
(Authors of odd-numbered posters will present)

8:00 a.m. – 5:00 p.m.  
Posters on display without authors  
............................................. Napoleon Ballroom D123
8:00 a.m. – 5:00 p.m.
Sustaining Members Exhibits

Napoleon Ballroom D123

8:00 a.m. – 10:15 a.m.
Agronomic Crops

Borgne

8:00 a.m. – 3:00 p.m.
Weed Biology & Ecology

Maurepas

8:00 a.m. – 11:45 a.m.
Integrated Weed Management

Napoleon Ballroom A123

8:00 a.m. – 12:00 noon

Symposium: Herbicide Resistant Weeds in Turf, ornamental and Nursery

Napoleon Ballroom B123

8:00 a.m. – 4:30 p.m.

Symposium: Integrated Weed Management to Address Weed Resistance

Napoleon Ballroom C123

12:00 noon – 2:00 p.m.

Graduate Student Luncheon/ Workshop

Oak Alley

1:00 p.m. – 3:00 p.m.
Teaching and Extension

Napoleon Ballroom A123

1:00 p.m. – 5:00 p.m.

Symposium: Ag Regulation as Affected by Urbanization of a Country

Napoleon Ballroom B123

3:15 p.m. – 4:15 p.m.
Travel Enrichment Experience

Napoleon Ballroom A123

4:30 p.m. – 5:00 p.m.

Regulatory Aspects

Napoleon Ballroom A123

4:00 p.m. – 5:00 p.m.
Horticultural Crops

Maurepas

5:15 p.m. – 6:45 p.m.
WSSA Business Meeting & Student Contest Awards

Oak Alley

THURSDAY, February 14

6:30 a.m. – 8:00 a.m.
Grad Student Breakfast/ Seminar

Oak Alley

8:00 a.m. – 10:00 a.m.
Registration

Napoleon Foyer

8:00 a.m. – 11:00 a.m.
Posters on display without authors

Napoleon Ballroom D123

8:00 a.m. – 11:00 a.m.
Sustaining Members Exhibits

Napoleon Ballroom D123

8:00 a.m. – 11:15 a.m.
Formulation, Adjuvant and Application Technology

Borgne
8:00 a.m. – 11:30 a.m.
Horticultural Crops ........................................Maurepas

8:00 a.m. – 11:00 a.m.
**Symposium: Weather and the Environment: Understanding the Basics to Address off Target Pesticides** ............................................................Napoleon Ballroom B123

8:00 a.m. – 10:00 a.m.
**Teaching Workshop** ...................... Napoleon Ballroom C123

1:00 p.m.
.................................................Remove Posters and Exhibits

1:00 p.m. – 5:30 p.m.
WSSA Board of Directors ................... Oak Alley
PROGRAM

MONDAY AFTERNOON  FEBRUARY 11

General Session

LOCATION: Napoleon Ballroom B123
TIME: 4:00 PM - 6:00 PM
CHAIR/ MODERATOR: Lawrence Steckel
University of Tennessee
Jackson, TN
CO-CHAIR: William Curran
Penn State University
Bozeman, MT

*SPEAKER

4:00 Introductions and Announcements. L. Steckel*;
University of Tennessee, Jackson, TN

4:05 International Weed Science Congress Update.
Chanya Maneechote*; Weed Science Society of
Thailand

4:10 Keynote: Louisiana Department of Agriculture:
The next 10 years. Mike Strain*; Commissioner
Louisiana Department of Agriculture, Baton Rouge,
LA

4:40 Presidential Address. S. Senseman*; Syngenta Crop
Protection, Greensboro, NC

5:00 Presentation of Awards. D. Lingenfelter*; Penn State
University, University Park, PA

5:40 Presentation of Fellow and Honorary Member
Awards. K. Reddy*; USDA-ARS Crop Production
Systems Res Unit, Stoneville, MS

6:00 WSSA Awardee Reception and Member Social. L.
Steckel*; University of Tennessee, Jackson, TN
**MONDAY AFTERNOON  FEBRUARY 11**

**WSSA Welcome Reception**

LOCATION: Armstrong Foyer  
TIME: 6:00 PM - 8:00 PM  
CHAIR: Steve Gylling, Gylling Data Management

**TUESDAY to THURSDAY FEBRUARY 12-14**

**WSSA Sustaining Member Exhibit Session**

Location: Napoleon Ballroom D123

Chair: Steve Gylling, Gylling Data Management

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

**TUESDAY to THURSDAY FEBRUARY 12-14**

**POSTER SESSIONS**

Location: Napoleon Ballroom D123

Chair: Pratap Devkota, University of California

Posters may be set up on Monday from 12:00 noon until 3 p.m. and must be removed by 1:00 p.m. on Thursday.
Poster Contest - MS Students

Location: Napoleon Ballroom D123

Chair: Pratap Devkota, University of California

*PRESENTER  † STUDENT POSTER CONTEST

†Effect of Late Season Herbicide Application Seed Production of Glyphosate-resistant Palmer Amaranth. J. H. Scarparo de Sanctis*¹, A. J. Jhala; ¹University of Nebraska Lincoln, Lincoln, NE (1)

Droplet Size Effects on Italian Ryegrass (Lolium multiflorum) Control in Mississippi Corn (Zea mays). M. T. Wesley¹, Z. R. Treadway*², J. Ferguson², J. A. Bond³, E. J. Larson⁴; ¹Mississippi State University, MS State, MS, ²Mississippi State University, Mississippi State, MS, ³Delta Research and Extension Center, Stoneville, MS, ⁴Mississippi State University, Starkville, MS (2)

†Effect of Soil-Applied Herbicide Timing on Cover Crop Establishment. J. Calhoun*¹, D. B. Reynolds; ¹Mississippi State University, Starkville, MS (3)

†Effects of Pesticide Seed Treatments and Tillage on Amaranthus spp. S. A. Palmer*, R. G. Smith, N. Warren; University of New Hampshire, Durham, NH (4)

†Evaluating Native Perennial Grass Tolerance to Indaziflam Treatments. S. J. Nissen*; Colorado State University, Fort Collins, CO (5)

†Herbicide Efficacy as Influenced by Spray Nozzle Design and Weed Density. M. D. Kramer*¹, Z. K. Perry², T. R. Legleiter³; ¹University of Kentucky, Lynn, IN, ²University of Kentucky, Paducah, KY, ³University of Kentucky, Princeton, KY (6)

†Impact of Adjuvants on Quizalofop Antagonism when Mixed with ALS Herbicides. C. Webster*¹, E. P. Webster², B. McKnight², D. C. Walker², S. Ruston³; ¹Louisiana State University, Baton Rouge, AL, ²Louisiana State University, Baton Rouge, LA (7)
†Influence of Alternative Weed Control Options on Hop ([Humulus lupulus]) Production. N. Theisen*, H. Hatterman-Valenti; North Dakota State University, Fargo, ND (8)

†Irrigated and Non-Irrigated Peanut (Arachis hypogaea L.) Cultivar Response to Postemergence Paraquat Tank-Mixtures. K. M. Eason*1, R. Tubbs2, T. L. Grey3, S. Li4; 1University of Georgia, nashville, GA, 2University of Georgia, Tifton, GA, 3University of Geogia, Tifton, GA, 4Auburn University, Auburn, AL (9)

†Managing Palmer Amaranth with Sequential Applications of Dicamba and Glufosinate with and without Acetochlor. G. K. Flusche Ogden*1, P. A. Dotray1, J. D. Everitt2; 1Texas Tech University, Lubbock, TX, 2Bayer Crop Science, Lubbock, TX (10)

†Palmer Amaranth (Amaranthus palmeri) Survival and Fecundity After Various Herbicide Treatments and Application Timings. E. B. Scruggs*, M. L. Flessner; Virginia Tech, Blacksburg, VA (11)

†Safener May Enhance Tolerance to Soil-Applied Herbicide for Winter Wheat Varieties Grown in the Pacific Northwest. D. A. Raiyemo*1, J. Campbell1, R. Ma1, W. J. Price1, T. Rauch4, T. Prather2; 1University of Idaho, Moscow, ID, 4University Of Idaho/PSES Dept, Moscow, ID (12)

†Comparison of Herbicide Programs in Conventional, Glufosinate-Resistant, and Glyphosate/Dicamba-Resistant Soybean Across Nebraska. A. Striegel*1, S. Z. Knezevic2, N. C. Lawrence3, G. L. Hein2, G. Kruger4, C. Proctor2, A. J. Jhala2; 1University of Nebraska Lincoln, Lincoln, NE, 2University of Nebraska-Lincoln, Lincoln, NE, 3University of Nebraska-Lincoln, Pullman, WA, 4University of Nebraska-Lincoln, North Platte, NE (13)

†Cover Crops Suppress Weeds in Young Coffee Plantations. L. S. Resende*, A. O. Alecrim, K. G. Figueiredo, F. C. Medeiros, R. J. Guimarães; Federal University of Lavras, Lavras, Brazil (14)

†Effect of Carrier Volume and Nozzle Selection on Glufosinate and 2,4-D Efficacy. S. Davis*1, D. Dodds2, T. W. Eubank3, L. X. Franca2, J. McNeal2, B. Norris1, J. J. Williams1; 1Mississippi State University, Starkville, MS, 2Mississippi State University, Mississippi State, MS, 3Mississippi State University, Stoneville, MS, (15)

†Effect of Herbivory and Soil Fertility on Chinese Tallow in Louisiana: Insights for Management. O. C. Omoyele*; Veronica Manrique, Rodrigo Diaz, Baton Rouge, LA (16)
†Elevated CO₂ Effect on the Germination Index (GI) and Emergence Index (EI) of Red Rice and Johnsongrass. J. C. Argenta*, S. Finlayson, T. Gentry, M. V. Bagavathiannan, K. Carson; Texas A&M University, College Station, TX (17)

†Harvest Weed Seed Control for Johnsongrass in Grain Sorghum: A Feasibility Analysis. B. L. Young*¹, D. Sarangi¹, N. E. Korres², L. M. Lazaro³, M. J. Walsh³, J. K. Norsworthy², M. V. Bagavathiannan¹; ¹Texas A&M University, College Station, TX, ²University of Arkansas, Fayetteville, AR, ³Louisiana State University AgCenter, Baton Rouge, LA, ⁴University of Sydney, Narrabri, Australia (18)

†Influence of Dicamba Exposure on Glufosinate Resistant Soybean Canopy Closure. Z. K. Perry*¹, M. D. Kramer², T. R. Legleiter³; ¹University of Kentucky, Paducah, KY, ²University of Kentucky, Lynn, IN, ³University of Kentucky, Princeton, KY (19)

†Managing Horseweed in Soybean with Cover Crops and Herbicides. J. A. Schramski*, C. Sprague, K. Renner; Michigan State University, East Lansing, MI (20)

Phenotypic Characteristics of F1 Hybrid Progenies of Sorghum bicolor x S. halepense. C. Sias*, G. Hodnett, W. Rooney, M. V. Bagavathiannan; Texas A&M University, College Station, TX (21)

†Plant Demography of Chinese Tallow in Louisiana: Baseline Information Needed for Sustainable Management. D. Sevor*¹, V. Manrique¹, R. R. Diaz²; ¹Southern University and A&M College, Baton Rouge, Baton Rouge, LA, ²Louisiana State University, Baton Rouge, LA (22)

†Response of Insect Pest and Beneficial Species to the Timing and Severity of Dicamba Injury in Soybean. W. A. Tubbs*, K. Rice, M. Bish, K. Bradley; University of Missouri, Columbia, MO (23)

Tank-Contamination of Dicamba or 2,4-D Influences Dry Edible Bean Production. S. R. Bales*¹, C. Sprague¹; ¹Michigan State University, East Lansing, MI (24)

†Bermudagrass Tolerance of Indaziflam Preemergence Applications. N. L. Hurdle*¹, T. L. Grey¹, P. McCullough³; ¹University of Georgia, Tifton, GA, ³University of Georgia, Griffin, GA (25)

†Off-Target Movement Risk Associated with Flying Strategies, Nozzle Type, and Wind Variability for an Unmanned Aerial Sprayer. J. E. Hunter*, R. E. Austin, R. Richardson, T. Gannon, J. Neal, R. Leon; North Carolina State University, Raleigh, NC (27)

Rainfall Timing Effects on Preemergence Herbicide Efficacy in Soybean. P. H. Urach Ferreira¹, L. H. Merritt², D. B. Reynolds¹, J. T. Irby¹, G. Kruger³, J. Ferguson¹; ¹Mississippi State University, Mississippi State, MS, ²Mississippi State University, MS State, MS, ³University of Nebraska-Lincoln, North Platte, NE (28)

†Repeat Applications of Postemergence Turfgrass Herbicides for Season-Long Yellow Nutsedge (Cyperus esculentus) Control. N. S. Minaev*¹, J. D. McCurdy¹, M. P. Richard¹, Z. D. Small¹; ¹Mississippi State University, Starkville, MS (29)

Response of Seashore Paspalum (Paspalum vaginatum Sw.) and Hybrid Bermudagrass (Cynodon dactylon x C. transvaalenis L. Pers.) to Topramezone and Triclopyr Mixtures. C. G. Goncalves*¹, A. M. Brown², J. R. Jim Harris², J. S. McElroy²; ¹Auburn University, Auburn, AL, ²Auburn University, Auburn, AL (30)

†Virtual Models for Weed Science Education. A. Peart*¹, B. A. Ackley²; ¹The Ohio State University, Columbus, OH, ²Ohio State University, Columbus, OH (31)

†Weed Species Diversity in Railroad Right-of-Ways. A. W. Osburn*¹, M. Loux²; ¹The Ohio State University, Columbus, OH, ²Ohio State University, Columbus, OH (32)

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**TUESDAY MORNING  FEBRUARY 12**

**Poster Contest - PhD Students**

**Location:** Napoleon Ballroom D123

**Chair:** Pratap Devkota, University of California

*PRESENTER  † STUDENT POSTER CONTEST*

†Effects of Irrigation Water Quality on the Partitioning of Saflufenacil, Indaziflam, and Penoxsulam in Two California Orchard Soils. K. Martin*¹, B. Hanson²; ¹University of
Differences in Bioavailability of Atrazine, Topramezone and Mesosulfuron-methyl to Sensitive Species Across Varying Soil Textures. S. S. Ramanathan†, T. Gannon1, A. Locke2, W. Everman; 1North Carolina State University, Raleigh, NC, 2USDA-ARS and North Carolina State University, Raleigh, NC (34)

†Relative Duration of Residual Control Among Preemergent Herbicides. B. Sperry†, D. B. Reynolds2, J. Ferguson2, J. A. Bond3, G. Kruger4, A. Brown-Johnson5; 1Mississippi State University, Starkville, MS, 2Mississippi State University, Mississippi State, MS, 3Delta Research and Extension Center, Stoneville, MS, 4University of Nebraska-Lincoln, North Platte, NE, 5Mississippi State Chemistry Laboratory, Mississippi State, MS (35)

†Classification of Weeds in Row Crops Using Unmanned Aerial Systems. B. B. Sapkota†, V. Singh, D. Cope, M. V. Bagavathiannan; Texas A&M University, College Station, TX (36)

†Field Evaluation of 2,4-D and Dicamba Formulations on Cotton and Soybean Response. J. T. Buol†, D. B. Reynolds; Mississippi State University, Mississippi State, MS (37)

†Response of Dicamba-Resistant Kochia to Dicamba Applied Preemergence. R. Yadav†, P. Jha1, V. Kumar2, S. Leland1; 1Montana State University, Huntley, MT, 2Kansas State University, Hays, KS (38)

†Leptochloa acuminata Flooding Tolerance in California Water Seeded Rice. K. E. Driver†, A. Godar, K. Al-Khatib; University of California, Davis, Davis, CA (39)

†Relative Uptake of Organic and Inorganic Nitrogen in Eight Common Weed Species. N. D. Warren†, E. A. Hobbie1, J. Chen2, R. G. Smith1; 1University of New Hampshire, Durham, NH, 2International Atomic Energy Agency, Seibersdorf, Austria (40)

Effect of Crop Canopy and Herbicide Treatment on Kochia Density and Seed Production. E. G. Mosqueda†, A. Kniss1, N. C. Lawrence2, P. Jha3, G. Sbatella4; 1University of Wyoming, Laramie, WY, 2University of Nebraska-Lincoln, Pullman, WA, 3Montana State University, Huntley, MT, 4University of Wyoming, Powell, WY (41)

†Cover Crops in Almond Orchards: Irrigation and Weed Suppression. S. C. Haring†, C. Crézé1, A. Gaudin1, B.
Hanson; 1University of California, Davis, CA, 2University of California, Davis, Winters, CA (42)

†Cover Crop Response to Residual Herbicides in Peanut and Cotton Rotation. K. J. Price*,1, S. Li1, A. Price2; 1Auburn University, Auburn, AL, 2USDA-ARS, Auburn, AL (43)

†Using Cover Crops to Manage Kochia scoparia in Wheat Production Systems of the Western United States. D. M. Thiemann*,1, S. L. Young2; 1Utah State University, Nibley, UT, 2University of Nebraska-Lincoln, Ithaca, NY (44)

Postemergence Applications of Oxadiazon Effectively Diagnose Resistance in Eleusine indica. B. Bi*,1, Q. Wang1, J. J. Coleman1, J. S. McElroy1, J. M. Peppers2, N. Hall1; 1Auburn University, Auburn, AL, 2Auburn University, Auburn, AL (45)

Indaziflam Efficacy in the Control of Downy Brome. T. L. Burke*, I. C. Burke; Washington State University, Pullman, WA (46)

†Examining Negative Plant-Soil Feedback across Cropping Systems for Novel Weed Management. L. CHENG*,1, J. Kao-Kniffin1, A. DiTommaso2; 1CORNELL UNIVERSITY, Ithaca, NY, 2Cornell University, Ithaca, NY (47)

†Use of Trifludimoxazin Alone and with Various Tank-Mix Partners for Foliar Control of Giant Ragweed (Ambrosia trifida). N. R. Steppig*,1, S. Willingham2, D. M. Whalen3, B. G. Young4; 1Purdue University, Lafayette, IN, 2BASF, Seymour, IL, 3University of Missouri, Columbia, MO, 4Purdue University, Brookston, IN (48)

Management of Perennial Grass ssp. in Louisiana Rice Production. D. C. Walker*,1, E. P. Webster1, B. McKnight1, S. Rustom1, C. Webster2; 1Louisiana State University, Baton Rouge, LA, 2Louisiana State University, Baton Rouge, AL (49)

†Weed Control and Economic Returns of Herbicide Systems. J. Williams*,1, D. Dodds1, L. X. Franca1, B. Norris2, S. Davis2, J. McNeal3; 1Mississippi State University, Mississippi State, MS, 2Mississippi State University, Starkville, MS, 3Mississippi State University, Mississippi State, Mississippi, MS (50)

