WSSA

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

2020 Annual Meeting
March 2-5, 2020
Maui, HI

WEED SCIENCE SOCIETY OF AMERICA

Fifty-Eighth Meeting

2018 MEETING PROGRAM

Crystal Gateway Marriott

Arlington, Virginia

January 29 to February 1, 2018

WSSA Sustaining Members

PRESIDENTIAL

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

LEADERS

Helena Chemical
Valent USA
Winfield Solutions

PATRONS

Nufarm Americas, Inc.
United Phosphorus, Inc.

CONTRIBUTORS

AMVAC Chemical Corp
FMC Corporation
Greenleaf Technologies
Gylling Data Management, Inc.
ISK Biosciences Corp
Nichino American, Inc.
TeeJet Technologies
Nippon Soda Ltd
Pentair-Hypro
ABG Ag Services
Adjuvants Plus, Inc.
Chemorse Ltd.
Clariant Corporation
Conviron
Gandy Corporation
Gowan Company
Heartland Technologies
Lehigh Agri & Bio Services, Inc.
Marrone Bio Innovations, Inc.
Minnesota Valley Testing Lab
SePRO
TKI NovaSource

58th Meeting
Weed Science Society of America

Location of Special Committees and Activities

Registration (Including Guests) …. Arlington Ballroom Foyer

WSSA Board Meeting (Sat/Sun) ..... Pentagon A/B
WSSA Board Meeting (Thurs)..... Pentagon A/B

Local Arrangements Committee 2018 – Arlington, Virginia

Co-Chairs ..... Phil Banks, Lee Van Wychen

The WSSA 2018 Program

Welcome to the 2018 Weed Science Society of America (WSSA) Annual Meeting at the Crystal Gateway Marriott in Arlington, Virginia. The venue is outstanding and close to a great deal of historical sites of significance. Pre-conference events include tours of the National Museum of Natural History and the United States Botanical Garden.

The General Session and WSSA Awards Ceremony will begin Monday, Jan. 29th at 4:00 PM in Arlington Salon I, II, and III. Our General Session will begin with a welcome and opening remarks from the United States Department of Agriculture, Agricultural Research Service (USDA-ARS) Administrator, Dr. Chavonda Jacobs-Young. We hope to also have another special guest address our group from the Department of Agriculture, Agriculture Secretary, Sonny Perdue, but we will not be certain until very close to the meeting time. Dr. Janis McFarland 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 an MS and PhD poster contest and MS and PhD oral presentation contests. All of the student contests will be conducted on Tuesday. Beginning on Tuesday, we are going to have six symposia related to important and impactful subjects that are needing attention in Weed Science. These include: 1) Grade Report for New Dicamba Technology in 2017, 2) Herbicide Metabolism in Crops and Weeds: A Revisit, Current Understanding, and New Insights, 3) Learning by Listening: Herbicide Resistance Listening Sessions, 4) Pesticide Registration in the U.S. and How the WSSA Can Inform the Process, 5) Fostering Sustainable Programs to Improve Pesticide Applications and Promote Resistance Management, and 6) The State of the Weed Control Industry in 2018. We will also have a Teaching Workshop again this year on Tuesday afternoon.

The WSSA Business meeting and the student contest awards will be held from 5:15 – 6:45 p.m. on Wednesday afternoon. We hope that all members will attend to participate in the decision-making process on societal issues and board activities going into 2018.

Special thanks to our local arrangement co-chairs, Dr. Phil Banks and Dr. Lee Van Wychen. 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. Janis McFarland for her 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. Larry Steckel, 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 hope everyone has a productive and rewarding meeting.

Scott Senseman
Program Chair and President-Elect

2018 Program Committee

General Program Chair ..... Scott Senseman
Vice Chair ..... Larry Steckel
Agronomic Crops.....Ryan Lins
Horticultural Crops ..... Jayesh Samtani
Turf and Ornamentals ..... Jeff Derr
Pastures, Rangelands, Forests,
& Rights of Way .....David Russell
Wildland and Aquatic Invasives .....Stephen Enloe
Regulatory Aspects ..... Cherilyn Moore
Teaching and Extension ..... Sandeep Rana
Formulation, Adjuvant, & Application Technology.....
.....Connor Ferguson
Weed Biology and Ecology.....Dan Tekiela
Biocontrol of Weeds.....Doug Boyette
Physiology.....Christopher Van Horn
Soil and Environmental Aspects ..... Travis Gannon
Integrated Weed Management..... Daniela Ribiero
Sustaining Member Exhibits Session.....Greg Dahl
Poster Sessions.....Martin Laforest
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.

WSSA Committee Meetings

SATURDAY, January 27

7:00 a.m. – 5:00 p.m.
WSSA Board of Directors..... Pentagon A/B

SUNDAY, January 28

7:00 a.m. – Noon
WSSA Board of Directors.....Pentagon A/B

8:00 a.m. – 5:00 p.m.

Herbicide Resistance Action Committee (HRAC)
.....Fairfax Boardroom

1:00 p.m. – 6:00 p.m.

USDA-ARS Area Wide Meeting ……. Mount Vernon

MONDAY, January 29

7:00 a.m. – 8:00 a.m.
WSSA Board and Committee Chairs Breakfast
.....Rosslyn I&II

8:00 a.m. – 9:00 a.m.
Weed Science Editorial Board (P2) ..... Lee

8:00 a.m. – 9:00 a.m.
Herbicides for Minor Use (E10) ……Jackson

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

8:00 a.m. – 9:00 a.m.
Research and Competitive Grants (E6) ….....Madison

9:00 a.m. – 10:00 a.m.
Endowment Fund Committee (F3) .....Jackson

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

9:00 a.m. – 10:00 a.m.
Sustaining Member Committee (F5) ..... Madison

9:00 a.m. – 10:00 a.m.
Standardized Plant Names (P22b) .....Rosslyn II

10:00 a.m. – 11:00 a.m.
Professional Development (F4) .....Jackson

10:00 a.m. – 11:00 a.m.
Constitution & Operating Procedures (W10)
..... Rosslyn II

10:00 a.m. – 11:00 a.m.
Biological Control of Weeds (W16) ..... Rosslyn I

10:00 a.m. – 11:00 a.m.
IPSM Editorial Board (P4) ..... Lee

10:00 a.m. – 11:00 a.m.
Environmental Aspects (E8) ..... Madison

10:00 a.m. – 11:00 a.m.
Herbicide Resistance Education (E12b) ..... Jefferson

11:00 p.m. – 12:00 noon
Weed Loss Committee (E11) .....Rosslyn II

11:00 p.m. – 12:00 noon
Formulation, Adjuvant, and Application Technology Committee (W15) .....Jackson

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

11:00 p.m. – 12:00 p.m.
Federal Noxious and Invasive Weeds Committee (E4) .....Madison

1:00 p.m. – 2:00 pm
Herbicide Resistant Plants (E12) ..... Rosslyn II

1:00 p.m. – 2:00 pm
Website Committee (E14) ..... Lee

1:00 p.m. – 2:00 pm
Extension Committee (W11) ..... Jackson

1:00 p.m. – 4:00 p. m.
IWSS Board Meeting…… Madison

TUESDAY, January 30

7:00 a.m. – 9:00 a.m.
Public Awareness (E13) .....Jefferson

5:00 p.m. – 6:00 p.m.
Herbicide Off-Target Movement .....Jefferson

WEDNESDAY, January 31

6:30 a.m. – 8:00 a.m.
President's Breakfast with Regional Presidents.....
.....Jefferson

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

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

THURSDAY, February 1

6:30 a.m. – 8:00 a.m.
Women's Breakfast.....Salon V

2:00pm – 5:30 p.m.
Board of Directors.....Pentagon A/B

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 2018 PROGRAM

SATURDAY MORNING, January 27

7:00 a.m. – 5:00 p.m.
WSSA Board of Directors..... Pentagon A/B

SUNDAY MORNING, January 28

7:00 a.m. – 12:00 noon
WSSA Board of Directors.....Pentagon A/B

MONDAY MORNING, January 29

7:00 a.m. – 8:00 a.m.
WSSA Board & Committee Chairs Breakfast
.....Rosslyn I & II

9:00 a.m. – 12:00 noon
Registration.....Arlington Ballroom Foyer

10:00 a.m. – 12:00 noon
Tour of the Botany Department of the National Museum of Natural History.....Hotel Lobby

MONDAY AFTERNOON, January 29

1p.m. – 3:30 p.m.
Registration.....Arlington Ballroom Foyer

1:00 p.m. – 3:00 p.m.
Tour of the United States Botanic Gardens.....Hotel Lobby

4:00 p.m. – 6:00 p.m.
General Session and WSSA Awards Presentations
…….....Arlington Ballroom Salon I, II, and III

6:00 p.m. – 8:00 p.m.
Welcome and Awardee's Reception (open to all attendees and registered guests) .....Arlington Ballroom/ Foyer

TUESDAY, January 30

6:30 a.m. – 7:45 a.m.
Student Contest Judges Meeting & Breakfast
.....Pentagon A/B

7:00 a.m. – 5:00 p.m.
Registration.....Arlington Ballroom Foyer

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

8:00 a.m. – 10:00 a.m.
Poster Session .....Arlington Ballroom Salon IV
(Authors of even numbered posters will present)

8:00 a.m. – 10:00 a.m.
Poster Contest Presentations
(All Authors Present) ..... Arlington Ballroom Salon IV

8:00 a.m. – 5:00 p.m.
Sustaining Member Exhibits
……Arlington Ballroom Salon IV

10:00 a.m. – 3:45 p.m.
WSSA Student M.S. Oral Contest Session I
…….. Arlington Ballroom Salon K

10:00 a.m. – 2:15 p.m.
WSSA Student M.S. Oral Contest Session II
…….. Arlington Ballroom Salon J

10:00 a.m. – 3:30 p.m.
WSSA Student Ph.D. Oral Contest Session I
…….. Arlington Ballroom Salon V

10:00 a.m. – 3:15 p.m.
WSSA Student Ph.D. Oral Contest Session II
……..…..Arlington Ballroom Salon VI

10:00 a.m. – 5:00 p.m.
Posters on display without authors
..... Arlington Ballroom Salon IV

10:00 a.m. – 5:00 p.m.
Agronomic Crops.....Arlington Ballroom Salon I

10:00 a.m. – 11:00 a.m.
Wildland and Aquatic Invasive Plants…Ballroom Salon II

1:00 p.m. – 3:30 p.m.
Symposium: Herbicide Metabolism in Crops and Weeds: A Revisit, Current Understanding, and New Insights.....Arlington Ballroom Salon II

1:00 p.m. – 3:00 p.m.
Teaching and Extension.....Arlington Ballroom Salon III

3:00 p.m. – 5:00 p.m.
Workshop: Teaching Undergraduate Weed Science—Strategies to Improve Learning
.....Grand Salon J

3:15 p.m. – 5:00 p.m.
Turf and Ornamental Crops...Arlington Ballroom Salon III

3:45 p.m. – 5:00 p.m.
Pastures, Rangelands, Forests, and Rights of Way
.....Arlington Ballroom Salon II

WEDNESDAY, January 31

7:00 a.m. – 8:00 a.m.
WSSA & Regional Presidents Breakfast ……. Jefferson

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

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

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

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

8:00 a.m. – 5:00 p.m.
Sustaining Members Exhibits
……. Arlington Ballroom Salon IV

10:00 a.m. – 5:00 p.m.
Posters on display without authors
..... Arlington Ballroom Salon IV

10:00 a.m. – 2:30 p.m.
Agronomic Crops.....Grand Salon H

10:00 a.m. – 4:45 p.m.
Weed Biology & Ecology ..... Grand Salon K

10:00 a.m. – 12:00 p.m.
Integrated Weed Management.....Grand Salon J

10:00 a.m. – 2:00 p.m.
Symposium: Pesticide Registration in the US and How the WSSA Can Inform the Process.....Salon I&II

10:00 a.m. - 12:00pm
Graduate Student Workshop: Which Road to Take: An Extension, Education, Research and Industry Perspective.....Arlington Ballroom Salon III

12:00 noon – 1:00 p.m.
Graduate Student Luncheon...Arlington Ballroom Salon III

1:00 p.m. – 5:00 p.m.

Symposium: Fostering Sustainable Program to Improve Pesticide Applications and Promote Resistance Management

..... Arlington Ballroom Salon V & VI

1:55 p.m. – 5:00 p.m.

Symposium: Grade Report for New Dicamba Technology in 2017.... Arlington Ballroom Salon I & II

5:15 p.m. – 6:45 p.m.

WSSA Business Meeting & Student Contest Awards

..... Arlington Ballroom Salon I & II

THURSDAY, February 1

6:30 a.m. – 8:00 a.m.