†Evaluating the Reproductive Capacities of Select Multiple Herbicide-Resistant Amaranthus tuberculatus Populations. E. A. Jones*,1, M. D. Owen2, R. Leon3, W. Everman1; 1North Carolina State University, Raleigh, NC, 2Iowa State University, Ames, IA (51)

†Effect of Flooding Period and Seed Burial Depth on Palmer Amaranth (Amaranthus palmeri) Seed Germination. L. X. Franca*,1, D. Dodds1, S. Davis2, J. McNeal3, J. J. Williams2, B.
Norris; 1Mississippi State University, Mississippi State, MS, 2Mississippi State University, Starkville, MS, 3Mississippi State University, Mississippi State, Mississippi, MS (52)

†Investigating Palmer Amaranth Resistance to S-Metolachlor in Arkansas. J. Kouame*1, N. R. Burgos2, C. D. Willett2, M. B. Bertucci3, E. M. Grantz; 1University of Arkansas, Fayetteville, AR, 2University of Arkansas, Fayetteville, AR (53)

†Palmer Amaranth (Amaranthus palmeri) and Thrips (Thrips sp.) Control with Various Dicamba + Insecticide Tank-Mixes in Cotton (Gossypium hirsutum). J. McNeal*1, D. Dodds2, A. L. Catchot3, S. Davis3, L. X. Franca2, B. Norris3, J. J. Williams3; 1University of Arkansas, Mississippi State University, Mississippi, MS, 2Mississippi State University, Mississippi State University, Starkville, MS, 3Mississippi State University, Starkville, MS (54)

†Residual Control of Palmer Amaranth as Effected by Cover Crop and Herbicide. C. M. Perkins*1, K. Bradley2, J. K. Norsworthy3, D. B. Reynolds4, K. L. Gage3, S. Steckel5, B. G. Young7, L. E. Steckel6; 1The University of Tennessee, Jackson, TN, 2University of Missouri, Columbia, MO, 3University of Arkansas, Fayetteville, AR, 4Mississippi State University, Mississippi State, Mississippi, MS, 5Southern Illinois University, Carbondale, IL, 6University of Tennessee, Jackson, TN, 7Purdue University, Brookston, IN (55)

†Weed Population Herbicide Resistance Control through Sensitive Allele Gene Swamping in silico for Amaranthus tuberculatus. B. C. Alexander*1, A. S. Davis2, A. Hager3, P. Tranel4; 1University of Illinois, Champaign, IL, 2N-319 Turner Hall, Urbana, IL, 3University of Illinois, Urbana, IL, 4University of Illinois, Urbana, IL (56)

Detection of ACCase-Inhibiting Herbicide Resistance in Southern Crabgrass (Digitaria ciliaris) through Gel-Box Bioassay. S. Basak*1, B. Bi1, A. M. Brown1, P. McCullough2, J. S. McElroy1; 1Auburn University, Auburn, AL, 2University of Georgia, Griffin, GA (57)

Characterization of the Functional Trait Diversity in Ryegrass (Lolium spp.) Accessions Collected from Texas Blacklands. A. Maity*1, S. Abugho1, V. Singh1, N. Subramanian1, G. R. Smith2, M. V. Bagavathiannan1; 1Texas A&M University, College Station, TX, 2Texas A&M University, Overton, TX (58)

†Cross-Resistance to ALS Inhibitors in Smooth Pigweed (Amaranthus hybridus) from the Campos Gerais Region in Brazil. R. R. Mendes*1, R. S. Oliveira Jr.2, V. V. Silva3, H. K. Takano4; 1State University of Maringa, Maringá, Brazil, 2State University of Maringa, Maringá, Brazil, 3State University of Maringá, Maringá, Brazil, 4Colorado State University, Ft Collins, CO (59)
†The Function of Cytochrome P450 Monooxygenases in Herbicide Bioactivation and Inactivation. D. W. Brooks*, 1, T. Gaines, 1, R. L. Nichols, 2, F. E. Dayan; 1Colorado State University, Fort Collins, CO, 2Cotton Incorporated, Cay, NC (60)

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Section 1. Agronomic Crops

*PRESENTER


Evaluation of Preemergence and Postemergence Applications of Metribuzin on Weed Control Programs and Crop Safety in Corn. T. Bararpour*, 1, R. R. Hale; 1Mississippi State University, Stoneville, MS, 2Mississippi State University, Fayetteville, AR (62)

Effective Herbicide Programs for Managing Glyphosate-Resistant Palmer Amaranth in Roundup Ready 2 Xtend Soybean. V. Kumar*, 1, R. Liu, 1, T. Lambert; 3Kansas State University, Hays, KS, 2Kansas State University, hays, KS, 3Kansas State University, Manhattan, KS (63)

Canopy Structure of Wheat Varieties and their Influence on the Weed Suppressive Ability. M. E. Cena; 1, H. A. Acciaresi; 2CIC, Pergamino, Argentina, 2Instituto Nacional Tecnologia Agropecuaria, Pergamino, Argentina (64)

Effects of Cover Crop Mixtures in the Weed Emergence and Above Ground Dry Matter. M. V. Buratovich; 1, H. A. Acciaresi; 1Inta Pergamino, Pergamino, Argentina, 2Instituto Nacional Tecnologia Agropecuaria, Pergamino, Argentina (65)

Effect of Fallow Sequential Spray of ALS Herbicides in Soybean Grain Yield Productivity. M. A. Principiano*; 1, H. A. Acciaresi; 1CIC-UNNOBA, Pergamino, Argentina, 2Instituto Nacional Tecnologia Agropecuaria, Pergamino, Argentina (66)

Perspectives on Wheat Yield Losses Due to Weeds in North America. M. L. Flessner*1, A. Dille2, P. Sikkema3, I. C. Burke4, W. Everman5, M. J. VanGessel6; 1Virginia Tech, Blacksburg, VA, 2Kansas State University, Manhattan, KS, 3University of Guelph, Ridgetown, ON, 4Washington State University, Pullman, WA, 5North Carolina State University, Raleigh, NC, 6University of Delaware, Georgetown, DE (68)

Herbicide Resistance in Montana: Current Status and Future Directions. P. Jha*1, V. Kumar2, C. A. Lim1, R. Yadav1, S. Leland1, J. Anjani1; 1Montana State University, Huntley, MT, 2Kansas State University, Hays, KS (69)

The Influence of Application Timing on Sequential Applications of Enlist Duo, Enlist One, and Liberty on Palmer Amaranth Control. D. C. Foster*1, P. A. Dotray1, K. R. Russell1, M. Lovelace2; 1Texas Tech University, Lubbock, TX, 2Corteva Agriscience, Lubbock, TX (70)

Hyperspectral Reflectance Properties of Redroot Pigweed Versus Okra Leaf Cotton. R. Fletcher*; USDA-ARS, Greenville, MS (71)

Systems Approach to Weed Management in Corn in Wisconsin. R. Werle*1, R. P. Dewerff2, S. V. Striegel3, N. Arsenijevic4, V. H. Vidal Ribeiro1, M. Coura Oliveira1; 1University of Wisconsin-Madison, Madison, WI, 2Agricultural Research of Wisconsin, LLC, Madison, WI, 3What Cheer, IA (72)

Does Overlap of Provisia Herbicide Impact ACCase-Resistant Rice Tolerance? B. McKnight*1, E. P. Webster1, S. Rustomi1, C. Webster2, D. C. Walker1; 1Louisiana State University, Baton Rouge, LA, 2Louisiana State University, Baton Rouge, AL (73)

Kochia (Bassia scoparia) Control and Enlist Cotton (Gossypium hirsutum) Response Following Preplant Herbicide Treatments. U. Torres*1, P. A. Dotray1, K. R. Russell1, G. K. Flusche Ogden1, M. Lovelace2; 1Texas Tech University, Lubbock, TX, 2Corteva Agriscience, Lubbock, TX (74)

Management of Bromus Species with Pyroxasulfone and Metribuzin in Winter Wheat. R. J. Zuger*, I. C. Burke; Washington State University, Pullman, WA (75)

State of Resistance for Palmer Amaranth Populations from the North Carolina Coastal Plain. D. J. Mahoney*1, D. Jordan2, A. T. Hare2, N. R. Burgos3, K. M. Jennings2, R. Leon2,
M. C. Vann\(^2\), \(^1\)North Carolina State University, Cary, NC, \(^2\)North Carolina State University, Raleigh, NC, \(^3\)University of Arkansas, Fayetteville, AR (76)

**Control of Amaranthus palmeri with Resistance to Inhibitors of EPSPS and ALS in the Succession of Soybean-Cotton.** F. S. Ikeda\(^1\), S. D. Cavalieri\(^1\), F. Poltronieri\(^2\), A. Deon\(^2\), \(^1\)Embrapa, Sinop, Brazil, \(^2\)Federal University of Mato Grosso, Sinop, Brazil (77)

Response of Peanut to Low Rates of Engenia at Different Growth Stages. T. Bararpour\(^1\), R. R. Hale\(^2\), J. W. Seale\(^1\); \(^1\)Mississippi State University, Stoneville, MS, \(^2\)Mississippi State University, Fayetteville, AR (78)


Control of Glyphosate-Resistant Common Ragweed in Corn with Preemergence and Postemergence Herbicides. N. Soltani*, L. R. Brown, P. Sikkema; University of Guelph, Ridgetown, ON (80)

Potential Yield Loss in Corn, Soybean, Dry Bean and Sugar Beet Due to Weed Interference in North America. N. Soltani*, A. Dille\(^2\), T. J. Peters\(^3\), I. C. Burke\(^4\), W. Everman\(^5\), M. J. VanGessel\(^6\), V. Davis\(^7\), P. Sikkema\(^1\); \(^1\)University of Guelph, Ridgetown, ON, \(^2\)Kansas State University, Manhattan, KS, \(^3\)North Dakota State University, Fargo, ND, \(^4\)Washington State University, Pullman, WA, \(^5\)North Carolina State University, Raleigh, NC, \(^6\)University of Delaware, Georgetown, DE, \(^7\)BASF, Verona, WI (81)

Grape Hyacinth Control in a Wheat-Soybean Rotation. S. C. Beam*\(^1\), M. L. Flessner\(^2\), M. J. VanGessel\(^3\), K. Vollmer\(^7\); \(^1\)Virginia Tech, Concord, NC, \(^2\)Virginia Tech, Blacksburg, VA, \(^3\)University of Delaware, Georgetown, DE (82)

Comparison of Various Water and Tank Cleaner Rinse Sequences for Effective Removal of Dicamba from Contaminated Sprayer Systems. Z. A. Carpenter*, D. B. Reynolds, A. B. Johnson; Mississippi State University, Mississippi State, MS (83)

Cutleaf Evening Primrose (*Oenothera laciniata*) and Winter Annual Broadleaf Control in Wheat in Mississippi and Oklahoma. C. Ferguson*\(^1\), M. Manuchehri\(^2\), M. T. Wesley\(^3\), L. H. Merritt\(^3\), K. L. Broster\(^1\), Z. R. Treadway\(^1\), J. Childers\(^2\); \(^1\)Mississippi State University, Mississippi State, MS, \(^2\)Oklahoma State University, Stillwater, OK, \(^3\)Mississippi State University, MS State, MS (84)
Herbicide Carryover to Various Fall Planted Cover Crop Species. L. S. Rector*, M. L. Flessner1, K. B. Pittman1, S. C. Beam2, K. W. Bamber1; 1Virginia Tech, Blacksburg, VA, 2Virginia Tech, Concord, NC (85)

Impact of Reduced Rates of Isoxaflutole on Soybean Growth and Yield. D. Miller*, D. O. Stephenson2; 1Louisiana State University AgCenter, St. Joseph, LA, 2Louisiana State University AgCenter, Alexandria, LA (86)

Season Long Herbicide Programs in Mississippi Peanut Production. K. L. Broster*, J. Ferguson1, T. A. Baughman2, B. Zurweller3, B. Rushing4; 1Mississippi State University, Mississippi State, MS, 2Oklahoma State University, Ardmore, OK, 3Mississippi State University, Starkville, MS, 4Mississippi State University, Newton, MS (87)

Influence of Six Herbicides Applied to Silage Corn on Fall Planted Rye and Radish Cover Crop Growth in South Dakota Soils. S. Pridie*, G. Shaffer2, S. Potthoff1, S. A. Clay1; 1South Dakota State University, Brookings, SD, 2South Dakota State University, Aberdeen, SD (88)

Early Development of Horseweed (Conyza canadensis L.). W. Molin*, K. Parys, C. L. Beck; USDA-ARS, Stoneville, MS (89)

Effect of Asulam on Fall Panicum Seed Production. D. Odero*, R. Negrisoni; University of Florida, Belle Glade, FL (90)


Residual Activity of Thiencarbazone-Methyl with and without Common Soybean Herbicides. Z. D. Lancaster*, J. K. Norsworthy1, G. L. Priess1, T. Barber2; 1University of Arkansas, Fayetteville, AR, 2University of Arkansas, Lonoke, AR (92)

Impact of Sublethal Dicamba and Glyphosate on Three Chipping Potato Cultivars. M. J. Brooke*; North Dakota State University, Fargo, ND (93)

Geographical Distribution of Cyhalofop-Butyl and Penoxsulam Resistant Echinochloa Species in Korea. D. KIM*, J. Kim2, S. Lim3; 1Seoul National University, Seoul, South Korea, 2National Institute of Agricultural Sciences, Wanju, South Korea, 3University of Illinois, Urbana-Champaign, IL (94)
Weed Management in Saffron. M. A. Haidar*; American University of Beirut, BEIRUT, Lebanon (95)

Evaluation of Pyraclonil for its Weed Control Efficacy and Crop Safety in California Rice. A. S. Godar*1, K. Al-Khatib1, J. Gutierrez2; 1University of California, Davis, Davis, CA, 2Nichino America, Inc., Fresno, CA (96)

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Section 2. Horticultural Crops

*PRESENTER

IR-4 Project: Update and New Programs to Address Specialty Crop Grower Needs. D. Kunkel*1, R. B. Batts2, M. J. Braverman3, J. Baron4; 1Rutgers University, Princeton, NJ, 2NCSU IR-4 Field Research Center, Raleigh, NC, 3Rutgers University, princeton, NJ, 4IR-4 Project, Hillsborough, NJ (97)

Cranberry Response to Rate and Application Timing with Flumioxazin and Sulfentrazone. B. L. Carr1, T. E. Besancon*2; 1Rutgers University, Chatsworth, NJ, 2Rutgers University, CHATSWORTH, NJ (98)

Use of Drone Imaging for Assessing Weed Control and Disease Pressure in Highbush Blueberry. M. G. Mars1, D. C. Nuhn1, B. L. Carr2, T. E. Besancon*3, P. V. Oudemans3; 1Stockton University, CHATSWORTH, NJ, 2Rutgers University, Chatsworth, NJ, 3Rutgers University, CHATSWORTH, NJ (99)

Herbicide Evaluations for Ontario Grown Quinoa. R. E. Nurse*1, M. Cowbrough2; 1Agriculture and Agri-Food Canada, Harrow, ON, 2Ontario Ministry of Agriculture, Food and Rural Affairs, Guelph, ON (100)

Response of Sweetpotato to Fluridone Preplant Followed by Irrigation. S. Chaudhari*, K. M. Jennings, D. Monks, S. C. Smith, L. D. Moore; North Carolina State University, Raleigh, NC (101)

Muscadine Grape (Vitis rotundifolia) Tolerance to 2,4-D Choline Applied as a Directed Spray. C. D. Holmberg*1, K. M. Jennings2; 1North Carolina State University, Mills River, NC, 2North Carolina State University, Raleigh, NC (102)
Interseeded Cover Crop Tolerance to Herbicides in Non-Transgenic Sweet Corn. E. Peachey, A. Donaldson*; Oregon State University, Corvallis, OR (103)

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Section 3. Turf and Ornamental Crops

*PRESENTER


On Farm Evaluation of Multiple Mulch Materials for Long-Term Weed Control in Container Nurseries. C. Marble*, S. T. Steed; 1University of Florida, Apopka, FL, 2University of Florida/IFAS Extension, Seffner, FL (107)

Combination Treatments of Simazine and Trifloxsulfuron for Poa annua. E. B. De Castro*, M. P. Richard2, J. D. McCurdy3; 1Mississippi State University, STARKVILLE, MS, 2Mississippi State University, Starkville, MS, 3Mississippi State University, Mississippi State University, MS (108)

Rate Response of Select Grass Weeds to Pinoxaden. J. M. Peppers*; Auburn University, Auburn, AL (109)

Seasonal Goosegrass (Eleusine indica) Emergence in Turfgrass. M. T. Elmore*, D. P. Tuck2, K. Diehl1; 1Rutgers University, New Brunswick, NJ, 2Rutgers University, North Wales, PA (110)
**Section 4. Pasture, Rangeland, Forest, and Rights of Way**

*PRESENTER*

Herbicide Application Timing to Control Bulbous Buttercup (*Ranunculus bulbosus*) in a Pasture. R. S. Chandran*; West Virginia University, Morgantown, WV (111)


Strategies for Controlling Wild Poinsettia in Alabama Roadside. A. P. Boyd*1, E. Guertal1, D. Han1, H. Peavey2; 1Auburn University, Auburn, AL, 2Alabama Department of Transportation, Montgomery, AL (113)

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**Section 5. Wildland and Aquatic Invasive Plants**

*NO PRESENTATION*

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**Section 6. Regulatory Aspects**

*PRESENTER*

WSSA Hosts US EPA Summer Tour through Nebraska and Iowa. G. Kruger*1, J. Gizotti de Moraes1, B. Canella Vieira1, J. Schroeder2, L. Van Wychen3; 1University of Nebraska-Lincoln, North Platte, NE, 2USDA Office of Pest Management Policy, Arlington, VA, 3WSSA, Alexandria, VA (114)
Section 7. Teaching and Extension

*PRESENTER

Partnering with Industry to Deliver Weed Science Continuing Education to Florida’s Turfgrass Professionals. F. Fishel1*, H. Russo2; 1University of Florida, Gainesville, FL, 2Florida Turfgrass Association, Lakeland, FL (115)

The University of Tennessee’s Comprehensive Herbicide Stewardship Program. N. Rhodes*1, L. E. Steckel2, T. Mueller1, D. McIntosh1; 1University of Tennessee, Knoxville, TN, 2University of Tennessee, Jackson, TN (116)

A Short Course on Herbicide Modes of Action and Herbicide Resistance. T. Mueller*; University of Tennessee, Knoxville, TN (117)

Burcucumber Management in Pennsylvania: What Have we Learned in 20 years? D. Lingenfelter*1, W. S. Curran2; 1Penn State University, University Park, PA, 2Penn State University, Bozeman, MT (118)

Grower Preferred Extension Topics, Information Sources, and Delivery Methods in Virginia. K. B. Pittman*, M. L. Flessner; Virginia Tech, Blacksburg, VA (119)

Screening for ALS-Inhibitor Resistance in Shattercane Populations Collected from Sorghum Fields in Texas Gulf Coast. G. Hodnett1, W. Rooney1, M. V. Bagavathiannan1, S. Shrestha2; 1Texas A&M University, College Station, TX, 2Mississippi State University, Starkville, MS (120)

Improving Early Weed Detection in an Era of Rapid Range Expansion through Development of a Weed ID Network in NY State. A. DiTommaso*, C. A. Marschner; Cornell University, Ithaca, NY (121)

Complicated: Kentucky Grower and Applicator Impressions and Responses following 2018 Dicamba Trainings. T. R. Legleiter*1, J. Green2; 1University of Kentucky, Princeton, KY, 2University of Kentucky, Lexington, KY (122)

An Interactive Web App that Estimates the Risk of Developing Herbicide Resistance. A. Kniss*1, A. T. Adjesior1, N. C. Lawrence2; 1University of Wyoming, Laramie, WY, 2University of Nebraska-Lincoln, Pullman, WA (123)
Section 8. Formulation, Adjuvant and Application Technology

*PRESENTER

Dicamba Volatility from Nitrogen Fertilizer Enriched Soils. M. Bernards*, B. S. Heaton; Western Illinois University, Macomb, IL (124)

Hordeum spp. and Bromus spp. with Glyphosate Resistance, as a New Infection Case in Olive Grove from South of Spain. C. Palma-Bautista¹, A. M. Rojano-Delgado², D. A. Mora², R. Domínguez-Mendez², J. M. Rosario³, J. Vasquez-Garcia², J. Portugal⁴, R. De Prado Amian*⁵; ¹University of Cordoba, CóRDOBA, Spain, ²University of Cordoba, Cordoba, Spain, ³Universidad Católica Tecnológica del Cibao, La Vega, Dominican Republic, ⁴Polytechnic Institute of Beja, Beja, Portugal, ⁵University of Cordoba, Córdoba, Spain (125)

Influence of CyP450 in the Resistance to PPO-Inhibiting Herbicides: Case of a Euphorbia heterophylla Biotype. A. M. Rojano-Delgado¹, C. Palma-Bautista², J. Vazquez-Garcia¹, D. A. Mora¹, J. M. Rosario³, J. Portugal⁴, R. De Prado Amian*⁵; ¹University of Cordoba, Cordoba, Spain, ²University of Cordoba, Cordoba, Spain, ³University Católica Tecnológica del Cibao, La Vega, Dominican Republic, ⁴Polytechnic Institute of Beja, Beja, Portugal, ⁵University of Cordoba, Córdoba, Spain (126)

Multiple Resistance to IMI and FOP Herbicides of L. rigidum Biotypes Found in Clearfield Wheat Crops. R. Domínguez-Mendez¹, C. Palma-Bautista², A. M. Rojano-Delgado¹, J. M. Rosario³, M. D. Osuna⁴, J. Portugal⁵, R. De Prado Amian*⁶; ¹University of Cordoba, Cordoba, Spain, ²University of Cordoba, CóRDOBA, Spain, ³Universidad Católica Tecnológica del Cibao, La Vega, Dominican Republic, ⁴Agrarian Research Center “Finca La Orden Valdesequera”, Badajoz, Spain, ⁵Polytechnic Institute of Beja, Beja, Portugal, ⁶University of Cordoba, Córdoba, Spain (127)
Section 9. Weed Biology and Ecology

*PRESENDER

Tricotyledenous Giant Ragweed (*Ambrosia trifida* L.). E. R. Page1, S. Meloche2, J. Bae3, J. Larsen2, M. Laforest4, R. E. Nurse1; 1Agriculture and Agri-Food Canada, Harrow, ON, 2Agriculture and Agr-Food Canada, Harrow, ON, 3Agriculture and Agri-Food Canada, Harrow, BC, 4Agriculture and AgriFood Canada, St-jean-sur-Richelieu, QC (128)


Modeling Seed Germination in Palmer Amaranth (*Amaranthus palmeri*). M. Matzrafi*, S. Ohadi, M. Mesgaran; University of California, Davis, Davis, CA (130)

Seed Banks During Five Year on Integrated Crop-Livestock-Forest System Under Different Shading Levels in Sinop, Mato Grosso, Brazil. F. S. Ikeda1, S. D. Cavalieri1, F. Poltronieri2, L. Menegatti2, F. M. Lima Júnior2, L. H. Metz2, B. T. Fonseca2; Embrapa, Sinop, Brazil, 2Federal University of Mato Grosso, Sinop, Brazil (131)

Seed Banks Size During Six Years on Single and Integrated Cropping Systems in Sinop, Mato Grosso, Brazil. F. S. Ikeda1, S. D. Cavalieri1, F. Poltronieri2, L. Menegatti2, F. M. Lima Júnior2, L. H. Metz2, B. T. Fonseca2; Embrapa, Sinop, Brazil, 2Federal University of Mato Grosso, Sinop, Brazil (132)

The Interaction Between Cover Crops and Herbicide Programs on Weed Management in Tobacco. E. Haramoto*, C. J. Lowry2, R. Pearce1; 1University of Kentucky, Lexington, KY, 2Agricultural Research Service, Urbana, IL (133)

Adaptation of Palmer Amaranth to the Upper Midwest. M. Coura Oliveira1, M. Bernards2, A. J. Jhala3, C. Proctor3, S. Stepanovic4, R. Werle1; 1University of Wisconsin-Madison, Madison, WI, 2Western Illinois University, Macomb, IL, 3University of Nebraska-Lincoln, Lincoln, NE, 4University of Nebraska-Lincoln, Grant, NE (134)
Effect of Cover Crop Biomass on the Summer Annual Weed Density and Biomass in Soybean. T. Stanton*, E. Haramoto; University of Kentucky, Lexington, KY (135)

Germination Ecology of Carpetweed, Carolina Geranium, Eclipta, and Goosegrass. S. M. Sharpe*1, N. Boyd2; 1University of Florida, Wimauma, FL, 2University of Florida, Balm, FL (136)

Do Pesticide Seed Treatments Alter the Abundance and Composition of Weed Communities? R. G. Smith*, S. A. Palmer, N. D. Warren; University of New Hampshire, Durham, NH (137)

Relationship Between the Growth Habit and the Vegetative and Reproductive Aerial Structures of Junglerice (Echinochloa colona). G. Picapietra1, H. A. Acciaresi*2; 1EEA INTA Pergamino, Argentina, Argentina, 2Instituto Nacional Tecnologia Agropecuaria, Pergamino, Argentina (138)

The Mitochondrial Genome of Goosegrass (Eleusine indica) and a Method for Detecting Mitochondrial Gene Content in Species Lacking Assembled Mitochondrial Genomes. N. D. Hall*1, H. Zhang1, J. P. Mower2, L. R. Goertzen1, J. S. McElroy1; 1Auburn University, Auburn, AL, 2University of Nebraska–Lincoln, Auburn, NE (139)

Can Pollination Bags be Used to Evaluate the Seed Production of Common Ragweed (Ambrosia artemisiifolia)? M. Simard*1, R. E. Nurse2, E. R. Page2; 1Agriculture and Agri-Food Canada, Saint-jean-sur-Richelieu, QC, 2Agriculture and Agri-Food Canada, Harrow, ON (140)

Emergence Characteristics of Palmer Amaranth Populations from the U.S. Central Great Plains. R. Liu*1, V. Kumar1, T. Lambert2, M. Manuchehr3, N. C. Lawrence4, M. V. Bagavathiannan5, T. Gaines6, 1Kansas State University, Hays, KS, 2Kansas State University, hays, KS, 3Oklahoma State University, Stillwater, OK, 4University of Nebraska-Lincoln, Pullman, WA, 5Texas A&M University, College Station, TX, 6Colorado State University, Fort Collins, CO (141)

A New Mutation in the Amaranthus retroflexus Acetolactate Synthase Gene Confers Resistance to Imidazolinones, but not Sulfonylureas and Triazolopyrimidines. M. Laforest*1, B. Soufiane2, K. Bisaillon2; 1Agriculture and AgriFood Canada, St-jean-sur-Richelieu, QC, 2Agriculture and AgriFood Canada, St-Jean-sur-Richelieu, QC (142)

Changes in Rice Field Algae Assemblage in Response to Fertilizer Application Rate. S. Ohadi*1, J. D. Madsen2, K. Al-Khatib3; 1University of California, Davis, Davis, CA, 2USDA-ARS, Woodland, CA (143)
Wild radish (*Raphanus raphanistrum* L.) Seedling Emergence in NC. T. A. Reinhardt Piskackova*, K. M. Jennings, R. Richardson, C. Reberg-Horton, R. Leon; North Carolina State University, Raleigh, NC (144)

Non-Chemical Management Practices and their Impact on Weed Population Dynamics in Organic Grain Production. S. L. Samuelson*, N. Rajan, R. Schnell, M. V. Bagavathiannan; Texas A&M University, College Station, TX (145)

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**TUESDAY MORNING FEBRUARY 12**

**Section 10. Biocontrol of Weeds**

*PRESENTER*

Extending the Host Range of a Commercial Bioherbicidal Fungus. C. D. Boyette*¹, R. E. Hoagland², K. C. Stetina¹, ¹USDA-ARS, Stoneville, MS, ²USDA-ARS-CPSRU, Stoneville, MS (146)

Pesta Granular Mycoherbicide for Combating Broomrape in *Vicia faba* Field in Egypt. Y. M. Shabana*¹, M. M. El-Hawary², M. E. Sadek³; ¹Mansoura University, El-Mansoura, Egypt, ²Agricultural Research Center, Giza, Egypt, ³Mansoura University, Mansoura, Egypt (147)

Developing Host-Specific Bioherbicide for Management of *Waterhyacinth* in Egypt. Y. M. Shabana*; Mansoura University, El-Mansoura, Egypt (148)

Isoxazolopyridines – Herbicides with Novel PSII Inhibition Characteristics for Weed Control. D. A. Carrera*¹, S. Rühm¹, R. Campe², J. Lerchl²; ¹BASF SE, Ludwigshafen, Germany, ²BASF SE, Limburgerhof, Germany (149)

Characterization of *Phalaris brachystachys* L. Resistant to ALS Inhibitor Herbicides in Winter Wheat from Iran. S. Golmohammadzadeh¹, J. Gherekhloo¹, C. Palma-Bautista², A. M. Rojano-Delgado³, R. De Prado Amian*⁴; ¹Gorgan University, Iran, Iran, ²University of Cordoba, CÓRDOBA, Spain, ³University of Cordoba, Cordoba, Spain, ⁴University of Cordoba, Córdoba, Spain (150)

Allelopathic Rice Varieties for Weed Suppression: A Tool in Organic Rice. S. Abugho*¹, J. L. Samford², A. McClung³, X. Zhou⁴, M. V. Bagavathiannan¹; ¹Texas A&M University, College Station, TX, ²Texas A&M University, Eagle Lake, TX, ³USDA-ARS, Stuttgart, AR, ⁴Texas A&M University, Beaumont, TX (151)
Section 11. Physiology

*PRESENTER

The Evaluation of Organic Cleaner for Dicamba. G. LaBiche*1, L. M. Lazaro1, M. R. Foster1, Z. Liu2; 1Louisiana State University AgCenter, Baton Rouge, LA, 2Louisiana State University, Baton Rouge, LA (152)

Investigating Dicamba Uptake and Translocation in Dicamba-Tolerant Tomato Using HPLC. R. Zangouinejad1, M. Alebrahim2, T. Tseng*3; 1Mississippi State University, Mississippi st, MS, 2University of Mohaghegh Ardabili, Ardabil, Iran, 3Mississippi State University, Mississippi State, MS (153)

A Non-Destructive Leaf Disc Assay for Rapid Diagnosis of Herbicide Resistance in Weeds. C. Wu*1, A. Perez-Jones2, P. Feng3; 1Bayer Crop Science, St Louis, MO, 2Bayer Crop Science, Chesterfield, MO, 3Bayer Crop Science, Saint Louis, MO (154)

Importance of the Imazamox Exudation in the Resistance Level of a Euphorbia heterophylla Biotype. A. M. Rojano-Delgado1, C. Palma-Bautista2, D. A. Mora1, J. Vazquez-García1, J. M. Rosario3, J. Portugal4, R. De Prado Amian*5; 1University of Cordoba, Cordoba, Spain, 2University of Cordoba, CóRDOBA, Spain, 3Universidad Católica Tecnológica del Cibao, La Vega, Dominican Republic, 4Politecnico Institute of Beja, Beja, Portugal, 5University of Cordoba, Córdoba, Spain (155)

Multiple Resistance to Herbicides in a Parthenium hysterophorus Biotype Found in Caribbean Zone. D. A. Mora1, J. M. Rosario2, C. Palma-Bautista3, R. Domínguez-Mendez1, A. M. Rojano-Delgado1, J. Portugal4, R. De Prado Amian*5; 1University of Cordoba, Cordoba, Spain, 2Universidad Católica Tecnológica del Cibao, La Vega, Dominican Republic, 3University of Cordoba, CÓRDOBA, Spain, 4Politecnico Institute of Beja, Beja, Portugal, 5University of Cordoba, Córdoba, Spain (156)

Resistance to ALS Inhibitors Due to Trp574Leu Substitution in Redroot Pigweed and Tall Waterhemp from Mississippi. V. K. Nandula*1, D. Giacomini2, J. Ray3; 1USDA-ARS, Cleveland, MS, 2University of Illinois, Urbana, IL, 3USDA, Stoneville, MS (157)
Resistance to Protoporphyrinogen Oxidase (PPO) Inhibitors in Palmer Amaranth from Mississippi. V. K. Nandula*1, W. Molin2; 1USDA-ARS, Cleveland, MS, 2USDA-ARS, Stoneville, MS (158)

Herbicide Resistance Screening Studies on a Phalaris minor Population from India. V. K. Nandula*1, S. Singh2; 1USDA-ARS, Cleveland, MS, 2CCSHAU, Hisar, India (159)

An Interactive Database for Exploring the Physicochemical Properties of Herbicides and Herbicide Leads. J. S. Mylne*, M. N. Gandy, M. G. Corral, K. A. Stubbs; The University of Western Australia, Perth, Australia (160)

Herbicide Discovery and Development 2020, Perth. J. S. Mylne*, K. A. Stubbs, J. Haywood; The University of Western Australia, Perth, Australia (161)

Insights into the Genetic Basis of Glufosinate Resistance in Italian ryegrass (Lolium multiflorum) from California. S. Morran*1, M. Matzrafi1, P. Tehranchian1, M. Jasieniuk1; 1University of California, Davis, Davis, CA, (162)

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**TUESDAY MORNING  FEBRUARY 12**

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**Section 12. Soil and Environmental Aspects**

*PRESENTER

Soybean Response to Dicamba in Plot-Scale Furrow Irrigation Water. C. D. Willett*, E. M. Grantz, J. Lee, E. L. Archer, R. T. Grewe, J. K. Norsworthy; University of Arkansas, Fayetteville, AR (163)

Dynamics of Fusarium verticillioides after Herbicide Treatment on Maize Stubble. W. N. Braz, R. A. Guimarães, J. P. Silva, F. V. Medeiros, F. C. Medeiros*; Federal University of Lavras, Lavras, Brazil (164)


Relative Toxicity of Selected Organic and Conventional Herbicides to Worms. E. G. Mosqueda, A. T. Adjesiwor*, A. Kniss; University of Wyoming, Laramie, WY (166)
Effect of Bentazon and Iodosulfuron-Methyl on the Antioxidant Metabolism of *Lotus corniculatus* L. N. S. Correa, F. Reolon, C. L. Moraes, C. F. Larré, D. M. Moraes; 1Federal University of Pelota, Pelotas, Brazil, 2Federal University of Pelota, Pelotas, British Indian Ocean (167)

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**TUESDAY MORNING FEBRUARY 12**

**Section 13. Integrated Weed Management**

*PRESENTER*


Control of *Amaranthus palmeri* Resistant to ALS and EPSP Inhibitors with Pre and Postemergence Herbicides in Intercropping of Corn and Marandu Grass. F. S. Ikeda, S. D. Cavalieri, F. M. Lima Júnior, L. H. Metz, B. T. Fonseca, F. Poltronieri; Embrapa, Sinop, Brazil, Federal University of Mato Grosso, Sinop, Brazil (169)

Palmer Amaranth (*Amaranthus palmeri*) Control in XtendFlex and Enlist Cotton (*Gossypium hirsutum*). K. R. Russell, P. A. Dotray, J. W. Keeling; Texas Tech University, Lubbock, TX, Texas A&M AgriLife Research, Lubbock, TX (170)

Artificial Intelligence Based Semi-Automatic Herbicide Sprayer System. V. Singh, A. Sosa, A. Gutierre, A. Knowlton, M. A. Acosta, J. Lusher, S. Kalafatis, M. V. Bagavathiannan; Texas A&M University, College Station, TX (171)

Evaluation of Remotely Piloted Aerial Application Systems (RPAS) for Herbicide Application. V. Singh, M. Latheef, D. Martin, M. V. Bagavathiannan; Texas A&M University, College Station, TX, USDA-ARS, College Station, TX (172)

UAV-Based Imaging for Weed Identification in Row Crops. V. Singh, B. B. Sapkota, M. Bishop, D. Cope, M. V. Bagavathiannan; Texas A&M University, College Station, TX (173)

Multiple Herbicide Resistant Ragweed Parthenium (Parthenium hysterophorus L.) Confirmed in Texas, USA. S. Singh 1, V. Singh 1, N. Subramanian 1, J. McGinty 2, M. V. Bagavathiannan 1; 1Texas A&M University, College Station, TX, 2Texas Tech University, Lubbock, TX, 3Texas A&M AgriLife Extension, College Station, TX, 4College Station, TX (174)

Distribution of Herbicide Resistant Palmer Amaranth (Amaranthus palmeri) in Row Crop Production Systems in Texas. V. Singh 1, R. Garetson 1, P. A. Dotray 2, M. V. Bagavathiannan 1, S. Singh 1; 1Texas A&M University, College Station, TX, 2Texas Tech University, Lubbock, TX (175)

"GROW": A Science Based Resource Tool for Integrated Weed Management. C. G. Rubione 1, M. J. VanGessel 1, M. L. Flessner 2, S. B. Mirsky 3, M. V. Bagavathiannan 1, L. M. Lazarov 5, K. B. Pittman 2; 1University of Delaware, Georgetown, DE, 2Virginia Tech, Blacksburg, VA, 3USDA-ARS, Beltsville, MD, 4Texas A&M University, College Station, TX, 5Louisiana State University AgCenter, Baton Rouge, LA (177)