Women's Breakfast.....Arlington Ballroom Salon V

8:00 a.m. – 10:00 a.m.

Registration..... Arlington Ballroom Foyer

8:00 a.m. – 11:00 a.m.

Posters on display without authors

……..... Arlington Ballroom Salon IV

8:00 a.m. – 11:00 a.m.

Sustaining Members Exhibits

…… Arlington Ballroom Salon IV

8:00 a.m. – 12:00 noon

Symposium: Learning by Listening: Herbicide Resistance Listening Sessions

.....Arlington Ballroom Salon I & II

8:00 a.m. – 9:45 a.m.

Regulatory Aspects .....Grand Salon J

8:00 a.m. – 1:45 p.m.

Horticultural Crops .....Grand Salon H

8:00 a.m. – 2:15 p.m.

Physiology .....Arlington Salon III

8:00 a.m. – 9:45 a.m.

Formulation, Adjuvant and Application Technology....

..... Grand Salon K

9:00 a.m. – 12:00 noon

Symposium: The State of the Weed Control Industry in 2018 ..... Arlington Ballroom Salon V & VI

10:00 a.m. – 12:00 p.m.

Soil and Environmental Aspects……. Grand Salon K

1:30 pm – 5:30 p.m.

.……Remove Posters and Exhibits

2:00 p.m. – 5:30 p.m.

WSSA Board of Directors……. Pentagon A/B

PROGRAM

MONDAY AFTERNOON JANUARY 29

General Session

LOCATION: Arlington Salon I, II, & III
TIME: 4:00 PM - 6:00 PM
CHAIR: Scott Senseman
University of Tennessee
Knoxville, TN
MODERATOR: Scott Senseman
University of Tennessee
Knoxville, TN

***SPEAKER**

4:00 **Introductions and Announcements.** S. Senseman*; University of Tennessee, Knoxville, TN

4:05 **Keynote: United States Department of Agriculture - Agricultural Research Service: The next 10 years.** C. Jacobs-Young*; United States Department of Agriculture, Washington, DC

4:25 **Keynote: The Status of Agriculture in the United States 2017.** S. Perdue*; United States Department of Agriculture, Washington, DC

4:45 **Presidential Address.** J. McFarland*; 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.** S. Senseman*; University of Tennessee, Knoxville, TN

TUESDAY – THURSDAY
January 30 – February 1

WSSA Sustaining Member Exhibit Session

TUESDAY MORNING JANUARY 30

Poster Contest - MS Students

***PRESENTER † STUDENT POSTER CONTEST**

†Results from a 2015 and 2016 Survey to Determine the Distribution and Frequency of Herbicide-Resistant Horseweed (*Conyza canadensis*) in Missouri. E. Oseland*, M. D. Bish, K. Bradley; University of Missouri, Columbia, MO (1)

Optimizing a Cereal Rye (*Secale cereale)* Cover Crop Program for the Control of Glyphosate-Resistant Horseweed (*Conyza canadensis*). A. Lamb*, M. Loux, A. Dobbels; The Ohio State University, Columbus, OH (2)

†Cross Resistance Patterns to ALS-Inhibitors in Beggarticks (*Bidens spcs*.) in Brazil. R. R. Mendes*[1], R. S. Oliveira[2], J. Constantin[1]; [1]State University of Maringá, Maringá, Brazil, [2]Universidade Estadual de Maringá, Maringá, Brazil (3)

†Cotton (*Gossypium hirsutum*) Response to Combinations of Mepiquat Chloride, Glyphosate, and Dicamba. T. Buck*[1], A. York[2], D. O. Stephenson[3], B. Woolam[4], M. Askew[5], S. Rustom[6]; [1]LSU Ag Center, Gates, NC, [2]North Carolina State University, Cary, NC, [3]LSU AgCenter, Alexandria, LA, [4]LSU Ag Center, Alexandria, LA, [5]North Carolina State University, Gates, NC, [6]LSU, Baton Rouge, LA (4)

†Effects of Simultaneous Fertilizer and Preemergence Herbicide Applications on Nutrient Uptake and Leaching on Tifway 419 Bermudagrass (*Cynodon dactylon*). L. Oliveira Ribeiro Maia*[1], T. W. Shaddox[2], R. Leon[3], J. K. Kruse[4]; [1]University of Florida, davie, FL, [2]University of Florida, Davie, FL, [3]University of Florida, Raleigh, NC, [4]University of Florida, Gainesville, FL (5)

†Interval Between Sequential Glufosinate Applications Influences Palmer Amaranth (*Amaranthus palmeri*) Control. T. M. Randell*[1], J. Smith[1], A. Culpepper[2]; [1]University of Georgia, Tifton, GA, [2]University of Georgia, Tifton, GA (6)

†Tank-Contamination of Dicamba Tank-Mixtures Impacts Dry Bean (*Phaseolus vulgaris*) Maturity and Yield. S. R. Bales*, C. Sprague; Michigan State University, East Lansing, MI (7)

TUESDAY MORNING JANUARY 30

Poster Contest - PhD Students

***PRESENTER † STUDENT POSTER CONTEST**

†Examining Soil Microbes in Search of New Compounds for Herbicide Discovery. L. Cheng*, J. T. Kao-Kniffin; Cornell University, Ithaca, NY (8)

†Identification of Cross- and Multiple - Resistance in *Ambrosia artemisiifolia* in North Carolina. B. Schrage*, W. Everman, J. Sanders, T. N. OQuinn; North Carolina State University, Raleigh, NC (9)

†Influence of Plant Regulators on Sourgrass (*Digitaria insularis*) Control. F. G. Machado*[1], R. S. Oliveira[2], J. Constantin[3], F. Rios[3]; [1]State University of Maringá, Maringá - PR, Brazil, [2]Universidade Estadual de Maringá, Maringá, Brazil, [3]State University of Maringá, Maringá, Brazil (10)

†Biology, Impact, and Management of *Sonchus oleraceus* L.: a Serious Invasive Weed in Australia. A. M. Peerzada*[1], C. C. ODonnell[1], S. W. Adkins[2]; [1]The University of Queensland, Brisbane, Australia, [2]University of Queensland, Gatton, Australia (11)

†Automated Seed Counts and Verification of Seed Production Estimates of Palmer Amaranth (*Amarnthus palmeri*) Using a Computerized Particle Analyzer. M.

Bertucci*, K. Jennings, B. Jackson, P. Bartley; North Carolina State University, Raleigh, NC (12)

†Management of Glyphosate- and Dicamba-Resistant Kochia (*Kochia scoparia*) in Roundup Ready® Xtend Soybean. R. Yadav*[1], P. Jha[1], V. Kumar[2], S. Leland[1]; [1]Montana State University, Huntley, MT, [2]Kansas State University, Hays, KS (13)

†Influence of Residual Herbicide Application Rate on PPO-Resistant and Susceptible Palmer Amaranth (*Amaranthus palmeri*) in Tennessee. J. Copeland*[1], M. Wiggins[2], L. Steckel[1]; [1]University of Tennessee, Jackson, TN, [2]FMC, Humboldt, TN (14)

Leaching and Dynamics of Residual Herbicides in Soil and Sugarcane (*Saccharum officinarum*) Residues in Different Dry Periods. P. V. Da Silva*[1], C. A. Carbonari[2], E. D. Velini[3], R. C. Dias[3], P. H. Dos Santos[4], P. J. Christoffoleti[5], P. A. Monquero[6]; [1]Universidade de Sao Paulo/ESALQ, Fort Collins, CO, [2]Unesp - Univ. Estadual Paulista, Botucatu, Brazil, [3]Unesp - FCA, Botucatu, Brazil, [4]UFSCar - CCA, Araras, Brazil, [5]University of Sao Paulo, Piracicaba, Brazil, [6]Universidade Federal de São Carlos, Araras, Brazil (15)

Indaziflam, Imazapic and Amicarbazone Sorption, Dessorption and Interception by Sugarcane (*Saccharum officinarum*) Residues. P. Da Silva*[1], D. J. Sebastian[2], S. L. Clark[2], M. Ortiz[2], M. Figueiredo[2], F. E. Dayan[2], P. A. Monquero[3], P. J. Christoffoleti[4], S. J. Nissen[2]; [1]University of São Paulo - Luiz de Queiroz College of Agriculture (ESALQ/USP), São Paulo, Brazil, [2]Colorado State University, Fort Collins, CO, [3]Universidade Federal de São Carlos, Araras, Brazil, [4]University of Sao Paulo, Piracicaba, Brazil (16)

†Inheritance of Glyphosate Resistance in Giant Ragweed (*Ambrosia trifida* L.). K. Segobye*; University of Maryland, College Park, MD (17)

†Nozzle, Carrier Volume, and Weed Size Effect on Glufosinate Efficacy. B. P. Sperry*[1], D. Reynolds[2]; [1]Mississippi State University, Micanopy, FL, [2]Mississippi State University, Mississippi State, MS (18)

Optimizing Chloracetamide Placement as a Component of Pigweed (*Amaranthus spcs*.) and Kochia (*Kochia scoparia*) control in Xtend Soybean (*Glycine max*) and Cotton (*Gossypium hirustum*) Production Systems. J. Buol*[1], D. Reynolds[1], L. Franca[1], D. Dodds[1], A. Mills[2], T. Butts[3], G. Kruger[3]; [1]Mississippi State University, Mississippi State, MS, [2]Monsanto Company, Collierville, TN, [3]University of Nebraska, North Platte, NE (19)

†Comparison of Various Tank Cleaners for Removal of Dicamba from Contaminated Sprayers. Z. A. Carpenter*, D. Reynolds, A. B. Johnson, A. Meredith, M. Green; Mississippi State University, Mississippi State, MS (20)

†Using Remote Sensing to Detect Giant Smutgrass (*Sporobolus indicus*) in Bahiagrass (*Paspalum notatum*) Pastures. J. Dias*, W. Anderson, M. Piccolo, R. Boughton, B. Sellers; University of Florida, Ona, FL (21)

†A Novel Amino Acid Substitution (Arg-132-His) in Protoporphyrinogen Oxidase 2 Confers Broad Spectrum PPO-Inhibitor Resistance in *Lolium rigidum*. P. T. Fernandez-Moreno*[1], R. A. Aponte[2], A. Landes[2], R. Campe[2], R. De Prado Amian[3]; [1]., Brussels, Belgium, [2]BASF SE, Limburgerhof, Germany, [3], Córdoba, Spain (22)

†Competition Between the Exotic Grass *Eragrostis plana* and Forage Grass *Paspalum notatum* Under Drought Conditions. M. O. Bastiani*[1], F. P. Lamego[2], F. C. Caratti[3], D. Rockenbach[3], A. Balbinot[3], G. M. Souza[3]; [1]University of Arkansas, Fayetteville, AR, [2]Embrapa Pecuária Sul, Bagé, Brazil, [3]Universidade Federal de Pelotas, Pelotas, Brazil (23)

TUESDAY MORNING JANUARY 30

Section 1. Agronomic Crops

***PRESENTER**

Palmer Amaranth Control in South Dakota. S. A. Clay*, B. M. Van De Stroet; South Dakota State University, Brookings, SD (24)

Investigation of Multiple Herbicide Resistance in Palmer Amaranth Populations in Kansas. V. Kumar*, P. Stahlman; Kansas State University, Hays, KS (25)

Metabolism of Drift-Rate Dicamba in Susceptible Soybean Affected by Water Stress. C. D. Willett*, E. M. Grantz, J. Norsworthy; University of Arkansas, Fayetteville, AR (26)

Optimizing Crop Rotations to Best Utilize Crop Canopy Effects on Kochia Seed Bank Reduction: A Multi-Site-Year Study. C. A. Lim*[1], E. G. Mosqueda[2], P. Jha[1], A. Kniss[2], G. M. Sbatella[2], N. C. Lawrence[3]; [1]Montana State University, Huntley, MT, [2]University of Wyoming, Laramie, WY, [3]University of Nebraska, Pullman, WA (27)

Evaluation of Herbicide Programs in Oklahoma Soybean. T. A. Baughman*[1], R. Peterson[2], D. Teeter[1]; [1]Oklahoma State University, Ardmore, OK, [2]OSU-Institute for Agricultural BioScience, Ardmore, OK (28)

An Updated Meta-analysis of Soybean Response to Dicamba. A. Kniss*; University of Wyoming, Laramie, WY (29)

Evaluation of Inzen Technology as a Weed Management Tool in Southern Great Plains Grain Sorghum. R. Peterson*[1], T. A. Baughman[2], P. Dotray[3], W. Grichar[4], W. Keeling[5], D. Teeter[2]; [1]OSU- Institute for Agriculltural BioScience, Ardmore, OK, [2]Oklahoma State University, Ardmore, OK, [3]Texas Tech University, Lubbock, TX, [4]Texas A&M University, Yoakum, TX, [5]Texas A&M AgriLife Research, Lubbock, TX (30)