Understanding Cover Crop Effects on Weed Size Inequality at Time of Herbicide Exposure. J. M. Wallace 1, W. S. Curran 2, D. Mortensen 1; 1Penn State University, University Park, PA, 2Penn State University, Bozeman, MT (178)

Crop Rotation Influence on Maize Productivity and Weeds. M. Z. Brankov 1, G. Kruger 2, V. D. Dragicevic 1, M. S. Simic 1; 1Maize Research Institute, Belgrade, Serbia, 2University of Nebraska-Lincoln, North Platte, NE (179)


Active Ingredient Effects on Italian Ryegrass (Lolium multiflorum) Control in Mississippi Corn (Zea mays L.). M. T. Wesley 1, J. A. Bond 2, D. B. Reynolds 3, E. J. Larson 4, J. Ferguson 3; 1Mississippi State University, MS State, MS, 2Delta Research and Extension Center, Stoneville, MS, 3Mississippi State University, Mississippi State, MS, 4Mississippi State University, Starkville, MS (181)

On a Knife Edge: Conservation Agriculture and Troublesome Weed Control. A. Price 1; USDA-ARS, Auburn, AL (182)

Evaluation and Characterization of a Propane Based Flaming System for Weed Control in Onion (Allium cepa). R.
Herbicide Resistance Gene Flow in Weeds: Under-Estimated and Under-Appreciated. H. J. Beckie*1, R. Busi2, M. V. Bagavathiannan3; 1University of Western Australia, Crawley, WA, Australia, 2University of Western Australia, CRAWLEY, Australia, 3Texas A&M University, College Station, TX (184)

Inhibitions of Pigweed (Amaranthus palmeri S.) Germination and Growth by Cover Crop Residues. A. Shekoofa*, S. Safikhan, T. Raper, L. E. Steckel, S. Butler, D. Copeland; University of Tennessee, Jackson, TN (185)

TUESDAY MORNING  FEBRUARY 12

Global Perspective on Herbicides Being Banned

LOCATION: Napoleon Ballroom B123
TIME: 8:00 AM - 2:00 PM
CHAIR/ Nilda Burgos
MODERATOR: University of Arkansas
           Fayetteville, AR
CO-CHAIR: Mohsen Mesgaran
           University of Melbourne
           Melbourne, Australia

*SPEAKER

8:00  Herbicides at Risk: A Global Perspective. C. Mallory-Smith*1, N. R. Burgos2, C. Maneechote3; 1Oregon State University, Corvallis, OR, 2University of Arkansas, Fayetteville, AR, 3Department of Agriculture, Bankok, Thailand (186)

8:15  The Dose Makes the Poison: Exposure to Glyphosate. N. R. Burgos1, K. R. Solomon*2; 1University of Arkansas, Fayetteville, AR, 2University of Guelph, Guelph, ON (187)

8:45  Environmental Fate and Ecological Impact of Glyphosate. S. O. Duke*; USDA-ARS-NPURU, Oxford, MS (188)

9:15  Glyphosate Ban in the EU - Consequences and Challenges. S. K. Mathiassen*, P. Kudsk; Aarhus University, Slagelse, Denmark (189)
9:45  Discussion
10:00  Break
10:45  A Overview of Pesticide Ban and Restricted Use in Brazil and South America. E. R. Camargo*¹, L. A. Avila¹, M. Zapiola²; ¹Federal University of Pelotas, Pelotas, Brazil, ²Pontifical Catholic University of Argentina, buenos aires, Argentina (191)
11:15  Toxicology and the Impact of Paraquat Ban on Human Poisoning. D. KIM*; Seoul National University, Seoul, South Korea (192)
12:00  Lunch
1:00  Canceled Registration of Herbicides in Israel Affects Weed Distribution and Management. B. Rubin*¹, H. Eizenberg²; ¹Hebrew University of Jerusalem, Rehovot, Israel, ²Farmers Valley Center, Migdal Haemek, Israel (194)
1:15  Risk Analysis of Possible Glyphosate Ban in EU on Turkish Hazelnut Productions and Economy. H. Mennan*; Ondokuz Mayis University, Atakum, Turkey (195)
1:30  Discussion
8:00  The Goosegrass (*Eleusine indica*) Genome Resolves Homeologous Gene Relationships within Allotetraploid Crop Plan African Finger Millet (*Eleusine coracana*). N. Hall*, J. D. Patel, J. S. McElroy, L. R. Goertzen; Auburn University, Auburn, AL (196)

8:15  Critical Time for Weed Removal in Corn and Soybean as Influenced by Pre-Herbicides. S. Z. Knezevic*, O. Ospitan², J. E. Scott²; ¹University of Nebraska-Lincoln, Lincoln, NE, ²University of Nebraska-Lincoln, Concord, NE (197)


8:45  Seeding Rate, Row Spacing and Herbicide Effects on Weed Control in Pinto Bean. D. W. Morishita*, K. D. LeQuia; University of Idaho, Kimberly, ID (199)

9:00  Horseweed (*Conyza canadensis L.*) Management in Oklahoma Winter Wheat. M. Manuchehri*, J. A. Cross¹, T. A. Baughman², J. Childers¹, V. Kumar³; ¹Oklahoma State University, Stillwater, OK, ²Oklahoma State University, Ardmore, OK, ³Kansas State University, Hays, KS (200)

9:15  Management of Grass Weed Species with Soil-Applied Herbicides in Cool-Season Grasses Grown for Seed. A. G. Hulting*, D. W. Curtis², K. C. Roerig², C. Mallory-Smith¹; ¹OREGON STATE UNIVERSITY, Corvallis, OR, ²Oregon State University, Corvallis, OR (201)

9:30  Optimizing Chlороacetamide Placement in Cotton Production Systems. S. Davis*, L. X. Franca², J. McNeal³, B. Norris¹, J. J. Williams¹; ¹Mississippi State University, Starkville, MS, ²Mississippi State University, Mississippi State, MS, ³Mississippi State University, Mississippi State, Mississippi, MS (202)

9:45  Developing a Laser Weeding Robot for Weed Control in Broad-Scale Production Systems. G. R. Coleman*, M. J. Walsh; University of Sydney, Narrabri, Australia (203)

10:00  Break

10:15  Impact of Increasing Levels of Irrigation on Weed Control and Corn Yield with and Without a Wheat
Cover Crop. R. Currie*, P. Geier; Kansas State University, Garden City, KS (204)


10:45 The Impact of Cover Crop Biomass and C:N Ratio on Early-Season Weed Suppression. K. B. Pittman*, J. Barney, M. L. Flessner; Virginia Tech, Blacksburg, VA (206)

11:00 Cover Crop Response to Residual Herbicides in Peanut and Cotton Rotation. K. J. Price*1, S. Li1, A. Price2; 1Auburn University, Auburn, AL, 2USDA-ARS, Auburn, AL (207)

11:15 Implications of Narrow Crop Row Spacing and Delayed Avena Fatua and Avena Ludoviciana Emergence for Weed Growth and Seed Production in Wheat. B. S. Chauhan*, G. Mahajan; The University of Queensland, Gatton, Australia (208)

11:30 On-farm Assessment of Weed Management and Productivity of Dry-seeded Rice in the Irrigated Rice-Wheat Cropping System. M. S. Bhullar*1, N. Dhaliwal2, J. Grover3, K. Kaur4, A. Kaur5, M. Singh6, S. Chopra7, H. Singh8, M. Kaur1; 1Punjab Agricultural University, Ludhiana, India, 2Punjab Agricultural University, Sri Muktsar Sahib, India, 3Punjab Agricultural University, Faridkot, India, 4Punjab Agricultural University, Amritsar, India, 5Punjab Agricultural University, Moga, India, 6Punjab Agricultural University, Sangrur, India, 7Punjab Agricultural University, Gurdaspur, India, 8Punjab Agricultural University, Fatehgarh sahib, India (209)

11:45 Lunch

1:00 Influence of Carrier Volume, Nozzle Type, and Weed Size on Glufosinate Efficacy. J. Calhoun*1, D. B. Reynolds2; 1Mississippi State University, Starkville, MS, 2Mississippi State University, Mississippi State, MS (210)

1:15 Glufosinate-Resistant Italian Ryegrass from Oregon: Role of Glutamine Synthetase Isoforms and Herbicide Metabolism in the Resistance Mechanism. C. A. Brunharo*1, H. K. Takano2, C. Mallory-Smith3, F. E. Dayan4, B. Hanson5; 1University of California, Davis, Davis, CA, 2Colorado State University, Ft Collins, CO, 3OREGON STATE UNIVERSITY, Corvallis, OR, 4Colorado State University, Fort Collins, CO, 5University of California, Davis, Winters, CA (211)
1:30 Control of Common Lambsquarters and Velvetleaf by Tank-Mixing Glufosinate and Fluthiacet-Methyl in Glufosinate-Resistant Soybean. P. Chahal, A. J. Jhala*; University of Nebraska-Lincoln, Lincoln, NE (212)

1:45 Characterization of Palmer Amaranth with Reduced Sensitivity to S-metolachlor. C. Brabham*, J. K. Norsworthy, M. M. Houston; University of Arkansas, Fayetteville, AR (213)

2:00 Status of Multiple Herbicide-Resistant Palmer Amaranth in Kansas. V. Kumar*1, R. Liu1, T. Lambert2, D. Peterson3; 1Kansas State University, Hays, KS, 2Kansas State University, Manhattan, KS (214)

2:15 Influence of Sequence and Timing of Synthetic Auxins and Glufosinate on Large Palmer Amaranth Control. F. B. Browne*, S. Li, K. J. Price; Auburn University, Auburn, AL (215)

2:30 Multiple Herbicide-Resistant Horseweed (Conyza canadensis L. Cronq.) and Waterhemp (Amaranthus tuberculatus Moq. J. D. Sauer) Dose Response to Tolpyralate and Tolpyralate Plus Atrazine. B. A. Metzger*1, A. J. Raeder2, D. Hooker3, D. Robinson4, P. Sikkema4; 1University of Guelph, Wallenstein, ON, 2ISK Biosciences, Concord, OH, 3University of Guelph, Ridge, ON, 4University of Guelph, Ridgetown, ON (216)

2:45 Predicting the Relative Long-Term Effectiveness of Herbicide Programs Using Syngenta's Resistance Fighter Model. R. Wuerffel*1, C. L. Dunne2, E. Parker1, E. Palmer3, D. L. Bowers4, D. Kaundun4, C. Liu4; 1Syngenta, Vero Beach, FL, 2Syngenta Crop Protection, Vero Beach, FL, 3Syngenta Crop Protection, Greensboro, NC, 4Syngenta, Greensboro, NC, 5Syngenta, Braknell, England (217)

3:00 Break

3:15 Economic Implications of Herbicide Resistant Weed Management in Glyphosate-Resistant Sugarbeet. A. T. Adjesiwor*1, N. C. Lawrence2, P. Jha3, T. Gaines4, E. Westra1, A. Kniss1; 1University of Wyoming, Laramie, WY, 2University of Nebraska-Lincoln, Pullman, WA, 3Montana State University, Huntley, MT, 4Colorado State University, Fort Collins, CO (218)

3:30 Efficacy and Economic Comparison of Enlist, Xtend and Liberty Based Weed Control Systems in
Section 5. Wildland and Aquatic Invasive Plants

LOCATION: Maurepas
TIME: 8:00 AM - 11:30 AM
CHAIR/ MODERATOR: Christopher Mudge
U.S. Army Engineer Research and Development Center
Baton Rouge, LA
CO-CHAIR: Mark Renz
University of Wisconsin
Madison, WI

*SPEAKER

Cotton, S. A. Nolte*1, R. Vulchi2, M. Matocha3, G. Morgan4, J. McGinty4; 1Texas A&M AgriLife Extension, College Station, TX, 2Texas A&M University, College Station, TX, 3Texas AgriLife Extension Service, College Station, TX, 4, College Station, TX (219)

3:45 Investigation of Conyza canadensis Control in Kentucky No-Till Soybean Across Three Herbicide Resistant Soybean Varieties. T. R. Legleiter*1, J. Green2; 1University of Kentucky, Princeton, KY, 2University of Kentucky, Lexington, KY (220)

4:00 On-Farm Evaluations of Auxin Nozzles for Peanut Pest Management. E. P. Prostko*1, M. R. Abney2, R. C. Kemerais2, G. C. Rains2, J. L. Jacobs3, C. T. Powell4, W. G. Tyson5; 1University of Georgia, Tifton, GA, 2University of Kentucky, Tifton, GA, 3The University of Georgia, Tifton, GA, 4The University of Georgia, Statesboro, GA (221)

4:15 Gramoxone Magnum: A New Option for Burndown and Residual Control. R. Lins*1, M. Saini2, D. L. Bowers3; 1Syngenta Crop Protection, Rochester, MN, 2Syngenta Crop Protection, Greensboro, NC, 3Syngenta, Greensboro, NC (222)

4:30 Research Results on a Future Residual Herbicide for Dicamba-Tolerant Soybeans. C. Asmus*1, K. E. Keller2; 1BASF, Raleigh, NC, 2BASF, Rougemont, NC (223)
8:00 Federal Research and its Linkage with the USEPA Aquatic Herbicide Registration Process. K. D. Getsinger*1, C. R. Mudge2, B. T. Sartain1, M. Netherland3; 1U.S. Army Engineer Research and Development Center, Vicksburg, MS, 2U.S. Army Engineer Research and Development Center, Baton Rouge, LA, 3University of Florida, Gainesville, FL (224)

8:15 Concentration and Exposure Time Requirements of Florpyrauxifen-Benzyl for Managing Invasive Aquatic Plants. C. R. Mudge*1, K. D. Getsinger2, B. T. Sartain2, M. Netherland3; 1U.S. Army Engineer Research and Development Center, Baton Rouge, LA, 2U.S. Army Engineer Research and Development Center, Vicksburg, MS, 3University of Florida, Gainesville, FL (225)

8:30 Field Demonstrations of Selective Control of Major US Aquatic Invasive Plants using ProcellaCOR (a.i., florpyrauxifen-benzyl). M. A. Heilman*1, K. D. Getsinger2, D. Jones3, J. Ferrell4; 1SePRO, Carmel, IN, 2U.S. Army Engineer Research and Development Center, Vicksburg, MS, 3University of Florida, Lake Alfred, FL, 4University of Florida, Gainesville, FL (226)

8:45 Herbicide Trials with Brazilian Egeria (Egeria densa) for Management in the Sacramento / San Joaquin River Delta. J. D. Madsen*; USDA-ARS, Woodland, CA (227)

9:00 Evaluation of Metsulfuron-Methyl for Controlling Giant Salvinia. W. J. Prevost*1, C. R. Mudge2; 1Louisiana State University, Baton Rouge, LA, 2U.S. Army Engineer Research and Development Center, Baton Rouge, LA (228)

9:15 Does Giant Salvinia Impact Aerial Colonization of Aquatic Insects? C. Wahl*; Louisiana State University AgCenter, Baton Rouge, LA (229)

9:30 Challenges and Opportunities for Biological Control of Non-Native Weeds in Louisiana. R. R. Diaz*1, V. Manrique2, M. B. Rayamajhi3, C. Wahl4, R. Watson1; 1Louisiana State University, Baton Rouge, LA, 2Southern University and A&M College, Baton Rouge, LA, 3USDA, Cooper City, FL, 4Louisiana State University AgCenter, BATON ROUGE, LA (230)

9:45 Is Biological Control Method a Viable Option for Invasive Weed Management? Recent Examples from Florida. M. B. Rayamajhi*; USDA, Cooper City, FL (231)
10:00  Break

10:15  Evaluation of Improved Herbicidal Techniques for Crested Floating Heart (*Nymphoides cristata*) Management. K. Foley*, R. Richardson; North Carolina State University, Raleigh, NC (232)

10:30  Management of Problematic Native Aquatic Vegetation to Enhance Multi-User Benefits in Southeastern Waterbodies. K. L. Calhoun*, G. N. Ervin, L. G. Turnage; Mississippi State University, Starkville, MS (233)

10:45  Can Seawater be Used for Selective Management of Brazilian Peppertree in Mangrove Communities? S. F. Enloe*, C. C. Jacono; University of Florida, Gainesville, FL (234)

11:00  Development of an Autonomous Application System for Aquatic Plant Management. R. Richardson*, S. Hoyle1, J. Nawrocki2; 1North Carolina State University, Raleigh, NC, 2UPI, Inc., Raleigh, NC (235)

11:15  Bio-Economic Models Prioritizing East Maui Watershed Protection Against Miconia Invasion. J. J. Leary*, N. A. Jorgensen2, M. Renz3, K. Burnett4, C. Wada4, B. V. Mahnken5; 1University of Florida-Institute of Food and Agricultural Sciences, Gainesville, FL, 2University of Wisconsin-Madison, Madison, WI, 3University of Wisconsin, Madison, WI, 4University of Hawaii-Manoa, Honolulu, HI, 5University of Hawaii-Manoa, Makawao, HI (236)

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**TUESDAY MORNING  FEBRUARY 12**

Section 4. Pasture, Rangeland, Forest, and Rights of Way

LOCATION: Maurepas
TIME: 11:30 AM - 12:00 PM
CHAIR: Joseph Omielan
University of Kentucky
Lexington, KY

CO-CHAIR: Lisa Obear
University of Nebraska-Lincoln
Fort Atkinson, WI

MODERATOR: Christopher Mudge
PhD Student Oral Contest Session I

LOCATION: Napoleon Ballroom A2
TIME: 10:00 AM - 5:00 PM
CHAIR/ MODERATOR: Stephen Schraer
CO-CHAIR: Darrin Dodds

*SPEAKER  † STUDENT CONTEST

10:00  †Are Non-Synthetic Herbicides Useful for Weed Control in Rice?  S. Abugho*, A. V. Pagenotto, X. Zhou, M. V. Bagavathiannan, 1Texas A&M University, College Station, TX, 2University of Sao Paulo, Sao Paulo, Brazil, 3Texas A&M University, Beaumont, TX (239)

10:15  Efficacy of Trifludimoxazin Alone and in Combination with Glufosinate, Glyphosate, Paraquat, and Saflufenacil on Emerged Tall Waterhemp (Amaranthus tuberculatus).  N. R. Steppig, S. Willingham, D. M. Whalen, B. G. Young; 1Purdue University, Lafayette, IN, 2BASF, Seymour, IL, 3University of Missouri, Columbia, MO, 4Purdue University, Brookston, IN (240)

10:45  Cotton (Gossypium hirsutum) Defoliation as Affected by Droplet Size and Carrier Volume. J. McNeal*, D. Dodds2, G. Kruger3, S. Davis*, L. X. Franca2, B. Norris5, J. J. Williams4; 1Mississippi State University, Mississippi State, Mississippi, MS, 2Mississippi State University, Mississippi State, MS, 3University of Nebraska-Lincoln, North Platte, NE, 4Mississippi State University, Starkville, MS (242)

11:00  †Antioxidant Responses to Weed Competition in Arabidopsis and Maize. N. Berardi*, C. J. Swanton, S. Amirsadeghi; University of Guelph, Guelph, ON (243)

11:15  †Phytochemical Characterization and Bio-Herbicidal Potential of Lantana Camara L. against Selected Weeds of Wheat Crop. T. Anwar*, N. Ilyas1, R. Qureshi1, M. Khan Panni2; 1Pir Mehr Ali Shah Arid Agriculture University, Shamsabad, Murree Road, Rawalpindi, Pakistan, 2Bioactive Natural Products and Phytoceuticals Laboratory, Plant and Soil Building, Michigan State University, East Lansing, MI (244)

11:30  †Ecosystem Services Provided by Cover Crops Interseeded in Corn. A. P. Brooker*, K. Renner2, C. Sprague2, L. Tiemann2; 1Michigan State University, Haslett, MI, 2Michigan State University, East Lansing, MI (245)

11:45  †Physiological Basis for the Contact Activity of Glufosinate. H. K. Takano*, R. S. Beffa2, C. Preston3, P. Westra4, F. E. Dayan4; 1Colorado State University, Ft Collins, CO, 2Bayer Crop Science, Frankfort / Main, Germany, 3University of Adelaide, Glen Osmond, Australia, 4Colorado State University, Fort Collins, CO (246)

12:00  Lunch

1:00  †Cereal Rye Cover Crop and Herbicide Application Method Impacts Cotton Stand, Palmer Amaranth Control, and Yield. L. C. Hand*, R. L. Nichols2, T. M. Webster3, A. S. Culpepper4; 1University of Georgia, Tifton, GA, 2Cotton Incorporated, Cay, NC, 3USDA-ARS, Tifton, GA, 4University of Georgia, Tifton, GA (247)

1:15  †Prediction of PPO-Inhibitor Resistance Risk through Genomic Analysis. A. L. Barker*, F. E. Dayan; Colorado State University, Fort Collins, CO (248)

1:30  †Tradeoffs between Planting Date, Cover Crop Biomass, and Weed Suppression in an Organic No-
1:45  †Isoleucine to Leucine Amino Acid Substitution in Plastidic ACCase Confers Resistance to Pinoxaden Herbicide in Southern Crabgrass (Digitaria ciliaris). S. Basak*, B. Bi1, A. M. Brown1, P. McCullough2, J. S. McElroy1; 1Auburn University, Auburn, AL, 2University of Georgia, Griffin, GA (250)

2:00  †Impact of Crop Rotation, Tillage, and Herbicide Treatment on R:S Ratio of ALS-Resistant Kochia After Four Years. E. G. Mosqueda*1, A. Kniss1, N. C. Lawrence2, P. Jha3, G. Sbatella4; 1University of Wyoming, Laramie, WY, 2University of Nebraska-Lincoln, Pullman, WA, 3Montana State University, Huntley, MT, 4University of Wyoming, Powell, WY (251)

2:15  †Target-Site Mutation in Conyza canadensis Biotypes with Extreme Resistance to Glyphosate in Ohio and Iowa, USA. Z. T. Beres*1, L. A. Giese1, D. M. Mackey1, M. D. Owen2, E. R. Page3, A. Snow4; 1Ohio State University, Columbus, OH, 2Iowa State University, Ames, IA, 3Agriculture and Agri-Food Canada, Harrow, ON, 4Ohio State University, Dept of EEOB, Columbus, OH (252)

2:30  †Fertilizer Placements Affect Weed Growth and Reproduction in Nursery Container Production. D. Saha*1, C. Marble2, A. Chandler1; 1Mid-Florida Research and Education Center, University of Florida, Apopka, FL, 2University of Florida, Apopka, FL (253)

2:45  †Single Nucleotide Polymorphism in Plastid Protoporphyrinogen Oxidase Gene (PPO1) Confers Resistance to Oxidiazon in Eleusine indica. B. Bi1, Q. Wang1, J. J. Coleman1, J. S. McElroy1, J. M. Peppers2, N. Hall1; 1Auburn University, Auburn, AL, 2Auburn University, auburn, AL (254)

3:00  Break

3:15  †Evaluation of the Suitability of 13 Summer Cover Crop Species for Southeast Texas. S. L. Samuelson*, M. V. Bagavathiannan; Texas A&M University, College Station, TX (255)

3:30  †Investigation of Metabolism Associated with Quizalofop Resistance in CoAXium Wheat. R. A. Bough*, F. E. Dayan, T. Gaines; Colorado State University, Fort Collins, CO (256)

3:45  Assessing Dicamba Injury Across Different Soybean Varieties and Maturity Groups. E. A. Jones*1, W.
Everman¹, J. Sanders², D. J. Contreras¹, M. A. Granadino¹; ¹North Carolina State University, Raleigh, NC, ²North Carolina State University, Holly Springs, NC (257)

4:00 †Genetic Diversity and Molecular Markers for Abiotic Stress Tolerance in Weedy Rice. S. D. Stallworth*, T. Tseng¹, S. Shrestha², B. C. Schumaker²; ¹Mississippi State University, Mississippi State, MS, ²Mississippi State University, Starkville, MS (258)

4:15 Leptochloa acuminata Clomazone Metabolism in California Rice. K. E. Driver*, C. A. Brunharo, A. Godar, K. Al-Khatib; University of California, Davis, Davis, CA (259)

4:30 †Metabolic Resistance to S-metolachlor in Two Multiple Herbicide-Resistant Waterhemp Populations from Illinois. S. Strom*, L. Gonzini¹, C. Mitsdarfer¹, A. S. Davis², D. E. Riechers³, A. Hager¹; ¹University of Illinois, Urbana, IL, ²N-319 Turner Hall, Urbana, IL, ³, Urbana, IL (260)

4:45 †Investigating Cross-Resistance to the Synthetic Auxins Fluroxypyr and Dicamba in Kochia Scoparia. O. E. Todd*, T. Gaines¹, D. Pettinga¹, P. Westra¹; ¹Colorado State University, Fort Collins, CO, (261)

TUESDAY MORNING  FEBRUARY 12

PhD Student Oral Contest Session II

LOCATION: Napoleon Ballroom A3
TIME: 10:15 AM - 5:00 PM
CHAIR/ Stephen Schraer
MODERATOR: Syngenta
CO-CHAIR: Darrin Dodds
Mississippi State University
Mississippi State, MS

*SPEAKER  † STUDENT CONTEST

10:15 †A Novel Kentucky Adapted Red Clover Line Displays Increased 2,4-D Tolerance. L. P. Araujo*, M. Barrett, T. Pfeiffer, L. D. Williams, G. Olson; University of Kentucky, Lexington, KY (262)

47
10:30 †Integrating Crop Rotation and Herbicide Programs to Control Kochia and Palmer Amaranth in Sugarbeet. C. W. Beiermann*, N. C. Lawrence; 1University of Nebraska-Lincoln, Scottsbluff, NE, 2University of Nebraska-Lincoln, Pullman, WA (263)

10:45 †Comparison of Soybean Injury and Yield Response to Low-dose Dicamba Particle Drift and Vapor. F. B. Browne*, S. Li, K. J. Price; Auburn University, Auburn, AL (264)


11:15 †Evaluating Effectiveness of Dicamba Removal from Contaminated Sprayers Following Various Incubation Periods from Contamination to Clean Out. Z. A. Carpenter*, D. B. Reynolds, A. B. Johnson; Mississippi State University, Mississippi State, MS (266)

11:30 †Response of White and Yellow Popcorn Hybrids to Pre- and Post-Emergence Herbicides. E. R. Barnes*, S. Z. Knezevic, O. R. Rodriguez, S. Irmak, A. J. Jhala; 1University of Nebraska-Lincoln, Lincoln, NE, 2University of Nebraska-Lincoln, Pullman, WA, 3Conagra Foods, Inc, Brookston, IN (267)

11:45 †2,4-D Metabolic Resistance in Waterhemp (Amaranthus tuberculatus). M. Figueiredo*, A. Kuepper, D. Giacomini, M. Jugulam, G. Kruger, P. Tranel, F. E. Dayan, P. Westra, T. Gaines; 1Colorado State University, Fort Collins, CO, 2Bayer Crop Science, Frankfurt, Germany, 3University of Illinois, Urbana, IL, 4Kansas State University, Manhattan, KS, 5University of Nebraska-Lincoln, North Platte, NE, 6University of Illinois, Urbana, IL (268)

12:00 Lunch

1:00 †Bicyclopyrone Efficacy in Sweet Corn. T. L. Burke*, R. Zuger, I. C. Burke; Washington State University, Pullman, WA (269)
1:15 †Can Off-target Movement of Dicamba be Reduced with See & Spray Technology? Z. D. Lancaster*,1, J. K. Norsworthy¹, J. T. Richburg², T. Barber³; ¹University of Arkansas, Fayetteville, AR, ²University or Arkansas, Fayetteville, AR, ³University of Arkansas, Lonoke, AR (270)

1:30 †Evaluation of Herbicide Options for Cover Crop Termination. W. C. Greene*,1, M. L. Flessner², K. B. Pittman², K. W. Bamber², L. S. Rector², C. W. Cahoon³; ¹Virginia Tech, Virginia Tech, VA, ²Virginia Tech, Blacksburg, VA, ³Virginia Tech, Painter, VA (271)

1:45 †2,4-D Amine and 2,4-D Butoxyethyl Ester Behavior in Eurasian and Hybrid Watermilfoil. M. F. Ortiz*,1, M. Figueiredo¹, S. J. Nissen¹, F. E. Dayan¹, R. M. Wersal², W. Ratajczyk²; ¹Colorado State University, Fort Collins, CO, ²Lonza, Alpharetta, GA (272)

2:00 †Florpyrauxifen-benzyl Activity on Common Aquatic Weeds in Louisiana Rice. S. Rustom*,1, E. P. Webster¹, B. McKnight¹, D. C. Walker¹, C. Webster²; ¹Louisiana State University, Baton Rouge, LA, ²Louisiana State University, Baton Rouge, AL (273)

2:15 †How does Temperature Rise and Bacillus sp. Inoculation Affect Germination and Establishment of Native and Invasive Species within Riparian Forest? O. Cano*,1, G. Muro-Pérez², J. Sánchez-Salas³, J. Sáenz-Mata³, E. Jurado⁴, J. Flores⁵; ¹Biological Sciences Faculty - UJED, Lerdo, Mexico, ²Biological Sciences Faculty - UJED, Gomez Palacio, Mexico, ³Biological Sciences Faculty - UJED, Gómez Palacio, Mexico, ⁴Forestry Sciences Faculty - UANL, Linares, Mexico, ⁵Environmental Sciences Division - IPICYT, San Luis Potosi, Mexico (274)

2:30 †Response of Sweetpotato to Fluridone Alone or in Combination with Flumioxazin Followed by S-metolachlor. S. C. Smith*, K. M. Jennings, S. Chaudhari, D. Monks; North Carolina State University, Raleigh, NC (275)

2:45 †Modeling Flooding and Burial Effects on the Emergence of 5 California Weedy Rice Biotypes. L. B. Galvin*,1, M. B. Mesgaran², K. Al-Khatib¹, W. B. Brim-DeForest³; ¹University of California, Davis, Davis, CA, ²University of Melbourne, Melbourne, Australia, ³University of California, Davis, Yuba City, CA (276)

3:00 Break

3:30 †A Mechanistic Framework to Explain Yield Loss in Corn (*Zea mays L.*) Caused by Early Season Stress. H. Gonzalez, E. A. Lee, L. Lukens, C. J. Swanton; University of Guelph, Guelph, ON (278)

3:45 †Estimating Standing Biomass of an Invasive Plant using sUAS. A. Howell, R. Richardson; North Carolina State University, Sanford, NC, USDA-ARS and North Carolina State University, Raleigh, NC (279)

4:00 †Evaluation of Seed Dormancy in Ryegrass (*Lolium spp.*) Accessions Collected from Texas Blacklands. A. Maity, S. Abugho, V. Singh, N. Subramanian, G. R. Smith, M. V. Bagavathiannan; Texas A&M University, College Station, TX, Texas A&M University, Overton, TX (280)

4:15 †Interaction of Lactofen with Glyphosate or Glufosinate for Weed Control as Affected by Adjuvants and Droplet Size. J. Gizotti de Moraes, C. Chiaranda Rodrigues, B. Vukoja, G. Kruger; University of Nebraska-Lincoln, North Platte, NE (281)

4:30 †Describing Phenology Patterns of Different Natural Cohorts of Sicklepod (*Senna obtusifolia* (L.) Irwin & Barneby) Using Sigmoidal Models. T. A. Reinhardt Piskackova, K. M. Jennings, R. Richardson, C. Reberg-Horton, R. Leon; North Carolina State University, Raleigh, NC (282)

4:45 †Evaluation of Soybean Tolerance to Off-Target Loyant™ (florpyrauxifen-benzyl) Deposition. D. C. Walker, D. O. Stephenson, B. McKnight, S. Rustom, C. Webster; Louisiana State University, Baton Rouge, LA, Louisiana State University AgCenter, Alexandria, LA, Louisiana State University, Baton Rouge, AL (283)
TUESDAY MORNING  FEBRUARY 12

MS Student Oral Contest Session I

LOCATION:  Napoleon Ballroom C2
TIME:  10:15 AM - 4:00 PM
CHAIR/  Stephen Schraer
MODERATOR:  Syngenta
               Meridian, ID
CO-CHAIR:  Darrin Dodds
            Mississippi State University
            Mississippi State, MS

*SPEAKER  † STUDENT CONTEST

10:15  †Improving Selectivity of Physical Weed Control in Winter Squash: Cultivation Tolerant Varieties and Traits. M. M. Benzle*, D. C. Brainard; Michigan State University, East Lansing, MI (284)

10:30  †Seed Production Potential Among Diverse Cytoplasmic Male Sterile Sorghum bicolor Genotypes Following Natural Pollination with S. halepense. C. Sias*, G. Hodnett, W. Rooney, M. V. Bagavathiannan; Texas A&M University, College Station, TX (285)

10:45  †Pollinator Use of Growing Season Cover Crops in an Agroecosystem. C. J. Bryan*, S. Sipes, L. Kassim, D. Gibson, D. Scott, K. L. Gage; Southern Illinois University, Carbondale, IL (286)

11:00  †Browntop Millet (Urochloa ramosa) and Broadleaf Signalgrass (Urochloa platyphylla) Competition Effects on Growth and Yield of Peanut (Arachis hypogaea) Managed with Prohexadione Calcium. Z. R. Treadway†, J. Ferguson†, J. T. Irby†, B. Zurweller2, J. Gore3; †Mississippi State University, Mississippi State, MS, 2Mississippi State University, Starkville, MS, 3Mississippi State University, Stoneville, MS (287)

11:15  †Optimizing Cover Crop and Herbicide Inputs for Weed Management in No-Till Corn and Soybean. J. M. Bunchek†, J. M. Wallace2, W. S. Curran3, D. Mortensen2, M. J. VanGessel4, B. A. Scott4; †Penn State University, State College, PA, 2Penn State University, University Park, PA, 3Penn State University, Bozeman, MT, 4University of Delaware, Georgetown, DE (288)
11:30 †Italian Ryegrass (*Lolium multiflorum*) Timing of Removal Effects on Corn (*Zea mays L.*) in Mississippi. M. T. Wesley*, J. A. Bond, D. B. Reynolds, E. J. Larson, J. Ferguson; 1Mississippi State University, MS State, MS, 2Delta Research and Extension Center, Stoneville, MS, 3Mississippi State University, Mississippi State, MS, 4Mississippi State University, Starkville, MS (289)

11:45 †Pesticide Phytoremediation Potential of Southeastern US Terrestrial Plants: *Iris versicolor*, *Panicum virgatum*, and *Andropogon virginicus*. T. Gannon, F. Yelverton, A. M. McKnight; 1North Carolina State University, Raleigh, NC, 2North Carolina State University, Cary, NC (290)

12:00 Lunch

1:00 †Utilizing Geospatial Technology to Assess Off-target Dicamba Injury and Yield Loss in Missouri Soybean Fields. B. R. Dintelmann*, S. T. Farrell, K. Shannon, M. Bish, K. Bradley; 1University of Missouri, Belleville, IL, 2University of Missouri, Columbia, MO (291)

1:15 †Surface and Living Mulches for Strip-Tilled Vegetable Production. J. J. Puka-Beals, G. G. Gramig; 1North Dakota State University, Fargo, ND (292)

1:30 †Investigations of the Effects of Soil pH on the Volatility of Dicamba Formulations. E. G. Oseland*, M. Bish, K. Bradley; University of Missouri, Columbia, MO (293)

1:45 †Weed Suppression and Light Penetration in Standing and Rolled Cereal Rye and Wheat Cover Crop Residue. L. S. Rector*, M. L. Flessner, D. McCall, W. Thomason; Virginia Tech, Blacksburg, VA (294)

2:00 †Boll Distribution and Yield Response to Simulated Dicamba Drift on Non-Dicamba Tolerant Cotton (*Gossypium hirsutum*). K. R. Russell*, P. A. Dotray, G. L. Ritchie; Texas Tech University, Lubbock, TX (295)

2:15 †Examining Environmental Factors and Chemical Control Options for Juncus Species. Z. D. Small*, J. D. McCurdy, J. T. Brosnan, J. D. Byrd, Jr., T. Tseng, E. Reasor, M. P. Richard; 1Mississippi State University, Mississippi State, MS, 2Mississippi State University, Mississippi State University, MS, 3U of TN 252 Ellington Bldg, Knoxville, TN, 4PBI-Gordon Corporation, Shawnee, KS, 5Mississippi State University, Starkville, MS (296)
2:30 †Weedy Rice Genomic Regions Contributing to Allelopathy. B. C. Schumaker*1, T. Tseng2, S. Shresth3, S. D. Stallworth2; 1Mississippi State University, Starkville, MS, 2Mississippi State University, Mississippi State, MS, 3Texas A&M, College Station, TX (297)

2:45 †The Interaction of Plant Cutting and Burndown Herbicides on Horseweed Control To Improve Management in Double-Crop Soybeans Following Wheat. C. P. Carmody*1, K. L. Gage1, R. F. Krausz2; 1Southern Illinois University, Carbondale, IL, 2Southern Illinois University, Belleville, IL (298)