POST Herbicide Efficacy Screen on Marestail: Round 2. D. Lingenfelter*, W. Curran; Penn State University, University Park, PA (31)

Cotton Fruiting Pattern Following Dicamba Drift. K. Russell*[1], P. Dotray[1], G. Ritchie[2], S. Byrd[3], T. A. Baughman[4], G. D. Morgan[5]; [1]Texas Tech University, Lubbock, TX, [2]Texas Tech University, Texas A&M AgriLife Research, Lubbock, TX, [3]Texas A&M AgriLife Extension, Lubbock, TX, [4]Oklahoma State University, Ardmore, OK, [5]Texas A&M Agrilife Extension Service, College Station, TX (32)

Canopy Hyperspectral Reflectance Properties of Palmer Amaranth and Okra Leaf Cotton. R. Fletcher*[1], R. B. Turley[2], K. Reddy[3]; [1]USDA-ARS, Greenville, MS, [2]USDA-ARS Crop Genetics Research Unit, Stoneville, MS, [3]USDA-ARS Crop Production Systems Res Unit, Stoneville, MS (33)

Weed Management Systems in 2,4-D Tolerant Soybean. C. H. Sanders*, M. W. Marshall; Clemson University, Blackville, SC (34)

Safener-Regulated Tolerance to Herbicides in a Dicotyledonous Crop—Sugar Beet. E. Buescher*[1], D. W. Morishita[2], R. Ma[1]; [1]University of Idaho, Moscow, ID, [2]University of Idaho, Kimberly, ID (35)

Corn Yield Response to N Fertilizer Rate and Proximity to Winter Annual Weeds at Emergence. B. S. Heaton*, M. Bernards; Western Illinois University, Macomb, IL (36)

Palmer Amaranth Response to Glufosinate - Auxin Herbicide Mixtures. W. B. McCloskey*; University of Arizona, Tucson, AZ (37)

Horseweed Management in Oklahoma Winter Wheat. M. Manuchehri*[1], J. Crose[2], K. Cole[2], R. N. Rupp[3], B. Lindenmayer[4], D. C. Cummings[5]; [1]Oklahoma State University, Stillwater, OK, [2], Stillwater, OK, [3]FMC, Edmond, OK, [4]Syngenta Crop Protection, Perkins, OK, [5]Dow AgroSciences, Bonham, TX (38)

Evaluation of Summer Application of Saflufenacil in Non-Dormant Alfalfa. P. Devkota*; University of California Agriculture and Natural Resources, Holtville, CA (39)

On-farm Evaluation of Pre- and Post-emergence Herbicides for Weed Control in Cassava (*Manihot esculenta Crantz*). F. Ekeleme*[1], A. Dixon[1], G. Atser[1], S. Hauser[1], H. Usman[2], P. M. Olorunmaiye[3], A. Olojede[4], S. Korie[1], S. Weller[5]; [1]International Institute of Tropical Agriculture, Ibadan, Nigeria, [2]University of Agriculture Makurdi, Makurdi, Nigeria, [3]Federal University of Agriculture, Abeokuta, Nigeria, [4]National Root Crops Research Insititute, Umuahia, Nigeria, [5]Purdue University, West Lafayette, IN (40)

Evolution of ALS-Resistant Downy Brome in Montana Cereal Production. P. Jha*[1], V. Kumar[2], A. J[1], R. Yadav[1], C. A. Lim[1], S. Leland[1]; [1]Montana State University, Huntley, MT, [2]Kansas State University, Hays, KS (41)

Wild Carrot (*Daucus carota* L.) Control in Corn, Soybean, and Winter Wheat. N. Soltani*, C. Shropshire, P. Sikkema; University of Guelph, Ridgetown, ON (42)

Potential Yield Losses in Corn, Soybean and Dry Bean in North America. N. Soltani*[1], A. Dille[2], I. C. Burke[3], W. Everman[4], M. J. VanGessel[5], V. Davis[6], P. Sikkema[1]; [1]University of Guelph, Ridgetown, ON, [2]Kansas State University, Manhattan, KS, [3]Washington State University, Pullman, WA, [4]North Carolina State University, Raleigh, NC, [5]University of Delaware, Georgetown, DE, [6]BASF, Verona, WI (43)

Impact of Variety, Planting Date, and Application Timing on Soybean Tolerance to Sublethal Rates of Dicamba. T. N. O'Quinn*, W. Everman; North Carolina State University, Raleigh, NC (44)

Influence of Timing of Weed Control in Dicamba-Tolerant Cotton on Cotton Yield and Economic Return. M. Inman*[1], D. Jordan[1], A. York[2], A. Hare[1]; [1]North Carolina State University, Raleigh, NC, [2]North Carolina State University, Cary, NC (45)

Change in Weed Species Composition After Six Years of Continuous Use of Glyphosate and Dicamba in Cotton. D. Jordan*, M. Inman, A. Hare; North Carolina State University, Raleigh, NC (46)

Preemergence Options for Glyphosate and ALS Resistant Palmer Amaranth in Soybeans. S. Beam*[1], M. Flessner[2], K. B. Pittman[2], L. Rector[2], K. W. Bamber[2], C. Leon[3], K. Liberator[4], D. Waldstein[4], C. Asmus[5]; [1]Virginia Tech, Concord, NC, [2]Virginia Tech, Blacksburg, VA, [3], Hershey, PA, [4]BASF, Raleigh, NC, [5]BASF, Research Triangle Park, NC (47)

Critical Weed Free Period of Grass Species in Grain Sorghum. D. J. Contreras*, W. Everman; North Carolina State University, Raleigh, NC (48)

Effect of Simulated Isoxaflutole Drift on Non-HPPD Tolerant Soybean. D. O. Stephenson*[1], B. Woolam[2], T. Buck[3]; [1]LSU AgCenter, Alexandria, LA, [2]LSU Ag Center, Alexandria, LA, [3]LSU Ag Center, Gates, NC (49)

Evaluating the Potential for Intercropping Forage Radish (*Raphanus sativus*) with Winter Wheat. K. B. Pittman*[1], M. Flessner[1], S. Beam[2], K. W. Bamber[1]; [1]Virginia Tech, Blacksburg, VA, [2]Virginia Tech, Concord, NC (50)

Tolpyralate Crop Selectivity – A New HPPD Inhibitor Herbicide for Postemergence Use in Corn. H. Okamoto*[1], A. J. Raeder[2], H. Kikugawa[1], D. Tonks[2], M. Parks[2]; [1]ISK Biosciences, Osaka, Japan, [2]ISK Biosciences Americas, Concord, OH (51)

Rotational Crop Responses Following Postemergence Applications of Tolpyralate in Corn. A. J. Raeder*[1], H. Okamoto[2], H. Kikugawa[2], M. Parks[1], D. Tonks[1]; [1]ISK Biosciences Americas, Concord, OH, [2]ISK Biosciences, Osaka, Japan (52)

Postemergence Options for Control of Multiple-Resistant Palmer Amaranth in Tennessee. S. Steckel*, J. Copeland, L. Steckel; University of Tennessee, Jackson, TN (53)

Evaluation of 2,4-D and Dicamba Residual Effect on Cotton Establishment and Yield. K. J. Price*, S. Li; Auburn University, Auburn, AL (54)

Variable Response of Kansas *Kochia scoparia* Accessions to Dicamba. R. P. Engel*[1], V. Kumar[2], P. Stahlman[2]; [1]Fort Hays State University, Hays, KS, [2]Kansas State University, Hays, KS (55)

Effect of Light Intensity on Efficacy of Dicamba and Glufosinate on *Amaranthus palmeri*. C. Meyer*, J. Norsworthy, M. Moore, J. Green; University of Arkansas, Fayetteville, AR (56)

The Effect of Palmer Amaranth Competition on Soil Moisture Availability in Soybean. D. Joseph*[1], M. W. Marshall[2]; [1]Clemson University, Clemson, SC, [2]Clemson University, Blackville, SC (57)

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Weed Control Products for Organically Grown Vegetables. J. O'Sullivan*[1], R. Van Acker[2], R. Riddle[1], P. H. White[1]; [1]University of Guelph, Simcoe, ON, [2], Guelph, Canada (58)

Weed Suppression Varies with Cover Crop Mixture Composition. J. Morales, P. Ahuja, C. A. Chase*; University of Florida, Gainesville, FL (59)

Application Timing and Rate Effects of Oryzalin on Sweetpotato Tolerance. S. Chaudhari*[1], K. Jennings[1], S. Meyers[2], D. Miller[3]; [1]North Carolina State University, Raleigh, NC, [2]Mississippi State University, Mississippi State, MS, [3]LSU AgCenter, St. Joseph, LA (60)

Weed Control and Caladium Tolerance to Sulfonylurea Herbicides. J. Yu*[1], N. Boyd[2]; [1]University of Florida, Tampa, FL, [2]University of Florida, Wimauma, FL (61)

Weed Control in Fall Planted Cabbage Following Glyphosate-Tolerant or Cover Crops. P. Dittmar*[1], T. Batts[2], L. Zotarelli[1], J. Ferrell[1], D. Treadwell[1]; [1]University of Florida, Gainesville, FL, [2]LSU Ag Center, Gainesville, FL (62)

Confirmation, Characterization and Control of Glufosinate-Resistant Italian Ryegrass in California. P. Tehranchian*[1], R. S. Beffa[2], M. Jasieniuk[1]; [1]University of California, Davis, CA, [2]Bayer CropScience, Frankfort / Main, Germany (63)

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Physiological Basis for Selectivity of Florasulam in Tall Fescue. J. Yu[1], M. A. Czarnota[2], P. McCullough*[3]; [1]University of Florida, Tampa, FL, [2]University of Georgia, Williamson, GA, [3]University of Georgia, Griffin, GA (64)

Repetitive Overseeding of Athletic Fields for Organic Weed Management. M. A. Gannett*[1], J. Lampman[2], J. Stengle[3], K. Murray[4], T. Yeh[5], G. Thompson[1], K. Wickings[1], F. Rossi[1], J. Grant[1], M. Petrovic[1], J. T. Kao-Kniffin[1]; [1]Cornell University, Ithaca, NY, [2]Cornell Cooperative Extension, Voorheesville, NY, [3]Cornell Cooperative Extension, Brewster, NY, [4]Maine Department of Agriculture, Conservation, and Forestry, Augusta, ME, [5]Cornell Cooperative Extension, Riverhead, NY (65)

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The Main Trouble Weeds in Golf Turf of China. G. Xue*[1], J. Du[2], C. Li[2]; [1]Plant Protection Institute of Jiangsu Academy of Agricultural Science; East China Weed Technology Institute, Nanjing, Peoples Republic, [2]East China Weed Technology Institute, Nanjing, Peoples Republic (67)

Effects of Three Fertilization Methods on Weed Growth and Herbicide Performance in Soilless Nursery Substrates. C. Stewart*[1], C. Marble[2], B. J. Pearson[1], C. Wilson[3]; [1]University of Florida - Mid Florida Research and Education Center, Apopka, FL, [2]University of Florida, Apopka, FL, [3]University of Florida, Gainesville, FL (68)

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Using MaxEnt Modeling to Predict Hybrid Toadflax Invasion. K. R. McCartney[1], S. Sing[2], S. M. Ward*[1]; [1]Colorado State University, Fort Collins, CO, [2]Bozeman, MT (69)

Evaluation of Lespedeza Control Options on a Reclaimed Mine Site. J. Omielan*[1], S. Flynn[2]; [1]University of Kentucky, Lexington, KY, [2]Dow AgroSciences, Lees Summit, MO (70)

Impact of Low Use Rates of Glyphosate on Coastal Bermudagrass Productivity. M. W. Marshall*, C. H. Sanders; Clemson University, Blackville, SC (71)

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Effects of Short-Chain Fatty Acids on the Symbiosis Between Plant Roots and Bacterial Endosymbionts. K. L. Kingsley*[1], K. P. Kowalski[2], M. T. Elmore[1], K. H. Diehl[1], S. K. Verma[3], J. F. White[1]; [1]Rutgers University, New Brunswick, NJ, [2]U.S. Geological Survey, Ann Arbor, MI, [3]Banaras Hindu University, Varanasi, India (72)

A Comparative Analysis of Random Forest with Logistic Regression for Weed Risk Assessment. W. Peer*, C. Harris; University of Maryland, College Park, MD (73)

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Kansas Mesonet Real-Time Temperature Inversion Decision Tool. C. Redmond, D. Peterson*, C. Thompson; Kansas State University, Manhattan, KS (75)

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Digital Books for Weed Science. B. Ackley*; The Ohio State University, Columbus, OH (76)

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Enhancing Glyphosate Tensioactive Traits Without Reducing Penetration: A New Approach. J. Menendez*[1], D. Camacho[2], E. Martin[3]; [1]Universidad de Huelva, Palos De La Frontera, Spain, [2]Universidad de Huelva, Palos de la Frontera, Spain, [3]DAYMSA, Zaragoza, Spain (77)

Effect of Drift Control Adjuvants on Droplet Evaporation, pH, and Viscosity Using Engenia™ and Xtendimax™ Approved Tank Mixes. C. Ferguson*[1], P. H. Urach Ferreira[1], M. T. Wesley[1], D. Reynolds[2]; [1]Mississippi State University, MS State, MS, [2]Mississippi State University, Mississippi State, MS (78)

Effect of New Sphingolipid- and Protein-Based Adjuvants on Glyphosate Adherence and Penetration. J. Menendez*[1], P. Ramirez-Rubio[2], N. Sierras[2]; [1]Universidad de Huelva, Palos De La Frontera, Spain, [2]Bioiberica, Barcelona, Spain (79)

Should I Spend Money on AMS or More Glyphosate to Increase Weed Control? M. Bernards*[1], B. S. Heaton[1], B. Young[2], R. Zollinger[3]; [1]Western Illinois University, Macomb, IL, [2]Purdue University, Brookston, IN, [3]North Dakota State University, Fargo, ND (80)

Meta-Analysis of Broadleaf Weeds Control in Winter Wheat and Barley with Pixxaro Herbicide in Mexico. E. Lopez*[1], A. Bolaños[2]; [1]Crop Protection R&D, Bahia De Banderas, Mexico, [2]Professor, Texcoco, Mexico (81)

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Do Escaped Transgenes Persist and Thrive? The *Brassica rapa* Case. M. Simard*[1], M. Laforest[2], M. Cuerrier[3]; [1]Agriculture and Agri-Food Canada, Saint-jean-sur-Richelieu, QC, [2]Agriculture and Agri-Food Canada, St-Jean-sur-Richelieu, QC, [3]Centre de recherche sur les grains (CÉROM), Saint-Mathieu-de-Beloeil, QC (83)

A New Hydrothermal Time Model for Seed Germination. M. B. Mesgaran*[1], A. Onofri[2], R. D. Cousens[3]; [1]University of California, Davis, CA, [2]University of Perugia, Perugia, Italy, [3]University of Melbourne, Melbourne, Australia (84)

Potential Yield Loss in Grain Sorghum Due to Weeds. A. Dille*[1], C. Thompson[1], P. Stahlman[2], N. Soltani[3], P. Sikkema[3], W. Everman[4], M. J. VanGessel[5]; [1]Kansas State University, Manhattan, KS, [2]Kansas State University, Hays, KS, [3]University of Guelph, Ridgetown, ON, [4]North Carolina State University, Raleigh, NC, [5]University of Delaware, Georgetown, DE (85)

Morphological and Physiological Characterization of California Weedy Rice. T. B. De Leon*[1], K. Al-Khatib[1], T. Blank[2], L. A. Espino[3], R. G. Mutters[4], M. Leinfelder-Miles[5], B. A. Linquist[1], W. B. Brim-Deforest[6]; [1]University of California, Davis, CA, [2]California Crop Improvement Association, Davis, CA, [3]University of California Cooperative Extension, Colusa, CA, [4]University of California Cooperative Extension, Oroville, CA, [5]University of California Cooperative Extension, Stockton, CA, [6]University of California Cooperative Extension, Yuba City, CA (86)

Weed Seedling Emergence in Two Extreme Years in Central New York State. A. DiTommaso*[1], C. A. Marschner[2], S. H. Morris[2], S. Cordeau[3]; [1]Cornell University, Dryden, NY, [2]Cornell University, Ithaca, NY, [3]INRA, Dijon, France (87)

The *Orobanche cumana x Orobanche cernua* Genetic System Provides Insight into the Regulation of Germination Specificity in a Parasitic Plant. H. Larose[1], D. Plakhine[2], N. Wycoff[1], H. Eizenberg[3], Y. Tadmor[2], D. Nelson[4], J. Westwood*[1]; [1]Virginia Tech, Blacksburg, VA, [2]Newe Ya'ar Research Center, A.R.O., Ramat Yishay, Israel, [3]Agricultural Research Organization, Newe Ya'ar Research Center, Ramat Yishay, Israel, [4]University of California, Riverside, CA (88)

Characterization of the *Phelipanche*-Host Defense Interaction. C. Clarke[1], R. Tuosto[2], S. Park[2], X. Jia[2], L. Honaas[3], P. Ralph[3], E. Wafula[3], Z. Yang[3], H. Zhang[3], C. dePamphilis[3], J. Westwood*[2]; [1]United States Department of Agriculture, Agricultural Research Service, Beltsville, MD, [2]Virginia Tech, Blacksburg, VA, [3]Penn State University, University Park, PA (89)

Surveying the Distribution of Herbicide Resistance in Ryegrass (*Lolium spp.*) in Wheat Production Systems in Texas. V. Singh*, S. Abugho, A. Maity, M. Bagavathiannan; Texas A&M University, College Station, TX (90)

Photosystem II Inhibitors Resistance in Common Ragweed (*Ambrosia artemisiifolia*). M. Laforest*[1], M. Simard[2], B. Soufiane[1], D. L. Benoit[3], F. J. Tardif[4]; [1]Agriculture and Agri-Food Canada, St-Jean-sur-Richelieu, QC, [2]Agriculture and Agri-Food Canada, Saint-jean-sur-Richelieu, QC, [3]Agriculture and Agri-Food

Canada, St Jean sur Richelieu, QC, [4]University of Guelph, Guelph, ON (91)

The Research on Biological Characteristics and Control Strategy of *Sagittaria pygmaea* in Central Hunan, China. Y. Zhou[1], Y. Hu[2], J. li[2], X. Liu[2], X. Zhang[2], K. Peng[1], C. Jin*[2]; [1]Hunan University of Humanities, Science and Technology, Loudi, Peoples Republic, [2]Hunan University of Humanities, Science and Technology, Loudi, Peoples Republic (92)

Seedbank Persistence of Palmer Amaranth and Waterhemp in the Mid-South United States. N. E. Korres*[1], J. Norsworthy[2], B. Young[3], D. Reynolds[4], W. Johnson[5], S. P. Conley[6], R. Smeda[7], T. Mueller[8], M. V. Bagavathiannan[9]; [1]University of Arkansas, Fayettevile, AR, [2]University of Arkansas, Fayetteville, AR, [3]Purdue University, Brookston, IN, [4]Mississippi State University, Mississippi State, MS, [5]Purdue University, West Lafayette, IN, [6]University of Wisconsin, Madison, WI, [7]University of Missouri, Columbia, MO, [8]University of Tennessee, Knoxville, TN, [9]University of Arkansas, College Station, TX (93)

Investigation of Goosegrass Phenotypic Variation. J. S. McElroy*, A. Boyd, J. Harris; Auburn University, Auburn, AL (94)

Seed Germination Ecology of Meadow Knapweed (*Centaurea* x *moncktonii*) Populations in New York State. A. DiTommaso*[1], L. R. Milbrath[2], C. A. Marschner[3], S. H. Morris[3], J. Biazzo[2]; [1]Cornell University, Dryden, NY, [2]USDA-ARS, Ithaca, NY, [3]Cornell University, Ithaca, NY (95)

Allowing Temporary Weed Seed Bank Growth does not Affect Cash Crop Yield in an Integrated Livestock-Row Crop Rotation. R. Leon*[1], D. Wright[2]; [1]University of Florida, Raleigh, NC, [2]University of Florida, Quincy, FL (96)

Herbicide Resistance and its Management in Jiangsu Province. Y. Lou*, H. Wang; Institute of Plant Protection, Nanjing, Peoples Republic (97)

Seedling Emergence Model to Optimize Preemergence Herbicide Application in Junglerice (*Echinochloa colona*). G. A. Picapietra[1], H. A. Acciaresi*[2]; [1]Instituto Nacional de Tecnologia Agropecuaria, Pergamino, Argentina, [2]Instituto Nacional Tecnologia Agropecuaria, Pergamino, Argentina (98)

Relationship Between Growth Habit and Aboveground Dry Matter in Junglerice (*Echinochloa colona*). G. A. Picapietra[1], H. A. Acciaresi*[2]; [1]Instituto Nacional de Tecnologia Agropecuaria, Pergamino, Argentina, [2]Instituto Nacional Tecnologia Agropecuaria, Pergamino, Argentina (99)

Survey of Weed Species and Test of Herbicides Mixed in Barrels for Weeds Control in *Camellia oleifera* Abel Forest in Hunan Province. C. Jin*, X. Zhang, Y. Zhou, Y. Hu; Hunan University of Humanities, Science and Technology, Loudi, Peoples Republic (100)

Cover Crop Utilization Influences Weed Management Potential. E. Haramoto*, R. Pearce; University of Kentucky, Lexington, KY (101)

Potential of *Callisia repens* as a native cover for weed management in perennial tropical plantations. R. Gomez[1], F. García*[2], S. Marin[2]; [1]University of Costa Rica, San Jose, Costa Rica, [2]University of Costa Rica, San José, Costa Rica (102)

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Section 10. Biocontrol of Weeds

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Mass production of *Fusarium*-based granular mycoherbicide for the management of crenate broomrape in Egypt. Y. M. Shabana*[1], M. M. El-Hawary[2], M. E. Sadek[1]; [1]Mansoura University, El-Mansoura, Egypt, [2]Agricultural Research Center, Giza, Egypt (103)

Bacterial Seed Endophytes of Smooth Crabgrass (*Digitaria ischaemum*) Increase Broadleaf Weed Seedling Mortality. M. T. Elmore*[1], J. F. White[1], K. L. Kingsley[1], K. H. Diehl[1], D. P. Tuck[1], S. K. Verma[2]; [1]Rutgers University, New Brunswick, NJ, [2]Banaras Hindu University, Varanasi, India (104)

Use of Hot Water to Enhance Bioherbicidal Performance of a Fungus. C. D. Boyette*[1], R. Hoagland[2], K. C. Stetina[1]; [1]USDA-ARS, Stoneville, MS, [2]USDA-ARS. CPSRU, Stoneville, MS (105)

Section 11. Physiology

***PRESENTER**

Locating Anthroquinone Biosynthesis in Sicklepod Cells Using its UV Fluorescence Property. Z. Yue*[1], T. Tseng[2]; [1]Mississippi State University, Starkville, MS, [2]Mississippi State University, Mississippi State, MS (106)

Glyphosate Hormesis in Preconditioned *Brachiaria decumbens*. G. L. Gimenes Cotrick Gomes*[1], E. D. Velini[2], C. A. Carbonari[2]; [1]Faculdade de Ciências Agronômicas / UNESP, Botucatu, Brazil, [2]Unesp - Univ. Estadual Paulista, Botucatu, Brazil (107)

Repeated Low-Dose Selection Results in Reduced Susceptibility of Palmer Amaranth to Mesotrione. V. Varanasi*[1], C. Brabham[1], M. V. Bagavathiannan[2], J. Norsworthy[1]; [1]University of Arkansas, Fayetteville, AR, [2]University of Arkansas, College Station, TX (108)

The Efficacy of Dicamba on PPO-Inhibitor Resistant and Susceptible Palmer Amaranth Accessions from Arkansas. C. Brabham*, V. Varanasi, J. Green, J. Norsworthy; University of Arkansas, Fayetteville, AR (109)

Exploring the Dioecious Nature of Palmer Amaranth. N. E. Korres*[1], J. Norsworthy[2]; [1]University of Arkansas, Fayettevile, AR, [2]University of Arkansas, Fayetteville, AR (110)

Effect of Temperature and CO_2 Levels on Cyhalofop-butyl Absorption, Translocation and Efficacy in *Echinochloa* ecotypes (*Echinochloa colona*). J. P. Refatti[1], L. A. Avila*[1], N. Roma-Burgos[2], E. R. Camargo[3], L. H. Ziska[4], R. Salas[2]; [1]Universidade Federal de Pelotas, Pelotas, Brazil, [2]University of Arkansas, Fayetteville, AR, [3]Federal University of Pelotas, Pelotas, Brazil, [4]USDA-ARS, Beltsville, MD (111)