3:00 Break

3:15 †Comparison of Nozzle Type and Application Pressure on Weed Control in Peanut. K. L. Broster*1, J. Ferguson1, T. A. Baughman2, B. Zurweller3, B. Rushing4; 1Mississippi State University, Mississippi State, MS, 2Oklahoma State University, Ardmore, OK, 3Mississippi State University, Starkville, MS, 4Mississippi State University, Newton, MS (299)

3:30 †Scaling Up Brazilian Peppertree (Schinus terebinthifolia) IPT Research with Contractors in South Florida. M. E. Bell*; University of Florida, Gainesville, FL (300)

3:45 †Droplet Size Effects on Preemergence Herbicide Efficacy in Soybean. P. H. Urach Ferreira1, L. H. Merritt2, D. B. Reynolds1, J. T. Irby1, G. Kruger3, J. Ferguson1; 1Mississippi State University, Mississippi State, MS, 2Mississippi State University, MS State, MS, 3University of Nebraska-Lincoln, North Platte, NE (301)
10:15  †Efficacy of HPPD-Inhibiting Herbicides Applied Preemergence or Postemergence for Control of Multiple Resistant Waterhemp (*Amaranthus tuberculatus var. rudis*). L. Benoit*, P. Sikkema*, D. Hooker, D. Robinson; †University of Guelph, Kirtton, ON, ‡University of Guelph, Ridgetown, ON, §University of Guelph, Ridge, ON (302)

10:30  †Out with the Old-World Climbing Fern, in with the New: Evaluation of Florpyrauxifen-Benzyl and Triclopyr for *Lygodium microphyllum* Control in South Florida. J. S. Glueckert*, S. F. Enloe; †University of Florida, Boynton Beach, FL, ‡University of Florida, Gainesville, FL (303)

10:45  Physiological Parameters of Velvetleaf Under Normal and Elevated CO2 Treated with Tembotrione. J. C. Argenta*, Q. Ruchel, S. Finlayson, T. Gentry, M. V. Bagavathiannan, K. Carson; †Texas A&M University, College Station, TX, ‡Federal University of Pelotas, Pelotas, Brazil (304)

11:00  †PPO Arg128 Substitutions: What are the Options? K. Lillie*, P. Tranel, J. Lerchl; †University of Illinois, Urbana, IL, ‡University of Illinois, Urbana, IL, §BASF SE, Limburgerhof, Germany, ¶BASF SE, Ludwigshafen am Rhein, Germany (305)

11:15  †Is the Grass Greener?: Opting for Graminicides over Broad Spectrum Herbicides for West Indian Marsh Grass Control. K. H. Quincy*, S. F. Enloe; University of Florida, Gainesville, FL (306)


11:45  †Interval Between Sequential Glufosinate Applications Influences Weed Control in Cotton. T. M. Randell*, L. C. Hand, J. C. Vance, A. S. Culppepper; †University of Georgia, Tifton, GA, ‡University of Georgia, Tifton, GA (308)

12:00  Lunch

1:00  †Weed Management in Isoxaflutole-Resistant Soybean Using a Two-Pass Herbicide Program. A. Smith*, A. Kaastra, D. Hooker, D. Robinson, P. Sikkema; n/a, Ancaster, ON, Bayer CropScience,
1:15 Evaluation of Quizalofop Mixture Interactions with Reduced Rates of Halosulfuron in Provisia Rice. C. Webster*, 1 E. P. Webster, 2 B. McKnight, 2 S. Rustom, 2 D. C. Walker, 1 Louisiana State University, Baton Rouge, AL, 2Louisiana State University, Baton Rouge, LA (310)

1:30 †Variation in Herbicide Performance on Kalanchoe Control in Florida Dune Communities. J. Solomon*; University of Florida, Gainesville, FL (311)

1:45 †Evaluation of Early and Late-Season Marestail Management in Soybeans. H. Summers*, 1 D. Lingenfelter, 2 H. Karsten; 1Pennsylvania State University, University Park, PA, 2Penn State University, University Park, PA (312)

2:00 The Effectiveness of Integrated Tactics for Managing Johnsongrass in In Zen Sorghum. B. L. Young*, 1 N. E. Korres, 2 L. M. Lazaro, 3 M. J. Walsh, 4 J. K. Norsworthy, 2 M. V. Bagavathiannan; 1Texas A&M University, College Station, TX, 2University of Arkansas, Fayetteville, AR, 3Louisiana State University AgCenter, Baton Rouge, LA, 4University of Sydney, Narrabri, Australia (313)

2:15 †Potential Safening of Topramezone on Creeping Bentgrass (Agrostis stolonifera L.) with Additive Product Combinations. C. G. Goncalves*, 1 J. M. Peppers, 1 A. M. Brown, 2 J. S. McElroy; 1Auburn University, auburn, AL, 2Auburn University, Auburn, AL (314)

TUESDAY AFTERNOON FEBRUARY 12

Section 3. Turf and Ornamental Crops

LOCATION: Maurepas
TIME: 1:00 PM - 3:00 PM
CHAIR/ MODERATOR: Prasanta Bhowmik
University of Massachusetts Amherst, MA
CO-CHAIR: Jatinder Aulakh
The Connecticut Agricultural Experiment Station Windsor, CT
1:00 Weed Control Efficacy and Christmas Tree Tolerance to Pre and Postemergence Herbicides. J. S. Aulakh*; The Connecticut Agricultural Experiment Station, Windsor, CT (315)


1:30 Evaluation of Newly Established Buffalograss for Tolerance to Glyphosate. M. B. Bertucci*, D. Karcher, M. Richardson, D. OBrien; University of Arkansas, Fayetteville, AR (317)

1:45 Efficacy of Avenue South in Tall Fescue (Festuca arundinacea). J. Derr*, A. Nichols; Virginia Tech, Virginia Beach, VA (318)

2:00 Preemergence Control of Praxelis clematidea, an Emerging Weed in Florida Nurseries. C. Marble*1, N. Boyd2, S. T. Steed3; 1University of Florida, Apopka, FL, 2University of Florida, Balm, FL, 3University of Florida/IFAS Extension, Seffner, FL (319)

2:15 Greenhouse and Field Evaluation of Preemergence Herbicide Effects upon Native Warm Season Grass Establishment for Golf Course Roughs. M. P. Richard*, J. D. McCurdy2, B. S. Baldwin1, J. I. Morrison3; 1Mississippi State University, Starkville, MS, 2Mississippi State University, Mississippi State University, MS, 3Mississippi State University, Mississippi State, MS (320)

2:30 Strategy for the Control of Panic Liverseedgrass (Urochloa panicoides) in Desert Turf. K. Umeda*; University of Arizona, Phoenix, AZ (321)

Weed Seed in Grain Samples and Trade

LOCATION: Napoleon Ballroom B123
TIME: 3:15 PM - 4:45 PM
CHAIR: Shawn Conley
       University of Wisconsin
       Madison, WI
CO-CHAIR: Lee Van Wychen
          WSSA
          Alexandria, VA
MODERATOR: Carroll Moseley
           Syngenta
           Greensboro, NC

*SPEAKER

3:15 National Overview of Weed Seeds and Phytosanitary Restrictions in Foreign Trade. G. Galasso*; USDA-APHIS, Riverdale, MD (323)

3:30 Costs and Benefits of a 1% Cap on Foreign Material in US Soybean Exports. S. Naeve*; University of Minnesota, St. Paul, MN (324)

3:45 Eliminating Weed Seeds at Soybean Harvest: Lessons Learned from the Area-Wide IWM Team. S. B. Mirsky*1, J. K. Norsworthy2, A. S. Davis3, M. V. Bagavathiannan4, S. C. Beam5, J. A. Bond6, K. Bradley7, W. S. Curran8, J. Evans9, W. Everman10, M. L. Flessner9, G. Frisvold11, N. R. Jordan12, L. M. Lazaro13, J. Lindquist14, L. S. Shergill7, L. E. Steckel15, M. J. VanGessel16; 1USDA-ARS, Beltsville, MD, 2University of Arkansas, Fayetteville, AR, 3University of Nebraska, Lincoln, NE, 4Texas A&M University, College Station, TX, 5Virginia Tech, Blacksburg, VA, 6Lincoln University of Missouri, Columbia, MO, 7Penn State University, Bozeman, MT, 8Farmscape Analytics, Concord, NH, 9North Carolina State University, Raleigh, NC, 10University of Arizona, Tucson, AZ, 11University of Minnesota, St. Paul, MN, 12University of Missouri, Columbia, MO, 13Louisiana State University AgCenter, Baton Rouge, LA, 14University of Nebraska, Lincoln, NE, 15University of Tennessee, Jackson, TN, 16University of Delaware, Georgetown, DE (325)

4:00 The Best-Laid Plans for Weeds by Man Sometimes Go Awry. A. Hager*; University of Illinois, Urbana, IL (326)

4:15 What Weed Seeds are Actually Found in Soybean Grain Samples in Louisiana. L. M. Lazaro*1, J. T. Copes2, D. O. Stephenson3, D. Miller4, A.
IWSS General Session

LOCATION: Oak Alley
TIME: 5:30 PM - 7:00 PM
CHAIR/ MODERATOR: Nilda Burgos

Section 1. Agronomic Crops

LOCATION: Borgne
TIME: 8:00 AM - 10:00 AM
CHAIR/ MODERATOR: Neha Rana
CO-CHAIR: Ryan Lins

*SPEAKER

8:00 The Effect of Multiple Dicamba Exposures on Soybean Growth and Yield. J. A. Bond, K. Bradley, N. Corbin, K. L. Gage, M. Loux, E. J. Miller, J. K. Norsworthy, D. B. Reynolds, L. E. Steckel, B. G. Young, Delta Research and Extension Center, Stoneville, MS, University of Missouri, Columbia, MO, Mississippi State University, Stoneville, MS, Southern Illinois University, Carbondale, IL, Ohio State University, Columbus, OH, Southern Illinois University, Carbondale, IL, University of Arkansas, Fayetteville, AR, Mississippi State
8:15  Comparative Responses of Non-Dicamba Tolerant Soybean Varieties to Dicamba. O. Osipitan*1, J. E. Scott1, S. Z. Knezevic2; 1University of Nebraska-Lincoln, Concord, NE, 2University of Nebraska-Lincoln, Lincoln, NE (330)

8:30  Dicamba Durability in Roundup Ready® Xtend Crop System. N. Rana, S. Evans*; Bayer CropScience, St Louis, MO (331)

8:45  Effect of Carrier Volume and Spray Quality on Soybean Response to Dicamba. B. Sperry*1, J. Calhoun1, D. B. Reynolds2, J. Ferguson2, G. Kruger3; 1Mississippi State University, Starkville, MS, 2Mississippi State University, Mississippi State, MS, 3University of Nebraska-Lincoln, North Platte, NE (332)

9:00  Engenia Herbicide Research Update. C. Asmus*1, S. K. Bangarwa2; 1BASF, Raleigh, NC, 2BASF Corporation, Durham, NC (333)

9:15  Dicamba Findings in 2018. J. K. Norsworthy*1, T. Barber2; 1University of Arkansas, Fayetteville, AR, 2University of Arkansas, Lonoke, AR (334)

9:30  The Effect of Tank Mix Partners on Xtendimax Volatility. M. Bernards1, A. S. Culpepper2, G. Kruger3, S. A. Nolte4, J. K. Norsworthy5, D. de Oliveira Latorre6, D. B. Reynolds*7, P. Sikkema6, B. Sperry9, C. Sprague10, D. O. Stephenson11, R. Werle12, B. G. Young13; 1Western Illinois University, Macomb, IL, 2University of Georgia, Tifton, GA, 3University of Nebraska-Lincoln, North Platte, NE, 4Texas A&M AgriLife Extension, College Station, TX, 5University of Arkansas, Fayetteville, AR, 6University of Nebraska, Lincoln, NE, 7Mississippi State University, Mississippi State, MS, 8University of Guelph, Ridgetown, ON, 9Mississippi State University, Starkville, MS, 10Michigan State University, East Lansing, MI, 11Louisiana State University AgCenter, Alexandria, LA, 12University of Wisconsin-Madison, Madison, WI, 13Purdue University, Brookston, IN (335)

9:45  Use of Field Evaluations to Better Understand Dicamba Volatility. C. Brabham*1, J. K. Norsworthy1, M. Zaccaro1, V. K. Varanasi1, T. Mueller2; 1University of Arkansas, Fayetteville, AR, 2University of Tennessee, Knoxville, TN (336)
Section 9. Weed Biology and Ecology

LOCATION: Maurepas
TIME: 8:00 AM - 3:00 PM
CHAIR/ MODERATOR: Vijay Singh
LOCATION: Texas A&M University College Station, TX
CO-CHAIR: Mohsen Mesgaran
University of Melbourne
Melbourne, Australia

*SPEAKER

8:00 The Problem with Resource Dependent Plant Competition. C. J. Swanton*, S. Amirsadeghi; University of Guelph, Guelph, ON (337)

8:15 Artificial and Surrogate Weeds for Physical Weed Control Research. E. Gallandt*1, L. Pedrosa2; 1University of Maine, Orono, ME, 2Federal University of Mato Grosso, Sinip, MT, Brazil (338)

8:30 Influence of Management Practices on Palmer Amaranth Emergence Pattern in South Central Nebraska. P. Chahal*, E. R. Barnes, A. J. Jhala; University of Nebraska-Lincoln, Lincoln, NE (339)

8:45 Weed Syndromes as Cultural Phenomena. J. Cardina*; Ohio State University, Wooster, OH (340)

9:00 Genomics for Weed Science: De Novo Assembly, Annotation, and First Analysis of an Invasive and Troublesome Weed. A. Porri*1, J. Lerchl2, R. A. Aponte3; 1BASF SE, Ludwigshafen am Rhein, Germany, 2BASF SE, Limburgerhof, Germany, 3, Ludwigshafen, Germany (341)

9:15 QTL Analysis of Seed Dormancy in Japonica-like Weedy Rice. T. Imaizumi*1, K. Ebana1, Y. Kawahara1, J. Hosoi2; 1NARO, Tsukuba, Japan, 2Nagano Prefecture Agricultural Experiment Station, Suzaka, Japan (342)

9:30 Whole-Genome Sequencing Provides Insights into Waterhemp Evolution. J. Kreiner1, D. Giacomini2, B. Waithaka3, F. Bemm3, C. Lanz3, J. Hildebrandt3, J. Regalado3, P. Sikkema4, P. Tranel*3, D. Weigel3, J. Stinchcombe1, S. Wright1; 1University of Toronto, Toronto, ON, 2University of Illinois, Urbana, IL, 3Max Planck Institute for Developmental Biology, Tubingen,
Comparative Analysis of Glyphosate Resistant and Sensitive Genomes Indicates Genome Rearrangement as a Mechanism of Adaptation. E. L. Patterson*1, W. Molin2, D. G. Peterson3, C. A. Sasaki1; 1Clemson University, Clemson, SC, 2USDA-ARS, Stoneville, MS, 3Mississippi State University, Mississippi State, MS (344)

Exploitation of Sex for Weed Management. M. Matzrafi, S. Ohadi, M. Mesgaran*; University of California, Davis, Davis, CA (345)

Advances in Precision Weed Management. V. Singh*1, M. Bishop1, D. Martin2, M. Latthee2, B. B. Sapkota1, A. Filippi1, M. V. Bagavathiannan1; 1Texas A&M University, College Station, TX, 2USDA-ARS, College Station, TX (346)

Ecological Strategies to Manage Herbicide-Resistant Kochia Seed Bank in Irrigated Cropping Systems of the US Great Plains. P. Jha*1, A. Kniss2, N. C. Lawrence3, R. Yadav1; 1Montana State University, Huntley, MT, 2University of Wyoming, Laramie, WY, 3University of Nebraska-Lincoln, Pullman, WA (347)

Early Season Exposure to Weed Reflected Light has Season Long Implications for Sugarbeet. A. T. Adjesiow, A. Kniss*; University of Wyoming, Laramie, WY (348)

Weed Community Dynamics Affected by Long-Term (36 Years) Tillage Practices in Southeast Texas. P. Govindasamy, D. Sarangi*, J. Mowerr, N. Rajan, T. Provin, F. M. Hons, M. V. Bagavathiannan; Texas A&M University, College Station, TX (349)

Looking for ‘Rare’ Weeds of Agronomic Concern in a Changing Climate. S. K. Birthisel*1, B. J. Brown2, E. Gallandt3; 1University of Maine, Orono, ME, 2Cornell University, Geneva, NY (350)

A Weed Seedbank Survey in Bihar and Eastern UP Reveals Variations in Wheat Weed Communities. C. J. Lowry*1, D. C. Brainard2, V. Kumar3, R. Malik4, R. Jat5, S. Poonia6, M. Singh6, P. Kumar7, A. Kumar8, V. Kumar9, R. K. Joon8, A. McDonald8; 1Agricultural Research Service, Urbana, IL, 2Michigan State University, East Lansing, MI, 3IRRI, Manila, Philippines, 4CIMMYT-CSISA Hub, Patna, India, 5CIMMYT, Delhi, India, 6CIMMYT, Patna,
India, 7CIMMYT, Samastipur, India, 8CIMMYT, New Delhi, India, 9IRRI, New Delhi, India (351)

12:00 Lunch

1:00 Increased Temperatures and Elevated CO\textsubscript{2} Levels Reduce the Sensitivity of Conyza canadensis and Chenopodium album to Glyphosate. M. Matzrafi\textsuperscript{1}, C. A. Brunharo\textsuperscript{1}, P. Tehranchian\textsuperscript{2}, B. Hanson\textsuperscript{3}, M. Jasieniuk\textsuperscript{1}; 1University of California, Davis, Davis, CA, 2University of Arkansas, Davis, CA, 3University of California, Davis, Winters, CA (352)

1:15 A Meta-Analysis of Alternative Weed Hosts for Plant Pathogens in the North Central United States. E. Burns*; Michigan State University, East Lansing, MI (353)

1:30 Interference of Amaranthus palmeri S. Wats. and Digitaria sanguinalis (L.) Scop. in Soybean. N. T. Basinger\textsuperscript{1}, K. M. Jennings\textsuperscript{2}, D. Monks\textsuperscript{2}, W. Everman\textsuperscript{2}, D. Jordan\textsuperscript{2}, E. L. Hestir\textsuperscript{3}; 1University of Georgia, Athens, GA, 2North Carolina State University, Raleigh, NC, 3University of California, Merced, Merced, CA (354)

1:45 Dormancy Behavior and Biology of African Mustard Weed (Brassica tournefortii) in Australia. G. Mahajan*, B. S. Chauhan; The University of Queensland, Gatton, Australia (355)