***Parthenium hystherophorus*: A New Glyphosate-Resistant Weed in Mexico.** C. Palma-Bautista[1], J. A. Dominguez-Valenzuela[1], P. T. Fernandez-Moreno[2], H. Cruz-Hipolito[3], R. Alcantara-de la Cruz[4], R. De Prado Amian*[5]; [1]Universidad Chapingo, Texcoco, Mexico, [2]., Brussels, Belgium, [3]Bayer CropScience, Mexico D.C., Mexico, [4]University of Viçosa, Viçosa, Brazil, [5], Córdoba, Spain (112)

A Novel Amino Acid Substitution Ala-103-Val in EPSPS has been Found in Glyphosate Resistant *A. hybridus*. M. J. Garcia-del Rosal[1], E. Bracamonte[2], P. T. Fernandez-Moreno[3], R. Alcantara-de la Cruz[4], R. De Prado Amian*[5]; [1]Departamento de Ecología, Botánica y Fisiología Vegetal Facultad de Ciencias Universidad de Córdoba Campus de Rabanales, edificio C4, Cordoba, Spain, [2]University of Cordoba, Cordoba, Argentina, [3]., Brussels, Belgium, [4]University of Viçosa, Viçosa, Brazil, [5], Córdoba, Spain (113)

Locoweed-Fungal Endophyte Complex: Does Epigenetic Inheritance Play a Role in Locoweed Fecundity and Physiology? B. K. Keith[1], S. M. Ward[2], T. M. Sterling*[1]; [1]Montana State University, Bozeman, MT, [2]Colorado State University, Fort Collins, CO (114)

Multiple Resistances to Herbicides in a Diquat-Resistant *Epilobium ciliatum* in Chile. B. Khalil Tahmasebi[1], E. Alcantara[2], R. Dominguez[2], P. T. Fernandez-Moreno*[3], R. Alcantara-de la Cruz[4], R. De Prado Amian[5]; [1]university mohaghegh ardebil, ardebil, Iran, [2]University of Cordoba, Cordoba, Spain, [3]., Brussels, Belgium, [4]University of Viçosa, Viçosa, Brazil, [5], Córdoba, Spain (115)

Characterization of ALS-Inhibiting Herbicide Resistance in California Multiple-Resistant Italian Ryegrass Populations. P. Tehranchian*[1], V. Nandula[2], C. Fautt[1], M. Jasieniuk[1]; [1]University of California, Davis, CA, [2]USDA-ARS, Stoneville, MS (116)

TUESDAY MORNING JANUARY 30

Section 12. Soil and Environmental Aspects

***PRESENTER**

Effect of Bonechar Addition on Metribuzin Mobility by Soil Thin-Layer Chromatography. K. F. Mendes*, F. G. Alonso, L. V. Junqueira, V. Takeshita, V. L. Tornisielo; CENA/USP, Piracicaba, Brazil (117)

Effect of Soil Organic Matter Content on Atrazine Bioavailability. R. L. Kanaziz*[1], T. Gannon[2], K. Ahmed[2], S. Brinton[2], P. J. Maxwell[2]; [1]North Carolina State University, North Branch, MI, [2]North Carolina State University, Raleigh, NC (118)

Evaluation of 2,4-D Spray Drift from a Terrestrial Application Under Field Conditions. M. Noguera*[1], E. R. Camargo[1], L. Avila[1], M. Zimmer[2], K. Egewarth[1], R. Becker[3], F. Brunetto[1], J. Hubner[1]; [1]Federal University of Pelotas, Pelotas, Brazil, [2]University of Purdue, West Lafayette, IN, [3]Adama, Cruz Alta, Brazil (119)

Herbicides Dissolved in Tailwater Irrigation and Their Impact on Susceptible Soybean. M. N. Thompson[1], C. D. Willett*[1], E. M. Grantz[1], D. L. Leslie[2], M. L. Reba[3], J. Norsworthy[1]; [1]University of Arkansas, Fayetteville, AR, [2]Arkansas Tech University, Russellville, AR, [3]USDA-ARS, Jonesboro, AR (120)

Dynamics of Herbicides Applied to *Eucalyptus* and Sugarcane Harvest Residues. C. A. Carbonari*[1], G. L. Gimenes Cotrick Gomes[2], E. D. Velini[1], E. B. Castro[1]; [1]Unesp - Univ. Estadual Paulista, Botucatu, Brazil, [2]Faculdade de Ciências Agronômicas / UNESP, Botucatu, Brazil (121)

Indaziflam and Saflufenacil Herbicides in Crops and Microorganisms. B. A. Torres*[1], P. V. Da Silva[2], P. A. Monquero[3]; [1]UFSCar, Sao Paulo, Brazil, [2]Universidade de Sao Paulo/ESALQ, Fort Collins, CO, [3]Universidade Federal de São Carlos, Araras, Brazil (122)

TUESDAY MORNING JANUARY 30

Section 13. Integrated Weed Management

***PRESENTER**

Remote Sensing Applications for Weed Species Differentiation. J. Sanders, W. Everman*; North Carolina State University, Raleigh, NC (123)

Evaluating Harvest Weed Seed Controls for Italian Ryegrass (*Lolium perenne* ssp. *multiflorum*) Management in Mid-Atlantic Wheat Production. S. C. Haring*[1], M. Flessner[2], W. Everman[3]; [1]University of California, Davis, CA, [2]Virginia Tech, Blacksburg, VA, [3]North Carolina State University, Raleigh, NC (124)

Integrated Management of Ragweed Parthenium (*Parthenium hysterophorus*) in Direct-Seeded Rice (*Oryza sativa*). A. A. Bajwa*[1], M. Farooq[2], B. S. Chauhan[1], S. W. Adkins[3]; [1]The University of Queensland, Gatton, Australia, [2]University of Agriculture Faisalabad, Faisalabad, Pakistan, [3]University of Queensland, Gatton, Australia (125)

Influence of Cover Crop Species on Weed Emergence. M. Buratovich[1], H. A. Acciaresi*[2]; [1]INTA-CONICET, Pergamino, Argentina, [2]Instituto Nacional Tecnologia Agropecuaria, Pergamino, Argentina (126)

Early Vigour: A Useful Trait for Enhanced Wheat Competitiveness Against Weeds. M. Cena[1], H. A. Acciaresi*[2]; [1]CIC (Bs.As.), Pergamino, Argentina, [2]Instituto Nacional Tecnologia Agropecuaria, Pergamino, Argentina (127)

Cultural Weed Control in Soybean: Does it Matter? J. D. Rosset[1], R. H. Gulden*[2]; [1]University of Manitoba, Winnipeg, MB, [2]University of Mantioba, Winnipeg, MB (128)

Susceptibility of California Weedy Rice to Herbicides. W. B. Brim-Deforest*[1], T. B. De Leon[2], K. Al-Khatib[2]; [1]University of California Cooperative Extension, Yuba City, CA, [2]University of California, Davis, CA (129)

TUESDAY MORNING JANUARY 30

Oral Contest - MS Students I

LOCATION: Grand Salon K
TIME: 10:00 AM - 12:00 PM
CHAIR: Stephen Schraer
Syngenta
Meridian, ID
CO-CHAIR: Darrin Dodds
Mississippi State University
Mississippi State, MS
MODERATOR: Stephen Schraer
Syngenta
Meridian, ID

***SPEAKER † STUDENT CONTEST**

10:00 **†Grain Sorghum (*Sorghum bicolor*) and Grass Weeds: Is There a Critical Period of Weed Control?** J. J. Albers*[1], A. Dille[1], D. Peterson[1], P. Stahlman[2]; [1]Kansas State University, Manhattan, KS, [2]Kansas State University, Hays, KS (130)

10:15 **†Differential Sensitivity of Weedy Rice (*Oryza sative* L.) Germplasm to Herbicides.** S. Shrestha*[1], N. Roma-Burgos[2], G. Sharma[1], T. Tseng[3]; [1]Mississippi State University, Starkville, MS, [2]University of Arkansas, Fayetteville, AR, [3]Mississippi State University, Mississippi State, MS (131)

10:30 **†The History and Spread of Palmer Amaranth (*Amaranthus palmeri*) in Ohio.** A. Lamb*, M. Loux; The Ohio State University, Columbus, OH (132)

10:45 **†Investigations of the Sensitivity of Various Tree and Ornamental Species to Driftable Fractions of 2,4-D and Dicamba.** B. R. Dintelmann*, G. Bunton, M. Warmund, M. D. Bish, K. Bradley; University of Missouri, Columbia, MO (133)

11:00 **†Potential Induction of Systemic Acquired Resistance in Soybean (*Glycine max)* by Soil-Applied Herbicides and the Effects on Disease Development.** R. Stolte*[1], A. M. Fakhoury[2], J. P. Bond[2], K. Gage[3]; [1]SIU, Carbondale, IL, [2]Plant Pathologist, Carbondale, IL, [3]Southern Illinois University, Carbondale, IL (134)

11:15 **†Tolerance of Sweet Potato (*Ipomoea batatas*) to Herbicides Applied in Plant Propagation Beds.** S. Smith*, K. Jennings, D. Monks; North Carolina State University, Raleigh, NC (135)

11:30 **†Organic weed management in Pulse Crops.** O. Alba*; USASK, Saskatoon, SK (136)

11:45 **†Influence of Multiple Herbicide Resistance on Growth and Development in Selected Populations of *Amaranthus tuberculatus* (Waterhemp).** E. Jones*, M. Owen; Iowa State University, Ames, IA (137)

Oral Contest - MS Students II

LOCATION: Grand Salon J
TIME: 10:00 AM - 11:45 AM
CHAIR: Stephen Schraer, Syngenta, Meridian, ID
CO-CHAIR: Darrin Dodds, Mississippi State University, Mississippi State, MS
MODERATOR: Stephen Schraer, Syngenta, Meridian, ID

***SPEAKER † STUDENT CONTEST**

10:00 **†Fall Panicum (*Panicum dichotomiflorum*) Control and Sugarcane (*Saccharum officinarum*) Response to Topramezone Alone or in Tank-Mixing with Triazine Herbicides.** R. Mereb Negrisoli*[1], D. Odero[1], G. E. MacDonald[2], B. Sellers[3], H. Laughinghouse[4]; [1]University of Florida, Belle Glade, FL, [2]University of Florida, Gainesville, FL, [3]University of Florida, Ona, FL, [4]University of Florida, Fort Lauderdale, FL (138)

10:15 **Remote Determination of Weed Species and Density in Sweetpotato (*Ipomoea batatas*) Using *In-Situ* Spectroscopy.** N. Basinger*[1], K. Jennings[1], E. L. Hestir[2], D. Monks[1], W. Everman[1], D. Jordan[1]; [1]North Carolina State University, Raleigh, NC, [2]University of California, Merced, CA (139)

10:30 **†Effect of Soil- vs. Foliar-Applied ALS-Inhibiting Herbicides on Control of ALS-Resistant Horseweed (*Conyza canadensis*).** J. E. Boe*[1], H. Nie[2], J. Young[3], B. Young[3]; [1]Purdue University, Lafayette, IN, [2]Purdue University, West Lafayette, IN, [3]Purdue University, Brookston, IN (140)

10:45 **Determining the Effects of Increased Rinse Volumes on Dicamba Removal from Contaminated Sprayers.** Z. A. Carpenter*, D. Reynolds, A. B. Johnson; Mississippi State University, Mississippi State, MS (141)

11:00 **†Conquering Linuron Resistant Pigweed (*Amaranthus sp.*) in Carrot (*Daucus carota*).** T. J. de Boer*, C. Swanton; University of Guelph, Guelph, ON (142)

11:15 **Effect of Nozzle, Carrier Volume, and Cover Crop Residue on Residual Herbicide Efficacy.** B. P. Sperry*[1], D. Reynolds[2], J. Bond[3], C. Ferguson[4], G. Kruger[5], A. Brown-Johnson[6]; [1]Mississippi State University, Micanopy, FL, [2]Mississippi State University, Mississippi State, MS, [3]Delta Research and Extension Center, Stoneville, MS, [4]Mississippi State University, MS State, MS, [5]University of Nebraska, North Platte, NE, [6]Mississippi State Chemical Laboratory, Mississippi State, MS (143)

11:30 **†Weed Management and Grain Yield of Six Soybean (*Glycine max*) Systems in Conventional and No-Till.** M. C. Geiger*[1], J. L. Matthews[2], R. Krausz[3], K. Gage[2]; [1]SIU, Carbondale, IL, [2]Southern Illinois University, Carbondale, IL, [3]Southern Illinois University, Belleville, IL (144)

TUESDAY MORNING JANUARY 30

Oral Contest - PhD Students I

LOCATION: Arlington Salon V
TIME: 10:00 AM - 12:00 PM
CHAIR: Stephen Schraer, Syngenta, Meridian, ID
CO-CHAIR: Darrin Dodds, Mississippi State University, Mississippi State, MS
MODERATOR: Stephen Schraer, Syngenta, Meridian, ID

***SPEAKER † STUDENT CONTEST**

10:00 **†Validation of Standard Water Conditioning Testing.** J. W. Adams*, R. Zollinger; North Dakota State University, Fargo, ND (145)

10:15 **†Reduced Uptake and Translocation: a Potential Mechanism for Antagonism Between Tank-Mixtures of Glyphosate, Glufosinate, and Dicamba in *Echinochloa crus-galli*.** C. Meyer*[1], J. Norsworthy[1], R. S. Beffa[2]; [1]University of Arkansas, Fayetteville, AR, [2]Bayer CropScience, Frankfort / Main, Germany (146)

10:30 **†Time of Day Effects on Peanut (*arachis hypogaea*) Herbicide Programs.** O. Carter*, E. P. Prostko; University of Georgia, Tifton, GA (147)

10:45 **†A Preliminary Analysis of the Transcriptome Following 2,4-D Treatment in Susceptible and Tolerant Red Clover (*Trifolium pratense*) Lines.** L. Araujo*, M. Barrett, L. D. Williams, G. L. Olson, R. D. Dinkins, T. Bass; University of Kentucky, Lexington, KY (148)

11:00 **†Palmer Amaranth (*Amaranthus palmeri*) Control Using Various Droplet Sizes of Acifluorfen and Lactofen.** L. Franca*[1], D. Dodds[1], C. Samples[1], G. Kruger[2], T. Butts[2]; [1]Mississippi State University, Mississippi State, MS, [2]University of Nebraska, North Platte, NE (149)

11:15 **†The Fate of Glyphosate in Roundup Ready Sugarbeet (*Beta vulgaris*).** A. Barker*, F. E. Dayan; Colorado State University, Fort Collins, CO (150)

11:30 **†Modelling of Novel Quizalofop-Resistant ACCase in Wheat.** R. Bough*, C. M. Hildebrandt, T. Gaines, F. E. Dayan; Colorado State University, Fort Collins, CO (151)

11:45 **†Challenges for Adopting Harvest Weed Seed Controls in an Organic Wheat *(Triticum aestivum*)-Soybean (*Glycine max*) Rotation.** S. C. Haring*[1], M. Flessner[2], W. Everman[3]; [1]University of California, Davis, CA, [2]Virginia Tech, Blacksburg, VA, [3]North Carolina State University, Raleigh, NC (152)

TUESDAY MORNING JANUARY 30

Oral Contest - PhD Students II

LOCATION: Arlington Salon VI
TIME: 10:00 AM - 12:00 PM
CHAIR: Stephen Schraer, Syngenta, Meridian, ID
MODERATOR: Stephen Schraer, Syngenta, Meridian, ID

***SPEAKER † STUDENT CONTEST**

10:00 **Gene Flow of a Herbicide Resistance Trait from Palmer Amaranth (*Amaranthus palmeri*) to Tall Waterhemp (*Amaranthus tuberculatus*).** N. Steppig*[1], H. Nie[2], J. Young[3], B. Young[3]; [1]Purdue University, Fayetteville, IN, [2]Purdue University, West Lafayette, IN, [3]Purdue University, Brookston, IN (153)

10:15 **†Postemergence Herbicide Options for Common Ragweed (*Ambrosia artemisiifolia* L.) Control in Soybeans (*Glycine max*).** S. Beam*[1], M. Flessner[2], K. W. Bamber[2]; [1]Virginia Tech, Concord, NC, [2]Virginia Tech, Blacksburg, VA (154)

10:30 **†Use of Metam Potassium in Weed Control in Florida Strawberry.** N. Boyd, K. K. Khatri*; University of Florida, Wimauma, FL (155)

10:45 **†Interseeded Cover Crops Competitiveness in Grain Corn (*Zea mays*).** A. Brooker*, K. Renner, C. Sprague; Michigan State University, East Lansing, MI (156)

11:00 **†Response of *Beta vulgaris* to Reflected Light Quality.** A. T. Adjesiwor*, A. Kniss; University of Wyoming, Laramie, WY (157)

11:15 **†Interactions of Tank-Mix Partners with Paraquat for Enhanced Grass Control.** M. Hay*, D. Peterson; Kansas State University, Manhattan, KS (158)

11:30 **†Control Options for Toxic Perilla Mint (*Perilla frutescens*) in Forage Systems.** D. Russell*[1], J. D. Byrd, Jr.[1], M. Zaccaro[2]; [1]Mississippi State University, Mississippi State, MS, [2]University of Arkansas, Fayetteville, AR (159)

11:45 **†Increased Absorption of Mesotrione When Tank-Mixed with Atrazine Contributes to Improved Control of PS II- and HPPD-Inhibitor-Resistant Palmer Amaranth (*Amaranthus palmeri*).** P. Chahal*[1], M. Jugulam[2], A. Jhala[1]; [1]University of Nebraska, Lincoln, NE, [2]Kansas State University, Manhattan, KS (160)

TUESDAY AFTERNOON JANUARY 30

Oral Contest - MS Students I

LOCATION: Grand Salon K
TIME: 1:00 PM - 5:00 PM
CHAIR: Stephen Schraer, Syngenta, Meridian, ID
CO-CHAIR: Darrin Dodds, Mississippi State University, Mississippi State, MS
MODERATOR: Stephen Schraer, Syngenta, Meridian, ID

***SPEAKER † STUDENT CONTEST**

1:00 **†Influence of Formulations and Application Time of Day on Dicamba Air Concentrations Following Treatment.** S. Farrell*, R. N. Lerch, M. D. Bish, K. Bradley; University of Missouri, Columbia, MO (161)

1:15 **†Targeted Sequencing of SSR Markers and ALS-Herbicide Resistance Alleles in Grain Sorghum (*Sorghum bicolor*) and Weedy Relatives.** J. Ziggafoos*[1], R. Werle[2], J. Lindquist[1], A. Jhala[1], D. L. Hyten[1], M. K. Yerka[3]; [1]University of Nebraska, Lincoln, NE, [2]University of Nebraska, North Platte, NE, [3]University of Nevada, Reno, NV (162)

1:30 **†Band Sowing and Cultivation for Weed Management in Organic Grains.** M. R. McCollough*, E. Gallandt; University of Maine, Orono, ME (163)

1:45 **†Persistence of Dicamba and 2,4-D Herbicide Residues Following Low-Dose Applications in Sugarbeet (*Beta vulgaris*).** M. Probst*, C. Sprague; Michigan State University, East Lansing, MI (164)

2:00 **†Controlling *Conyza canadensis* with Cover Crops and Herbicides.** A. D. Sherman*[1], E. Haramoto[2], J. Green[2]; [1]University of Kentucky, Humboldt, IL, [2]University of Kentucky, Lexington, KY (165)

2:15 **†Control of False-Green Kyllinga (*Kyllinga gracillima*) with Various Herbicides.** K. H. Diehl*[1], M. T. Elmore[1], D. P. Tuck[1], A. J. Patton[2], J. Carleo[3], J. Sawyer[3]; [1]Rutgers University, New Brunswick, NJ, [2]Purdue University, W Lafayette, IN, [3]NJAES, Cape May, NJ (166)

2:30 **†Integration of Residual Herbicides and Cover Crops for Weed Control in a Soybean (*Glycine max*) Production System.** D. Whalen*, M. D. Bish, M. Biggs, R. N. Lerch, K. Bradley; University of Missouri, Columbia, MO (167)

2:45 **†Effectiveness of Pre-emergence Applied HPPD Herbicides on Controlling HPPD-Resistant Palmer Amaranth (*Amaranthus palmeri*).** G. J. Gundy*, M. Hay, C. Thompson, A. Dille; Kansas State University, Manhattan, KS (168)

3:00 **Break**

3:15 **†Evaluation of Fluridone in Cotton (*Gossypium hirsutum*) and Peanut (*Arachis hypogaea*).** D. Teeter*[1], T. A. Baughman[1], R. Peterson[2]; [1]Oklahoma State University, Ardmore, OK, [2]OSU- Institute for Agricultural BioScience, Ardmore, OK (169)

3:30 **†Control of Glyphosate-resistant Waterhemp (*Amaranthus tuberculatus* var. *rudis*) in Ontario with the Roundup Ready 2 Xtend® Crop System.** B. Hedges*, D. C. Hooker, P. Sikkema, D. E. Robinson; University of Guelph, Ridgetown, ON (170)

TUESDAY AFTERNOON JANUARY 30

Oral Contest - MS Students II

LOCATION: Grand Salon J
TIME: 1:00 PM - 3:00 PM
CHAIR: Stephen Schraer, Syngenta, Meridian, ID
CO-CHAIR: Darrin Dodds, Mississippi State University, Mississippi State, MS
MODERATOR: Stephen Schraer, Syngenta, Meridian, ID

***SPEAKER † STUDENT CONTEST**

1:00 **†XtendFlex and Enlist Cotton (*Gossypium hirsutum*) Weed Management Systems in West Texas.** K. Russell*[1], P. Dotray[1], W. Keeling[2]; [1]Texas Tech University, Lubbock, TX, [2]Texas A&M AgriLife Research, Lubbock, TX (171)

1:15 **Effect of Palmer Amaranth (*Amaranthus palmeri*) Density on Yield of Grafted and Nongrafted Watermelon on Weed Seed Production.** M. Bertucci*, K. Jennings, D. Monks, D. Jordan, J. R. Schultheis, F. J. Louws; North Carolina State University, Raleigh, NC (172)

1:30 **†Efficacy of Chemical Control Methods on Giant Hogweed (*Heracleum mantegazzianum*).** M. Grguric*[1], M. Cowbrough[2], F. J. Tardif[1]; [1]University of Guelph, Guelph, ON, [2]OMAFRA, Guelph, ON (173)

1:45 **Break**

2:00 **†Biologically-Effective Dose of Tolpyralate Applied Post-Emergence for Annual Weed Control in Corn (*Zea mays* (L.)).** B. Metzger*[1], A. J. Raeder[2], D. C. Hooker[1], D. E. Robinson[1], P. Sikkema[1]; [1]University of Guelph, Ridgetown, ON, [2]ISK Biosciences Americas, Concord, OH (174)

TUESDAY AFTERNOON JANUARY 30

Oral Contest - PhD Students I

LOCATION: Arlington Salon V
TIME: 1:00 PM - 5:00 PM
CHAIR: Stephen Schraer, Syngenta, Meridian, ID
CO-CHAIR: Darrin Dodds, Mississippi State University, Mississippi State, MS
MODERATOR: Stephen Schraer, Syngenta, Meridian, ID

***SPEAKER † STUDENT CONTEST**

1:00 **†Glufosinate-Resistant Italian Ryegrass (*Lolium multiflorum*): Involvement of Herbicide Metabolism and Mobility in the Mechanism of Resistance.** C. Brunharo*[1], C. Mallory-Smith[2], B. Hanson[3]; [1]University of California, Davis, CA, [2]Oregon State University, Corvallis, OR, [3]University of California, Winters, CA (175)

1:15 **†Evaluating the Relative Contributions of Crop Rotation, Tillage, and Herbicide Diversity for Proactive Herbicide Resistant Kochia (*Kochia scoparia*) Management.** E. G. Mosqueda*[1], A. Kniss[1], P. Jha[2], N. C. Lawrence[3], G. M. Sbatella[1]; [1]University of Wyoming, Laramie, WY, [2]Montana State University, Huntley, MT, [3]University of Nebraska, Pullman, WA (176)

1:30 **†FTIR Spectroscopy as a Method for the Detection and Differentiation of Various Auxin Herbicide Formulations Found in Damaged Cotton (*Gossypium hirsutum*) and Soybean (*Glycine max*) Plant Tissue.** J. Buol*[1], D. Reynolds[1], A. Brown-Johnson[2], C. Reid[2]; [1]Mississippi State University, Mississippi State, MS, [2]Mississippi State Chemical Laboratory, Mississippi State, MS (177)

1:45 **†Research Needs for Sustainable Weed Management in Australian Agriculture.** A. M. Peerzada*[1], S. Manalil[2], C. C. ODonnell[1], S. W. Adkins[2]; [1]The University of Queensland, Brisbane, Australia, [2]University of Queensland, Gatton, Australia (178)

2:00 **†Determining Genetic Diversity of Glyphosate Resistant Giant Ragweed (*Ambrosia trifida*) Using Molecular Markers.** J. C. Walker*[1], T. Tseng[2], D. Reynolds[2], D. Shaw[2]; [1]PhD Candidate, Starkville, MS, [2]Mississippi State University, Mississippi State, MS (179)