2:00 Development of a Goosegrass (Eleusine indica) Draft Genome and Application to Weed Science Research. H. Zhang\textsuperscript{1}, J. S. McElroy\textsuperscript{1}, N. Hall\textsuperscript{1}, L. R. Goertzen\textsuperscript{1}, B. Bi\textsuperscript{1}, C. Charles\textsuperscript{1}, E. Peatman\textsuperscript{1}, E. K. Lowe\textsuperscript{2}; 1Auburn University, Auburn, AL, 2Georgia Institute of Technology, Atlanta, GA (356)

2:15 Detection of Resistance to PPO-Inhibiting Herbicides using the Syngenta Herbicide Resistance Leaf (HRL) Test. S. S. Kaundun\textsuperscript{1}, J. J. Downes\textsuperscript{1}, L. V. Jackson\textsuperscript{1}, R. Wuerffel\textsuperscript{2}, S. Hutchings\textsuperscript{1}; 1Syngenta, Bracknell, England, 2Syngenta, Vero Beach, FL (357)

2:30 Regional Differences in Kochia Germination from the US Great Plains: Effect of Water Potential. R. Yadav\textsuperscript{1}, P. Jha\textsuperscript{1}, A. Kniss\textsuperscript{2}, N. C. Lawrence\textsuperscript{3}, G. Sbatella\textsuperscript{4}; 1Montana State University, Huntley, MT, 2University of Wyoming, Laramie, WY, 3University of Nebraska–Lincoln, Pullman, WA, 4University of Wyoming, Powell, WY (358)

2:45 Tillage and Cover Crops Influence Weed-Insect Interactions in Winter Squash. D. C. Brainard\textsuperscript{1}, M. M. Benzle\textsuperscript{1}, Z. Szendrei\textsuperscript{1}, L. R.
Wednesday Morning February 13

Section 13. Integrated Weed Management

LOCATION: Napoleon Ballroom A123
TIME: 8:00 AM - 11:45 AM
CHAIR/ MODERATOR: BayerCropScience Leverkusen, Germany
CO-CHAIR: Vijay Singh Texas A&M University College Station, TX

*SPEAKER

8:00 Multiple Resistance: The Rest of the Story. D. Simpson*, M. Peterson; T. Wright; 1Corteva Agrisciences, Indianapolis, IN, 2Dow AgroSciences, West Lafayette, IN, 3Dow DuPont, Ag Division, Carmel, IN (360)

8:15 Direct Seeded Rice in Sequence with No-Till Wheat in North-Western India: Weed Dynamics, Weed Management and Emerging Issues. D. Yadav*, A. Yadav, R. Malik, G. Gill; 1CCS Haryana Agricultural University, Karnal, India, 2CCS Haryana Agricultural University, Hisar, India, 3CIMMYT-CSISA Hub, Patna, India, 4University of Adelaide, Adelaide, Australia (361)

8:30 Chaff Lining: A Recently Developed Low Cost Harvest Weed Seed Control Method for Australian Cropping Systems. J. C. Broster*, A. E. Rayner, A. Rutledge, M. J. Walsh; 1Charles Sturt University, Wagga Wagga, Australia, 2University of Sydney, Sydney, Australia, 3Queensland Department of Agriculture and Fisheries, Toowoomba, Australia, 4University of Sydney, Narrabri, Australia (362)

8:45 Weeds as Indicators of Soil Imbalance and other Rural Legends. D. Doohan*, M. Kleinhenz, C. Brock, D. Jackson-Smith, S. Culman, S. Kumarappan, C. Herm, A. Levi Soto; 1Ohio State University, Wooster, OH, 2Ohio State University, Wooster, OH, 3Ohio State University, wooster, OH (363)
9:00 Effects of Day and Night Application of Glufosinate on Ammonia Accumulation, Electron Transport Rate, and Weed Control. E. B. De Castro*1, C. A. Carbonari2, F. H. Krenchinski3, E. D. Velini3, M. F. Dias3, T. Tseng4; 1Mississippi State University, STARKVILLE, MS, 2Sao Paulo State University, Botucatu, Brazil, 3Sao Paulo State University, BOTUCATU, Brazil, 4Mississippi State University, Mississippi State, MS (364)

9:15 Integrating Cultural Practices and Herbicides for Managing Glyphosate-Resistant Palmer Amaranth in Sorghum. R. Liu*1, V. Kumar1, R. Perumal2, T. Lambert2; 1Kansas State University, Hays, KS, 2Kansas State University, hays, KS (365)

9:30 Chenopodium album Resistance in India and its Management Strategies. S. Singh*; CCSHAU, Hisar, India (366)

9:45 Weed Identification by Mobile Device. H. J. Santel*; M. P. Schikora; BASF, Langenfeld, Germany (367)

10:00 Break

10:15 Living Mulch as a Tool for Integrated Weed Management in Organic Vegetables. C. R. Hooks1, A. W. Leslie2, V. L. Yurchak*1; 1University of Maryland, College Park, MD, 2University of Maryland, Glenn Dale, MD (368)

10:30 Spring-Seeded Cereal Rye for Weed Suppression in Watermelon. K. M. Vollmer*1, M. J. VanGessel2, B. A. Scott3, T. E. Besancon3, B. L. Carr4; 1University of Delaware, Delaware, VA, 2University of Delaware, Georgetown, DE, 3Rutgers University, CHATSWORTH, NJ, 4Rutgers University, Chatsworth, NJ (369)

10:45 Evaluation of Field Pennycress as a Useful Oilseed Cover Crop for Suppression of Weeds in the Northern Great Plains. J. V. Anderson*1, A. Nobriga1, B. Bigger1, M. Berhow2, S. Vaughn2; 1USDA-ARS, Edward T. Schafer Agricultural Research Center, Fargo, ND, 2USDA-ARS, National Center for Agricultural Utilization Research, Peoria, IL (370)

11:00 Modify the Wheat Architecture as an Agro-Technical Tool to Improve its Competitiveness with Weeds in an Integrated Weed Management (IWM). R. N. Lati*1, Z. Peleg2, R. Ben-David3; 1Agricultural Research Organization, Neve Ya’ar Research Center, Kfar Tavor, Israel, 2The R.H. Smith Institute of Plant Science & Genetics in
11:15 **Rewarding Best Pest Management Practices via Reduced Crop Insurance Premiums.** H. J. Beckie*1, S. J. Smyth2, M. D. Owen3, S. Gleim2; 1University of Western Australia, Crawley, WA, Australia, 2University of Saskatchewan, Saskatoon, SK, 3Iowa State University, Ames, IA (372)

11:30 **Remote Detection of Goosegrass in Tomato and Strawberry Plasticulture Production using Machine Vision.** S. M. Sharpe*1, A. W. Schumann1, N. Boyd2; 1University of Florida, Wimauma, FL, 2University of Florida, Balm, FL (373)

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**WEDNESDAY MORNING FEBRUARY 13**

**Section 12. Soil and Environmental Aspects**

**LOCATION:** Napoleon Ballroom A123  
**TIME:** 11:45 AM - 12:15 PM  
**CHAIR:** Te-Ming Tseng  
**MODERATOR:** Mississippi State University  
**CO-CHAIR:** Daljit Singh  
**Monsanto**  
**Wildwood, MO**

*SPEAKER*

11:45 **Indaziflam Soil Dissipation from Georgia Pecan Groves.** T. L. Grey*1, K. M. Eason2; 1University of Georgia, Tifton, GA, 2University of Georgia, Nashville, GA (374)

12:00 **Linking the Invasion of Weedy Species to Altered Functional Adaptations of Soil Microbes.** K. Min*1, N. Tharayil1, P. C. Bhowmik2, V. Suseela1; 1Clemson University, Clemson, SC, 2University of Massachusetts, Amherst, MA (375)
**Herbicide Resistant Weeds in Turf, Ornamental and Nursery Crops**

**LOCATION:** Napoleon Ballroom B123  
**TIME:** 8:00 AM - 12:00 PM  
**CHAIR:** Prasanta Bhowmik  
**MODERATOR:** University of Massachusetts  
**CO-CHAIR:** Jatinder Aulakh  

*WHO*  

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<tr>
<th>Time</th>
<th>Presentation</th>
<th>Speaker and Affiliation</th>
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<tr>
<td>8:00</td>
<td>Introduction to the Symposium.</td>
<td>P. C. Bhowmik*; University of Massachusetts, Amherst, MA (376)</td>
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<td>8:10</td>
<td>Problems Associated with Confirming Novel Resistance Mechanism.</td>
<td>J. S. McElroy*; Auburn University, Auburn, AL (377)</td>
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<td>8:30</td>
<td>Novel Mechanisms of Glyphosate Resistance In Amaranthus Species &amp; Its Implication.</td>
<td>M. Jugulam*, D. Koo, B. Gill; Kansas State University, Manhattan, KS (378)</td>
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<td>8:50</td>
<td>A Chance to Change the Ending.</td>
<td>J. T. Brosnan*; University of TN 252 Ellington Bldg, Knoxville, TN (379)</td>
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<td>9:10</td>
<td>Resistant weed management in cool-season turfgrass.</td>
<td>S. Askew*; Virginia Tech, Blacksburg, VA (380)</td>
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<td>9:30</td>
<td>A Manufacturer's Perspective on Herbicide Resistant Weeds in Turf, Ornamentals and Nursery Crops.</td>
<td>J. M. Breuninger*; Corteva Agriscience, Indianapolis, IN (381)</td>
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<td>9:45</td>
<td>Break</td>
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<td>10:00</td>
<td>Resistant Weed Management in the Southern United States.</td>
<td>L. Tredway*; Syngenta, Raleigh, NC (382)</td>
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<td>10:20</td>
<td>Herbicide-Resistance in Broadleaf Weeds and Sedges in Turfgrass.</td>
<td>P. McCullough*; University of Georgia, Griffin, GA (383)</td>
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10:40  Herbicide-Resistant Weeds in Managed Landscapes and Nursery Crops: Current Status and Potential Impacts. J. Derr*, J. Neal; 1Virginia Tech, Virginia Beach, VA, 2North Carolina State University, Raleigh, NC (384)

10:50  Resistant Weeds in Managed Landscapes and Nursery Crops. J. Neal*; North Carolina State University, Raleigh, NC (385)

11:00  Critical Next Steps in Combating Herbicide Resistance: What we Heard, Think and Plan on doing after the Resistance Listening Sessions. M. Barrett*, J. Schroeder, D. R. Shaw, A. Asmus, D. E. Ervin, R. Jussaume, H. D. Coble; 1University of Kentucky, Lexington, KY, 2USDA Office of Pest Management Policy, Arlington, VA, 3Mississippi State University, Mississippi State, MS, 4Rake, IA, 5Portland State University, Portland, OR, 6Michigan State University, East Lansing, MI, 7USDA, Cary, NC (386)

11:20  Discussion

11:40  Discussion

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WEDNESDAY MORNING  FEBRUARY 13

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Integrated Weed Management to Address Weed Resistance

LOCATION:  Napoleon Ballroom C123
TIME:  8:00 AM - 4:30 PM
CHAIR/ MODERATOR:  Lauren Lazaro
Louisiana State University AgCenter
Baton Rouge, LA

*SPEAKER

8:00  Introduction to Symposium and area-wide projects. L. M. Lazaro*; Louisiana State University AgCenter, Baton Rouge, LA (387)

8:10  Have We Gotten Lost in the Weeds? Where We've Been and Where We're Headed with Weed Management in U.S. Agriculture. K. Bradley*; University of Missouri, Columbia, MO (388)
8:35 The Importance of Harvest Weed Seed Control in Integrated Weed Management Decisions. M. J. Walsh*; University of Sydney, Narrabri, Australia (389)

9:00 Current Status and Future of Harvest Weed Seed Control in the US. M. V. Bagavathiannan*1, J. K. Norsworthy2, L. M. Lazaro3, S. Mirsky4, M. J. Walsh5; 1Texas A&M University, College Station, TX, 2University of Arkansas, Fayetteville, AR, 3Louisiana State University AgCenter, Baton Rouge, LA, 4USDA-ARS, Beltsville, MD, 5University of Sydney, Narrabri, Australia (390)

9:25 Break

10:00 Weed Seed Rain Phenology: An Areawide Approach. L. M. Lazaro*1, J. Evans2, J. K. Norsworthy3, S. B. Mirsky4, A. S. Davis5, K. Bradley6, L. E. Steckel7, M. V. Bagavathiannan8, J. A. Bond9, J. Lindquist10, N. R. Jordan11, M. L. Flessner12, M. J. VanGessel13, W. Everman14, W. S. Curran15, N. E. Korres16; 1Louisiana State University AgCenter, Baton Rouge, LA, 2Farmscape Analytics, Concord, NH, 3University of Arkansas, Fayetteville, AR, 4USDA-ARS, Beltsville, MD, 5N-319 Turner Hall, Urbana, IL, 6University of Missouri, Columbia, MO, 7University of Tennessee, Jackson, TN, 8Texas A&M University, College Station, TX, 9Delta Research and Extension Center, Stoneville, MS, 10University of Nebraska, Lincoln, NE, 11University of Minnesota, St. Paul, MN, 12Virginia Tech, Blacksburg, VA, 13University of Delaware, Georgetown, DE, 14North Carolina State University, Raleigh, NC, 15Penn State University, Bozeman, MT (391)

10:25 Role of Cover Crops and Tillage in Weed Management. W. S. Curran*1, J. M. Wallace2; 1Penn State University, Bozeman, MT, 2Penn State University, University Park, PA (392)

10:50 A National Assessment of Cover Crops in an IWM Program. S. Mirsky*1, J. K. Norsworthy2, A. S. Davis3, M. V. Bagavathiannan4, J. A. Bond5, K. Bradley6, W. S. Curran7, J. Evans8, W. Everman9, M. L. Flessner10, G. Frisvold11, N. R. Jordan12, L. M. Lazaro13, J. Lindquist14, L. S. Shergill15, L. E. Steckel15, M. J. VanGessel16; 1USDA-ARS, Beltsville, MD, 2University of Arkansas, Fayetteville, AR, 3N-319 Turner Hall, Urbana, IL, 4Texas A&M University, College Station, TX, 5Delta Research and Extension Center, Stoneville, MS, 6University of Missouri, Columbia, MO, 7Penn State University, Bozeman, MT, 8Farmscape Analytics, Concord, NH, 9North Carolina State University, Raleigh, NC, 10Virginia
11:15 Crop Rotation and Cropping System Design for Effective Weed Management. M. Liebman*, V. Nichols, D. Weisberger; Iowa State University, Ames, IA (394)

11:45 Lunch

1:00 Regional Discussion Breakout: What is Adoptable, Practical, and Economical in each Region South Central: Dr Norsworthy North Central: Dr Hagar Northeast: Dr Mirsky Southeast: Dr Everman. L. M. Lazaro*; Louisiana State University AgCenter, Baton Rouge, LA (395)

1:45 Addressing Longterm Integrated Weed Management Decisions through Modeling. J. A. Evans*, A. S. Davis2, S. B. Mirsky3; 1Farmscape Analytics, Concord, NH, 2N-319 Turner Hall, Urbana, IL, 3USDA-ARS, Beltsville, MD (396)

2:10 GROW (Getting Rid of Weeds): A National Extension Effort Driving Adoption of Integrated Weed Management. M. L. Flessner*, M. J. VanGessel2, M. V. Bagavathiannan3, L. M. Lazaro4, K. B. Pittman1, C. G. Rubione2, S. B. Mirsky5; 1Virginia Tech, Blacksburg, VA, 2Texas A&M University, College Station, TX, 3Louisiana State University AgCenter, Baton Rouge, LA, 4University of Delaware, 5USDA-ARS, Beltsville, MD (397)

2:35 Break

3:00 Socioeconomics. G. Frisvold*; University of Arizona, Tucson, AZ (398)

3:25 Where is Integrated Weed Management Headed? J. K. Norsworthy*; University of Arkansas, Fayetteville, AR (399)

3:50 Discussion
11:00  Antimalarial Herbicides and Herbicidal Antimalarials: Exploiting the Plant-Plasmodium Connection. J. S. Mylne*; The University of Western Australia, Perth, Australia (400)

11:15  Investigating the Role of Allelic Contribution to Glyphosate Resistance in Polyploid Weed Species. S. Morran*¹, C. A. Brunharo¹, M. Jasieniuk¹, B. Hanson²; ¹University of California, Davis, Davis, CA, ²University of California, Davis, Winters, CA (401)

11:30  Comparative Analysis of Glyphosate Resistant and Sensitive Genomes Indicates Genome Rearrangement as a Mechanism of Rapid Adaptation. E. L. Patterson*¹, W. Molin², D. G. Peterson², C. A. Saski¹; ¹Clemson University, Clemson, SC, ²USDA-ARS, Stoneville, MS, ³Mississippi State University, Mississippi State, MS (402)

11:45  Photooxidative Stress Conditions Elicit Contrasting Responses in Paraquat Resistant and Susceptible Italian Ryegrass Biotypes. C. A. Brunharo*¹, B. Hanson²; ¹University of California, Davis, Davis, CA, ²University of California, Davis, Winters, CA (403)

12:00  Lunch

1:00  Abiotic Stressors and Herbicide Differentially Regulate the Global Metabolome of Amaranthus palmeri Biotypes that Exhibit Contrasting Glyphosate Susceptibilities. N. Tharayil*¹, E. M. Leonard², V. K. Nandula³, S. O. Duke⁴; ¹Clemson University, Clemson, SC, ²Clemson University, CLEMSON, SC, ³USDA-ARS, Cleveland, MS, ⁴USDA-ARS-NPURU, Oxford, MS (404)

1:15  Expression Variation in Phenoxy Resistant and Susceptible Buckhorn Plantain (Plantago lanceolata) following 2,4-D Exposure. J. S. McElroy*¹, A. J. Patton², P. McCullough³, Q. D. Law⁴; ¹Auburn University, Auburn, AL, ²Purdue University, W Lafayette, IN, ³University of Georgia, Columbus, GA (405)
1:30 Mechanisms of Glyphosate Resistance in Palmer Amaranth: Insights from Transcriptome and Epigenetic Profiling. W. Molin*1, C. A. Saski2; 1USDA-ARS, Stoneville, MS, 2Clemson University, Clemson, SC (406)

1:45 Is Resistance to PPO Inhibitors in Palmer and Waterhemp Explained Solely by Target-Site Based Mechanisms? C. Wu*1, A. Perez-Jones2, P. Feng3, L. E. Flagel1, S. S. Navarro1; 1Bayer Crop Science, St Louis, MO, 2Bayer Crop Science, Chesterfield, MO, 3Bayer Crop Science, Saint Louis, MO (407)

2:00 Metabolic Resistance to Pre-Emergence Herbicides: The Case of Rye-Grass. R. Duecker1, V. Brabetz1, P. Zoellner1, S. Ries1, A. Collavo1, P. Luemmen1, R. S. Beffa*2; 1Bayer Crop Science, Frankfurt, Germany, 2Bayer Crop Science, Frankfort / Main, Germany (408)


2:30 Metabolic Resistance to Preemerging Herbicides in Grasses: The Case of Blackgrass. E. Parcharidou1, R. Dücker2, V. Brabetz1, A. Kuepper*1, R. S. Beffa3; 1Bayer Crop Science, Frankfurt, Germany, 2University of Göttingen, Frankfurt, Germany, 3Bayer Crop Science, Frankfort / Main, Germany (410)

2:45 Ambrosia confertiflora, a Perennia l Invasive Weed in Israel. B. Rubin*, Y. Yair; Hebrew University of Jerusalem, Rehovot, Israel (411)

3:00 Break

3:15 New Insight on the Mechanism of Action of PPO Inhibitors. F. E. Dayan*, A. L. Barker; Colorado State University, Fort Collins, CO (412)

3:30 Mechanisms Causing 2,4-D Resistance in Sonchus oleraceus. M. Krishnan*1, T. Petrovic2, A. Merriam2, G. Velappan3, C. Preston2; 1University of Adelaide, Urrbrae, Australia, 2University of Adelaide, Glen Osmond, Australia (413)
3:45  Glyphosate-Resistant *Echinochloa colona* from Mississippi and Tennessee: Magnitude and Resistance Mechanisms. V. K. Nandula*1, G. Montgomery2, A. Vennapusa3, M. Jugulam3, D. Giacomini4, J. Ray5, J. A. Bond6, P. Tranel7; 1USDA-ARS, Cleveland, MS, 2University of Tennessee, Knoxville, TN, 3Kansas State University, Manhattan, KS, 4University of Illinois, Urbana, IL, 5USDA, Stoneville, MS, 6Delta Research and Extension Center, Stoneville, MS, 7University of Illinois, Urbana, IL (414)

4:00  Resistance to Clethodim in Italian ryegrass (*Lolium perenne ssp. multiflorum*) from Mississippi and North Carolina. V. K. Nandula*1, D. Giacomini2, B. Lawrence3, W. Molin4, J. A. Bond5; 1USDA-ARS, Cleveland, MS, 2University of Illinois, Urbana, IL, 3Mississippi State University, Stoneville, MS, 4USDA-ARS, Stoneville, MS, 5Delta Research and Extension Center, Stoneville, MS (415)

4:15  Palmer Amaranth and Kochia Impacts and Research in Colorado. P. Westra*1, T. Gaines1, E. L. Patterson2, A. Effertz3; 1Colorado State University, Fort Collins, CO, 2Clemson University, Clemson, SC, 3Colorado State University, Ft. Collins, CO (416)

4:30  What Can Drive Resistance to Chloroacetamides in Amaranthus? N. R. Burgos*1, G. Rangani1, L. Benedetti2, R. A. Salas-Perez1; 1University of Arkansas, Fayetteville, AR, 2Universidad Federal do Pelotas, Pelotas, Brazil (417)

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**WEDNESDAY AFTERNOON  FEBRUARY 13**

**Graduate Student Workshop/ Lunch**

**LOCATION:** Oak Alley  
**TIME:** 12:00 PM - 2:00 PM  
**CHAIR/ MODERATOR:** Jess Bunchek  
**MODERATOR:** Penn State University State College, PA

This year’s annual Graduate Student Organization (GSO) workshop promotes professional development. Ask the panel of WSSA professionals your questions about how to “Elevate Yourself” via elevator pitches, networking in a variety of settings, fellowships and
funding, job acquisition, and more in this Question & Answer format! Be sure to stick around afterwards for the annual GSO luncheon and business meeting.

WEDNESDAY AFTERNOON  FEBRUARY 13

Section 7. Teaching and Extension

LOCATION: Napoleon Ballroom A123
TIME: 1:00 PM - 3:00 PM
CHAIR/ Jatinder Aulakh
MODERATOR: The Connecticut Agricultural Experiment Station
Windsor, CT
CO-CHAIR: Sandeep Rana
Monsanto
Galena, MD

*SPEAKER

1:00 Helping Farmers Navigate Complex Decisions About Managing Weeds in Organic Systems. D. Doohan*, D. Bessette, C. Beaudrie, S. Culman, R. Wilson; 1Ohio State University, Wooster, OH, 2Michigan State University, East Lansing, MI, 3Compass Resource Management Ltd., Vancouver, BC, 4Ohio State University, Wooster, OH, 5Ohio State University, Columbus, OH (418)

1:15 Complementary Applications of Analytic Techniques in Field Research. J. T. Buol*, A. Brown-Johnson, D. B. Reynolds; 1Mississippi State University, Mississippi State, MS, 2Mississippi State Chemistry Laboratory, Mississippi State, MS (419)

1:30 Predatory Publishing: Where Are We Now? S. M. Ward*; Colorado State University, Fort Collins, CO (420)

1:45 How can Weed Scientists Address the California Glyphosate Verdict? J. D. Byrd, Jr.*; Mississippi State University, Mississippi State, MS (421)

2:00 A Cropping-System Weed Science Survey of Brazil, a Breadbasket Country in the Tropics. M. Coura Oliveira, A. Lencina da Silva, A. R. Ulguim, R. Werle; 1University of Wisconsin-Madison, Madison, WI, 2Universidade Federal de Santa Maria, Santa Maria, Brazil (422)
**Ag Regulation as Affected by Urbanization of a Country**

**LOCATION:** Napoleon Ballroom B123  
**TIME:** 1:00 PM - 5:00 PM  
**CHAIR:** Tom Mueller  
**MODERATOR:** University of Tennessee, Knoxville, TN

*SPEAKER*

**1:00** Millions of People, Millions of Acres: Co-Existing In a Big Ag, Big Urban State. J. Payne*1, T. Mueller2; 1Illinois Fertilizer and Chemical Association, Bloomington, IL, 2University of Tennessee, Knoxville, TN (425)

**1:55** Societal Developments and Expectations in Europe – Implications on Environmental Regulation of Agriculture. J. Keppler*1, T. Mueller2; 1Bayer Crop Science, Frankfurt/Main, Germany, 2University of Tennessee, Knoxville, TN (426)

**2:50** Break

**3:05** Our Land and Water; Perspectives on how Market Forces and Regulation are Shaping the Future of NZ Farming. R. Dynes*1, T. Mueller2; 1New Zealand Ag Research, Christchurch, New Zealand, 2University of Tennessee, Knoxville, TN (427)

**4:00** Restrictions to Farming in the Pacific Northwest, from Endangered Salmon Runs to Impacts from Urban Gardens. T. W. Miller*1, T.
Travel Enrichment Experience

LOCATION: Napoleon Ballroom A123
TIME: 3:15 PM - 4:15 PM
CHAIR/ MODERATOR: Jess Bunchek

*SPEAKER

3:15 Educational Experience at Corteva Agriscience Western Research Center, Fresno, California. D. Saha*1, J. Armstrong2, C. Marble3; 1Mid-Florida Research and Education Center, University of Florida, Apopka, FL, 2Corteva Agriscience Western Research Center, Fresno, CA, 3University of Florida, Apopka, FL (429)

3:25 We're Not in Row Crops Anymore: A Boilermaker's Tale of California Agriculture. C. McCauley*; Corteva Agriscience, Indianapolis, IN (430)

3:35 2018 WSSA Travel Enrichment Experience with the University of Georgia at Tifton. J. Gizotti de Moraes*; University of Nebraska-Lincoln, North Platte, NE (431)

3:45 Travel Enrichment Experience: Herbicide Resistance in the Mississippi Delta and Beyond. S. C. Haring*; University of California, Davis, Davis, CA (432)

3:55 Surveying Syngenta in Greensboro, North Carolina. J. J. Puka-Beals*; North Dakota State University, Fargo, ND (433)
**Section 2. Horticultural Crops**

LOCATION: Maurepas  
TIME: 4:00 PM - 5:00 PM  
CHAIR/ MODERATOR: Katherine Jennings  
CO-CHAIR: Matthew Cutulle

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**WEDNESDAY AFTERNOON  FEBRUARY 13**

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**Section 6. Regulatory Aspects**

LOCATION: Napoleon Ballroom A123  
TIME: 4:30 PM - 5:00 PM  
CHAIR/ MODERATOR: Montague Dixon  
CO-CHAIR: Cherilyn Moore

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*SEnERAL SPEAKER*

**4:00** Carolina Redroot (*Lachnanthes caroliniana*) Growth and Rhizome Production Response to Environmental Conditions. T. E. Besancon*; Rutgers University, CHATSWORTH, NJ (434)

**4:15** The Long-Term Effects of Cover Crops and Fumigants on Weed Populations in Florida. N. Boyd*1, S. M. Sharpe*2, J. Yu*3; 1University of Florida, Balm, FL, 2University of Florida, Wimauma, FL, 3University of Florida, Riverview, FL (435)

**4:30** Pyroxasulfone for Weed Control in Chickpea, Lentil, and Fava Bean. H. Hatterman-Valenti*1, B. Johnson*2; 1North Dakota State University, Fargo, ND, 2North Dakota State University, FARGO, ND (436)

**4:45** Sweetpotato Tolerance to Off-Target Movement of Dicamba. M. W. Shankle*, S. L. Meyers; Mississippi State University, Pontotoc, MS (437)

4:45 An Update of the New EPA Mandated Requirements for Paraquat Containing Products: What Does This Mean for the End-User and Registrant. M. U. Dixon*; Syngenta, Greensboro, NC (439)

**WEDNESDAY AFTERNOON  FEBRUARY 13**

**WSSA Business Meeting**

LOCATION: Oak Alley  
TIME: 5:15 PM - 6:45 PM  
CHAIR: Lawrence Steckel  
University of Tennessee  
Jackson, TN  
CO-CHAIR: William Curran  
Penn State University  
Bozeman, MT

**THURSDAY MORNING  FEBRUARY 14**

**Graduate Student Breakfast/ Seminar**

LOCATION: Oak Alley  
TIME: 7:00 AM - 9:00 aM  
CHAIR/ MODERATOR: Jess Bunchek  
Penn State University  
State College, PA

The inaugural Graduate Student Wellness Breakfast will highlight the challenges of graduate school in an informal setting. Join in casual conversation and learn tips for balancing work and personal time, overcoming the hurdle of completing degrees, and other pertinent topics. This event will also raise awareness on graduate student mental health and the importance of open discussion.
Section 8. Formulation, Adjuvant and Application Technology

LOCATION: Borgne
TIME: 8:00 AM - 11:15 AM
CHAIR/ CHAIR: J Connor Ferguson
MODERATOR: Mississippi State University
CO-CHAIR: Mayank Malik
LOCATION: Mississippi State, MS
Monsanto
LOCATION: Chesterfield, MO

*SPEAKER


8:15 Ethoxylated Fatty Acid Methyl Esters (EFAME™): A New Class of Surfactants for Agriculture. K. Crosby*, T. Anderson; 1Adjuvants Unlimited, LLC, Memphis, TN, 2, Liberty Township, OH (441)

8:30 Droplet Size Impact on Acifluorfen and Lactofen Efficacy for Palmer amaranth (Amaranthus palmeri) Control. L. X. Franca*, D. Dodds, G. Kruger, T. R. Butts, J. McNeal, S. Davis, J. J. Williams; 1Mississippi State University, Mississippi State, MS, 2University of Nebraska-Lincoln, North Platte, NE, 3Mississippi State University, Mississippi State, Mississippi, MS, 4Mississippi State University, Starkville, MS (442)

8:45 Deep Learning for Crop and Weed Detection. W. L. Patzoldt; Blue River Technology, Sunnyvale, CA (443)

9:00 Redesigning HSMSO Adjuvants: Novel Terpene Polymer Containing Formulation. P. M. McMullan, M. Fiery; 1Ramulus LLC, Grimes, IA, 2Miller Chemical & Fertilizer, LLC, Hanover, PA (444)

9:30 New Findings on Ultra-Coarse Sprays and Test Methods. D. C. Bissell*1, S. Fredricks2, B. Olson2, C. Hogan3, G. K. Dahl1, L. C. Magidow3, J. Gednalske4; 1Winfield United, River Falls, WI, 2University of Minnesota, Minneapolis, MN, 3Winfield United, Maplewood, MN, 4River Falls, WI (446)

9:45 Permeate: A New NPE Free, Non-Ionic Surfactant from Winfield United. R. J. Edwards*1, G. K. Dahl2, J. A. Gillilan3, T. Hayden4, E. P. Spandl5, J. Gednalske6; 1WinField United, River Falls, WI, 2Winfield United, River Falls, WI, 3Winfield United, River Falls, WI, 4WinField United, Nashville, TN, 5WinField United, Owensboro, KY, 6Winfield United, Arden Hills, MN, 7River Falls, WI (447)

10:00 Break


10:30 Effects of Selected Adjuvants Over Two Seasons on Weed Control in Corn and Soybeans with Glufosinate-Ammonium. J. T. Daniel*1, T. Hoverstad2, M. D. Owen3, P. Johnson4, P. Westra5, E. Westra5; 1Jim T Daniel, Keenesburg, CO, 2University of Minnesota Southern Research and Outlet Center, Waseca, MN, 3Iowa State University, Ames, IA, 4South Dakota State University, Brookings, SD, 5Colorado State University, Fort Collins, CO (449)

10:45 Nozzle Type and Timing of Application Effects on Weed Control in Mississippi Cotton. C. Ferguson*1, P. H. Urach Ferreira1, M. T. Wesley2, L. H. Merritt2, Z. R. Treadway1, K. L. Broster1, N. Fleitz3; 1Mississippi State University, Mississippi State, MS, 2Mississippi State University, MS State, MS, 3Pentair-Hypro, New Brighton, MN (450)

11:00 Emergence of Multiple Resistance in Conyza canadensis Resistant to Glyphosate. C. Palma-Bautista*1, D. A. Mora2, R. Domínguez-Mendez2, A. M. Rojano-Delgado3, J. Portugal3, R. De Prado Amian4; 1University of Cordoba, CÓRDOBA, Spain, 2University of Cordoba, Cordoba, Spain, 3Polytechnic Institute of Beja, Beja, Portugal, 4University of Cordoba, Córdoba, Spain (451)
Section 2. Horticultural Crops

LOCATION: Maurepas
TIME: 8:00 AM - 11:30 AM
CHAIR/ MODERATOR: Katherine Jennings
LOCATION: North Carolina State University
TIME: Raleigh, NC
CHAIR/ MODERATOR: Matthew Cutulle
LOCATION: Clemson University
TIME: Charleston, SC

*SPEAKER

8:00 Non-Target Impacts of Herbicides on *Tetranynchus urticae* and its Predator, *Phytoseiulus persimilis*: Implications for Biological Control. M. A. Cutulle*, R. A. Schmidt-Jeffris; Clemson University, Charleston, SC (452)

8:15 Comparison of Alternative Weed Control Methods with Four Cold Hardy White Wine Grapes. J. M. Stenger, A. Svyantek, C. M. Auwarter, H. Hatterman-Valenti*; North Dakota State University, Fargo, ND (453)

8:30 Sweetpotato Tolerance to Pendimethalin. S. L. Meyers*, K. M. Jennings2, D. Miller3, M. W. Shankle1, J. L. Main1, S. C. Smith2, C. J. Morris1, L. D. Moore2, M. D. Waldschmidt2; 1Mississippi State University, Pontotoc, MS, 2North Carolina State University, Raleigh, NC, 3Louisiana State University AgCenter, St. Joseph, LA (454)

8:45 Cultivation Method and Frequency to Reduce Weed Density Prior to Direct Seeded Bok Choy. P. J. Dittmar*, D. D. Treadwell1, R. Randhawa2; 1University of Florida, Gainesville, FL, 2Virginia Tech, Blacksburg, VA (455)

9:00 Selecting for Bunch Type Sweetpotato Lines: A Weed Science Perspective. M. A. Cutulle*, H. T. Campbell1, P. Wadl2; 1Clemson University, Charleston, SC, 2USDA-ARS, Charleston, SC (456)

9:15 Weed Control in Organic Blueberries: Comparing Thermal, Mechanical, and Chemical Tools. E. N. Augerson, M. L. Moretti*; Oregon State University, Corvallis, OR (457)
THURSDAY MORNING  FEBRUARY 14

Weather and the Environment: Understanding basics to address off target pesticides

LOCATION: Napoleon Ballroom B123
TIME: 8:00 AM - 11:00 AM
CHAIR: Mandy Bish
MODERATOR: University of Missouri

*SPEAKER

8:00 Introduction to Symposium. M. Bish*; University of Missouri, Columbia, MO (465)
8:05  Earth, Air, Sun, Outer Space, and Pesticide Dispersion. J. Nielsen-Gammon*; Texas A&M, College Station, TX (466)

8:35  Understanding Weather Data: Making Sense of an Increasing Amount of Available Information. D. Todey*; USDA-ARS, Ames, IA (467)

8:55  Surface Temperature Inversions and Lessons Learned in Collaborating with Weed Scientists. P. Guinan*; University of Missouri, Columbia, MO (468)

9:15  Comparison of Dicamba Air Concentration from Applications made during Inversion and Non-Inversion Conditions. S. T. Farrell*1, R. Lerch2, M. Bish1, K. Bradley1; 1University of Missouri, Columbia, MO, 2USDA-ARS, Columbia, MO (469)

9:35  Break

9:50  Processes Controlling the Fate of Pesticides in the Environment. R. Lerch*; USDA-ARS, Columbia, MO (470)

10:20  Analysis of Weather and Environment Surrounding Off-Target Dicamba Applications. M. Bish*, K. Bradley; University of Missouri, Columbia, MO (471)

10:40  Discussion

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**THURSDAY MORNING  FEBRUARY 14**

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**Teaching Workshop**

LOCATION: Napoleon Ballroom C123

TIME: 8:00 AM - 10:00 AM

CHAIR/ MODERATOR University of Tennessee

Knoxville, TN

*SPEAKER

8:00  Online Weed Science Classes and Content. B. A. Ackley*1, T. Mueller2; 1Ohio State University, Columbus, OH, 2University of Tennessee, Knoxville, TN (472)
8:30 Learning Outcomes and Assessment Tools. K. Renner*1, T. Mueller2; 1Michigan State University, East Lansing, MI, 2University of Tennessee, Knoxville, TN (473)

9:00 Labs to Enhance Student Learning and Sharing Ideas About Them. E. Hill1, S. A. Clay2, M. Bernards3, T. Mueller*4; 1Michigan State University, East Lansing, MI, 2South Dakota State University, Brookings, SD, 3Western Illinois University, Macomb, IL, 4University of Tennessee, Knoxville, TN (474)
*To Be Provided
SHERATON NEW ORLEANS HOTEL

*To Be Provided
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