2:15 **†Influence of Physical Properties of Landscape Mulch on Germination of Large Crabgrass (*Digitaria sanguinalis*) and Garden Spurge (*Chamaesyce hirta*).** D. Saha*[1], C. Marble[2], G. E. MacDonald[3], D. Odero[4], B. J. Pearson[5], H. E. Perez[3]; [1]Mid-Florida Research and Education Center, University of Florida, Apopka, FL, [2]University of Florida, Apopka, FL, [3]University of Florida, Gainesville, FL, [4]University of Florida, Belle Glade, FL, [5]University of Florida - Mid Florida Research and Education Center, Apopka, FL (180)

2:30 **†Relationship Between Glufosinate Phytotoxicity, Inhibition of Glutamine Synthetase and Ammonia Accumulation.** H. K. Takano*, P. Westra, F. E. Dayan; Colorado State University, Fort Collins, CO (181)

2:45 **†Integrated Weed Management and Herbicide Resistance Survey of Winter Annual Grasses in Colorado.** N. Soni*[1], S. J. Nissen[1], P. Westra[1], M. J. Walsh[2], J. Norsworthy[3], T. Gaines[1]; [1]Colorado State University, Fort Collins, CO, [2]University of Sydney, Narrabri, Australia, [3]University of Arkansas, Fayetteville, AR (182)

3:00 **Break**

3:15 **†Are all Auxin Herbicides Created Equal? A Transcriptome Analysis of the Auxin Herbicide Response in Horseweed (*Conyza canadensis*).** C. McCauley*[1], B. Young[2]; [1]Purdue University, Crawfordsville, IN, [2]Purdue University, Brookston, IN (183)

Oral Contest - PhD Students II

LOCATION: Arlington Salon VI
TIME: 1:00 PM - 5:00 PM
CHAIR: Stephen Schraer, Syngenta, Meridian, ID
MODERATOR: Stephen Schraer, Syngenta, Meridian, ID

***SPEAKER † STUDENT CONTEST**

1:00 **†Impact of Climate Change on Biology and Chemistry of An Invasive Weed Species, *Parthenium hysterophorus* L.** A. A. Bajwa*[1], B. S. Chauhan[1], S. W. Adkins[2]; [1]The University of Queensland, Gatton, Australia, [2]University of Queensland, Gatton, Australia (184)

1:15 **†Are Pre-Emegence Herbicides Better for Effective Weed Management in Glyphosate-Resistant Cotton *(Gossypium hirsutum*).** N. Iqbal*[1], S. Manalil[1], B. S. Chauhan[2], S. W. Adkins[1]; [1]University of Queensland, Gatton, Australia, [2]The University of Queensland, Gatton, Australia (185)

1:30 **†Critical Time of Weed Removal in Popcorn (*Zea mays everta)* as Influence by Pre-Emergence Herbicides.** E. Barnes*[1], S. Knezevic[2], N. C. Lawrence[3], S. Irmak[1], O. Rodriguez[1], A. Jhala[1]; [1]University of Nebraska, Lincoln, NE, [2]University of Nebraska, Concord, NE, [3]University of Nebraska, Pullman, WA (186)

1:45 **†Sorption and Desorption of Indaziflam, Imazapic, and Amicarbazone in Soils with Varying Physical and Chemical Properties.** P. V. Da Silva*[1], S. L. Clark[2], D. J. Sebastian[2], M. Ortiz[2], M. Faletti[3], M. Figueiredo[2], L. Ma[4], P. A. Monquero[5], P. J. Christoffoleti[6], S. J. Nissen[2]; [1]Universidade de Sao Paulo/ESALQ, Fort Collins, CO, [2]Colorado State University, Fort Collins, CO, [3], Saint Louis, MO, [4]University of British Columbia, Vancouver, BC, [5]Universidade Federal de São Carlos, Araras, Brazil, [6]University of Sao Paulo, Piracicaba, Brazil (187)

2:00 **†Using Historical Data of *Miconia calvescens* to Optimize Management and Containment Across the East Maui Watershed.** N. A. Jorgensen*[1], J. Leary[2], M. Renz[1]; [1]University of Wisconsin, Madison, WI, [2]University of Hawaii, Kula, HI (188)

2:15 **†Impact of Palmer Amaranth (*Amaranthus palmeri*) Size on Yield in LibertyLink® Cotton (*Gossypium hirstutum*).** M. Plumblee*[1], D. Dodds[2], S. Garris[3], L. Franca[2], C. Samples[2]; [1]Mississippi State University, Mississippi State University, MS, [2]Mississippi State University, Mississippi State, MS, [3]Bayer CropScience, Bentonia, MS (189)

2:30 **†Investigating the Population Genetic Structure of Glyphosate-Resistant and -Susceptible Palmer amaranth (*Amaranthus palmeri*) Populations.** A. Küpper*[1], T. Gaines[1], D. Giacomini[2], E. Patterson[1], W. B. McCloskey[3], H. K. Manmathan[1]; [1]Colorado State University, Fort Collins, CO, [2]University of Illinois, Urbana, IL, [3]University of Arizona, Tucson, AZ (190)

2:45 **†Three Year Evaluation of Herbicide Programs in XtendFlex™ Cotton (*Gossypium hirsutum*) on Growth, Development, and Yield.** C. Samples*[1], D. Dodds[1], M. Plumblee[2], L. Franca[1]; [1]Mississippi State University, Mississippi State, MS, [2]Mississippi State University, Mississippi State University, MS (191)

3:00 **†Reproductive Fitness of Glyphosate-Resistant and Dicamba-Resistant Kochia (*Kochia scoparia*) in the Presence or Absence of Glyphosate and Dicamba.** C. A. Lim*[1], P. Jha[1], A. J[1], V. Kumar[2]; [1]Montana State University, Huntley, MT, [2]Kansas State University, Hays, KS (192)

TUESDAY MORNING JANUARY 30

Section 1. Agronomic Crops

LOCATION: Arlington Salon I
TIME: 10:00 AM - 12:00 PM
CHAIR: Ryan Lins, Syngenta Crop Protection, Rochester, MN
CO-CHAIR: Sandeep Rana, Monsanto Company, Galena, MD
MODERATOR: Ryan Lins, Syngenta Crop Protection, Rochester, MN

***SPEAKER**

10:00 **Rediscovering a Dormant Molecule.** H. Kraus*[1], B. Sievernich[2], S. Kevis[3], R. L. Nielson[4], S. Kandru[5], G. Kraemer[6], I. K. Francis[7]; [1]BASF, Research Triangle Park, NC, [2], Limburgerhof, Germany, [3]BASF plc, Bury St. Edmunds, England, [4]BASF, Limburgerhof, Germany, [5]BASF South East Asia Pte. Ltd., Singapore, Singapore, [6]BASF SE, Limburgerhof, Germany, [7]BASF, Tamworth, Australia (193)

10:15 **Making Metribuzin Better with a New Formulation.** G. Dahl*[1], R. Edwards[2], T. Hayden[3], J. A. Gillilan[4], D. M. Brown[2], E. Spandl[5], J. Gednalske[6], R. L. Pigati[5]; [1]WinField United, Eagan, MN, [2]WinField United, River Falls, WI, [3]WinField United, Ames, IA, [4]WinField United, Springfield, TN, [5]WinField United, Shoreview, MN, [6], River Falls, WI (194)

10:30 **Insights on the Mode of Action of a New Herbicide for Cereals.** R. Campe*, J. Hutzler, J. Lerchl, E. Stauffer, S. Tresch; BASF SE, Limburgerhof, Germany (195)

10:45 **Trifludimoxazin: A Global Perspective on a Versatile PPO Herbicide.** G. R. Armel*[1], R. L. Nielson[2], R. A. Liebl[1], S. Bowe[1], D. S. Hennigh[1], I. K. Francis[3], M. D. Oostlander[4], R. A. Ramos[5]; [1]BASF, Research Triangle Park, NC, [2]BASF, Limburgerhof, Germany, [3]BASF, Tamworth, Australia, [4]BASF, Diamond City, AB, [5]BASF, Sao Paulo, Brazil (196)

11:00 **Analysis of Weather and Environmental Factors Associated with On-Target and Off-Target Dicamba Applications in 2017.** M. D. Bish*[1], L. Steckel[2], P. Sikkema[3], D. Peterson[4], W. Johnson[5], K. Bradley[1]; [1]University of Missouri, Columbia, MO, [2]University of Tennessee, Jackson, TN, [3]University of Guelph, Ridgetown, ON, [4]Kansas State University, Manhattan, KS, [5]Purdue University, West Lafayette, IN (197)

11:15 **An Update on Roundup Xtend™ Herbicide with VaporGrip® Technology, Pending Regulatory Approvals.** R. Rector*[1], N. Rana[2]; [1]Monsanto Company, St. Louis, MO, [2]Monsanto Company, St Louis, MO (198)

11:30 **XtendiMax® Herbicide with VaporGrip® Technology Update.** J. E. Herrmann*[1], S. Allen[2], J. Willis[3]; [1]Monsanto Company, St. Louis, MO, [2]Monsanto Company, Bonnie, IL, [3]Monsanto Company, Saint Louis, MO (199)

11:45 **XtendiMax® Herbicide with VaporGrip® Technology Field Studies.** J. Hemminghaus*; Monsanto Company, Chesterfield, MO (200)

TUESDAY AFTERNOON JANUARY 30

Section 1. Agronomic Crops

LOCATION: Arlington Salon I
TIME: 1:00 PM - 5:00 PM
CHAIR: Ryan Lins
Syngenta Crop Protection
Rochester, MN
CO-CHAIR: Sandeep Rana
Monsanto Company
Galena, MD
MODERATOR: Ryan Lins
Syngenta Crop Protection
Rochester, MN

***SPEAKER**

1:00 **XtendiMax® Herbicide with VaporGrip® Technology in Roundup Ready® 2 Xtend Soybean System.** A. Barreiro, N. Rana*; Monsanto Company, St Louis, MO (201)

1:15 **Performance of DiFlexx and DiFlexx Duo for Weed Management in Texas Corn.** M. Matocha*[1], S. A. Nolte[2]; [1]Texas AgriLife Extension Service, College Station, TX, [2]Texas A&M AgriLife Extension, College Station, TX (202)

1:30 **Weed Control with Engenia Herbicide Systems in XtendFlex Cotton.** S. A. Nolte*[1], M. Matocha[2]; [1]Texas A&M AgriLife Extension, College Station, TX, [2]Texas AgriLife Extension Service, College Station, TX (203)

1:45 **A No Observable Effect Level for Dicamba in Soybean and Cotton.** G. Kruger*[1], D. Latorre[1], B. Bruss[2], C. Sayer[3], R. Shaw[4]; [1]University of Nebraska, North Platte, NE, [2]Nufarm, Raleigh, NC, [3]Nufarm, Laverton North, Australia, [4]AgriThority LLC, Kansas City, MO (204)

2:00 **The Effect of Formulation on Dicamba Volatility as Measured by Low Tunnels.** T. Barber[1], A. Culpepper[2], G. Kruger[3], J. Norsworthy[4], R. Rector[5], G. Oakley[6], D. Reynolds*[6], R. Scott[7], D. O. Stephenson[8], B. Young[9]; [1]University of Arkansas, Lonoke, AR, [2]University of Georgia, Tifton, GA, [3]University of Nebraska, North Platte, NE, [4]University of Arkansas, Fayetteville, AR, [5]Monsanto Company, St. Louis, MO, [6]Mississippi State University, Mississippi State, MS, [7]University of Arkansas Co-op Extension, Lonoke, AR, [8]LSU AgCenter, Alexandria, LA, [9]Purdue University, Brookston, IN (205)

2:15 **Secondary Movement of Xtendimax and Engenia in Drift Trials: Is this Volatility?** J. Norsworthy*[1], T. Barber[2], G. Kruger[3], D. Reynolds[4], L. Steckel[5], B. Young[6], K. Bradley[7]; [1]University of Arkansas, Fayetteville, AR, [2]University of Arkansas, Lonoke, AR, [3]University of Nebraska, North Platte, NE, [4]Mississippi State University, Mississippi State, MS, [5]University of Tennessee, Jackson, TN, [6]Purdue University, Brookston, IN, [7]University of Missouri, Columbia, MO (206)

2:30 **Quantitative Analysis of Sprayer Cleaning Efficacy Following 2,4-D and Dicamba Applications.** F. B. Browne*, S. Li, K. J. Price; Auburn University, Auburn, AL (207)

2:45 **Co-Application of Glyphosate with 2,4-D Accentuates 2,4-D Injury in Glyphosate-Resistant Corn.** P. Sikkema*, N. Soltani; University of Guelph, Ridgetown, ON (208)

3:00 **Break**

3:15 **New Alternatives for Weed Control Based on Rinskor™ Active Herbicide.** M. Morell*[1], H. Perry[2], N. Dalla Valle[3], N. M. Carranza[4], X. Huang[5]; [1]Dow AgroSciences LLC, Indianapolis, IN, [2]Dow AgroSciences, Leland, MS, [3]Dow AgroSciences, Bologna, Italy, [4]Dow AgroSciences, Ibague, Colombia, [5]Dow AgroSciences, Indianapolis, IN (209)

3:30 **Performance of Upland Rice (*Oryza sativa*. L) as Affected by Weed Control Treatments, Poultry Manure and Stand Density.** D. olanrewaju*[1], D. Oliver[2], B. Olson[3], W. A. Olson[4], K. Omand[5], J. Omielan[6], R. Ondoua[7], S. Oneto[8], A. Orgeron[9], J. Orlowski[10], L. Ortiz-Ribbing[11], E. Oseland[12], G. Osteen[13], Z. Ostojic[14], E. Ott[15], B. Ottis[16]; [1]Federal University Dutse Nigeria, Dutse, Niue, [2], Fayetteville, AR, [3]Dow AgroSciences LLC, Gothenburg, NE, [4]Heartland Technologies Inc, Fishers, IN, [5], Nantucket, MA, [6]University of Kentucky, Lexington, KY, [7]Montana State University, Conrad, MT, [8], Jackson, CA, [9]LSU, Baton Rouge, LA, [10]Mississippi State University, Stoneville, MS, [11], Saint Paul, MN, [12]University of Missouri, Columbia, MO, [13], Bakersfield, CA, [14], Zagreb, , [15]Valent USA Corporation, Greenfield, IN, [16], Houston, TX (210)

3:45 **Increasing Weed Management Options in Australian Pulse Production.** D. Mao*[1], S. Michelmore[1], T. Sutton[1], J. Paull[2], L. McMurray[3], C. Preston[4]; [1]South Australian Research and Development Institute, South Australia, Australia, [2]University of Adelaide, South Australia, Australia, [3]South Australian Research and Development Institute, South Australian, Australia, [4]University of Adelaide, Glen Osmond, Australia (211)

4:00 **Herbicide Programs Affecting Palmer Amaranth Control in Conventional Soybeans.** D. Sarangi*, A. Jhala; University of Nebraska, Lincoln, NE (212)

4:15 **Survey of Palmer Amaranth (*Amaranthus palmeri*) Populations from Mississippi and Arkansas for Resistance to Fomesafen, Dicamba, and Glufosinate .** A. Perez-Jones*[1], C. Wu[2], P. Feng[3]; [1]Monsanto Company, Chesterfield, MO, [2]Monsanto Company, Urbana, IL, [3]Monsanto Company, Saint Louis, MO (213)

4:30 **Precision Agriculture and the Diversity-Stability Hypothesis.** C. Swanton*, V. Capmourteres, M. Anand, J. Adams, A. Berg; University of Guelph, Guelph, ON (214)

4:45 **Role of Crop Competition in Managing Weeds.** B. S. Chauhan*; The University of Queensland, Gatton, Australia (215)

TUESDAY MORNING JANUARY 30

Section 5. Wildland and Aquatic Invasive Plants

LOCATION: Arlington Salon II
TIME: 10:00 AM - 11:00 PM
CHAIR: Stephen Enloe
University of Florida
Gainesville, FL
CO-CHAIR: Christopher Mudge
US Army Corps of Engineers
Baton Rouge, LA
MODERATOR: Stephen Enloe
University of Florida
Gainesville, FL

***SPEAKER**

10:00 **The Influence of Water Depth on Torpedograss Control with Herbicides.** S. Enloe*; University of Florida, Gainesville, FL (216)

10:15 **Ensemble Habitat Suitability Modeling for Invasive Plants: Assessing Model Performance and Accuracy Across 20 Species in Wisconsin.** N. Jorgensen, M. Renz*; University of Wisconsin, Madison, WI (217)

10:30 **Evaluation of UAV Technology for Invasive Terrestrial and Aquatic Plant Detection and Mapping.** A. Howell[1], R. Richardson*[2], S. Hoyle[2]; [1]North Carolina State University, Sanford, NC, [2]North Carolina State University, Raleigh, NC (218)

Section 3. Turf and Ornamental Crops

LOCATION: Arlington Salon III
TIME: 3:00 PM - 5:00 PM
CHAIR: Jeffrey Derr
Virginia Tech
Virginia Beach, VA
MODERATOR: Jeffrey Derr
Virginia Tech
Virginia Beach, VA

***SPEAKER**

3:00 **Selective Controls for Doveweed (*Murdannia nudiflora)*.** J. Derr*; Virginia Tech, Virginia Beach, VA (219)

3:15 **A Biotype of Annual Bluegrass with Potential Resistance to PPO-Inhibitors from Georgia.** P. McCullough*[1], J. Yu[2], M. A. Czarnota[3]; [1]University of Georgia, Griffin, GA, [2]University of Florida, Tampa, FL, [3]University of Georgia, Williamson, GA (220)

3:30 **Evaluation of Basamid Regimes for Non-Selective Bermudagrass Control.** T. Gannon, F. Yelverton, S. Brinton*; North Carolina State University, Raleigh, NC (221)

3:45 **Colonial Bentgrass (*Agrostis capillaris*) Injury Following Pre-Emergence Herbicide Application.** M. T. Elmore*[1], D. P. Tuck[1], B. S. Park[2], J. A. Murphy[2]; [1]Rutgers University, New Brunswick, NJ, [2]Rutgers University, New Brunswick, NJ (222)

4:00 **Seedling Emergence Patterns of Goosegrass (*Eleusine indica*) in Turfgrass.** D. P. Tuck*, K. H. Diehl, M. T. Elmore; Rutgers University, New Brunswick, NJ (223)

4:15 **Tolerance of Several Sedum Species to Postemergence Herbicides.** A. Senesac*; Cornell Cooperative Extension, Riverhead, NY (224)

4:30 **Response of Some Herbaceous Ornamentals to Two Pre-packaged Herbicide Mixtures.** J. S. Aulakh*[1], A. Witcher[2]; [1]The Connecticut Agricultural Experiment Station, Windsor, CT, [2]Tennessee State University, McMinnville, TN (225)

TUESDAY AFTERNOON JANUARY 30

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

LOCATION: Arlington Salon II
TIME: 3:45 PM - 5:00 PM
CHAIR: David Russell
Mississippi State University
Mississippi State, MS
CO-CHAIR: Joseph Omielan
University of Kentucky
Lexington, KY
MODERATOR: David Russell
Mississippi State University
Mississippi State, MS

***SPEAKER**

3:45 **Giant Smutgrass and Bahiagrass Response to Burning, Grazing Intensity, and Hexazinone Rate.** J. Dias*[1], B. Sellers[1], J. Ferrell[2], S. Enloe[2], J. Vendramini[1], P. Moriel[1]; [1]University of Florida, Ona, FL, [2]University of Florida, Gainesville, FL (226)

4:00 **Green Antelopehorn (*Asclepias viridis*) Response to Integrated Vegetation Management Practices.** J. D. Byrd, Jr.*, N. H. Thorne, D. Russell; Mississippi State University, Mississippi State, MS (227)

4:15 **Evaluation of the Seasonal Incidence, Severity and Forage Nutritive Value of Common Weed Species in Missouri Pastures.** L. S. Shergill*, Z. Trower, M. D. Bish, K. Bradley; University of Missouri, Columbia, MO (228)

4:30 **First Year Loblolly Pine Growth Following Herbaceous Weed Control with Indaziflam, Sulfometuron, Imazapyr, and Hexazinone.** A. Ezell*[1], A. Self[2], J. Belcher[3]; [1]Mississippi State University, Mississippi State, MS, [2]Mississippi State, University, Grenada, MS, [3]Bayer CropScience, Auburn, AL (229)

4:45 **Crop Tolerance of Loblolly Pine Seedlings to Applications of Frequency or Cleartraxx Treatments.** A. Ezell*[1], A. Self[2]; [1]Mississippi State University, Mississippi State, MS, [2]Mississippi State, University, Grenada, MS (230)

TUESDAY AFTERNOON JANUARY 30

Section 7. Teaching and Extension

LOCATION: Arlington Salon III
TIME: 1:00 PM - 3:00 PM
CHAIR: Sandeep Rana, Monsanto Company, Galena, MD
MODERATOR: Sandeep Rana, Monsanto Company, Galena, MD

***SPEAKER**

1:00 **WSSA Herbicide Resistance Portal: Helping End-Users Find Useful Information to Manage a Serious Problem.** M. Horak*[1], M. V. Bagavathiannan[2], C. Rouse[3], D. Shaw[4], R. Leon[5]; [1]Monsanto Company, Saint Louis, MO, [2]University of Arkansas, College Station, TX, [3]University of Arkansas, Fayetteville, AR, [4]Mississippi State University, Mississippi State, MS, [5]University of Florida, Raleigh, NC (231)

1:15 **Maleza en Foco: A Herbicide Resistance Training Program for Argentinian Weed Managers.** C. Rubione*; ClaudioRubione R&D, Ciudad Autónoma De Buenos Aires, Argentina (232)

1:30 **Weed Science in the Court System: You've been Subpoenaed, What Now?** P. Banks*; Marathon-Ag & Environ. Consulting, Inc., Arlington, VA (233)

1:45 **WEEDucator: A Digital Tool for Organic Weed Management Education.** S. K. Birthisel*, E. Gallandt; University of Maine, Orono, ME (234)

2:00 **Dicamba Off-Target Injury Issues in Nebraska.** A. Jhala*; University of Nebraska, Lincoln, NE (235)

2:15 **Tools and Techniques to Encourage Student Engagement: What Works in Weed Science Lectures?** A. Dille*, G. J. Gundy, M. Hay; Kansas State University, Manhattan, KS (236)

2:30 **Weedy Rice in California: Lessons Learned in Research and Extension.** W. B. Brim-Deforest*[1], L. A. Espino[2], B. A. Linquist[3], M. Leinfelder-Miles[4], R. G. Mutters[5], K. Al-Khatib[3]; [1]University of California Cooperative Extension, Yuba City, CA, [2]University of California Cooperative Extension, Colusa, CA, [3]University of California, Davis, CA, [4]University of California Cooperative Extension, Stockton, CA, [5]University of California Cooperative Extension, Oroville, CA (237)

2:45 **Break**

TUESDAY AFTERNOON JANUARY 30

Herbicide Metabolism in Crops and Weeds: A Revisit, Current Understanding, and New Insights

LOCATION: Arlington Salon II
TIME: 1:00 PM - 4:30 PM
CHAIR: Vijay Nandula
USDA-ARS
Stoneville, MS
MODERATOR: Vijay Nandula
USDA-ARS
Stoneville, MS

***SPEAKER**

1:00 **Herbicide Safener-Regulated Transcripts and Metabolites reveal Complex Signaling, Defense, and Detoxification Pathways in Grain Sorghum Shoots.** D. E. Riechers*[1], R. Ma[2], Y. Baek[1], L. Goodrich[3], A. V. Lygin[1], P. J. Brown[1]; [1]University of Illinois, Urbana, IL, [2]University of Idaho, Moscow, ID, [3]University of Illinois, Savoy, IL (238)

1:15 **Metabolism Contributions to Clomazone Activity and Selectivity.** Y. Ferhatoglu[1], M. Barrett*[2]; [1]University of Saskatchewan, Saskatoon, SK, [2]University of Kentucky, Lexington, KY (239)

1:30 **Glyphosate Metabolism in Crops and Weeds.** S. Duke*; USDA-ARS, Oxford, MS (240)

1:45 **Bioactivation of Natural Phytotoxins: The Exception or the Rule?** F. E. Dayan*; Colorado State University, Fort Collins, CO (241)

2:00 **The Regulation of Non-Target Site Herbicide Resistance in Wild Grasses.** R. Edwards*; Newcastle University, Newcastle, England (242)

2:15 **Metabolic Resistance Mechanisms and Genes in *Lolium rigidum*.** T. Gaines*[1], R. Busi[2], E. Patterson[1], A. Porri[2], Q. Yu[2], H. Han[2], S. Iwakami[3], S. Gonzalez[4], R. S. Beffa[5], S. Powles[6]; [1]Colorado State University, Fort Collins, CO, [2]University of Western Australia, Crawley, Australia, [3]Kyoto University, Kyoto, Japan, [4]Bayer CropScience, Frankfurt am Main, Germany, [5]Bayer CropScience, Frankfort / Main, Germany, [6], Nedlands, Australia (243)

2:30 **Mechanism of Multiple-Herbicide Resistance in *Echinochloa phyllopogon*.** S. Iwakami*; Kyoto University, Kyoto, Japan (244)

2:45 **Metabolic and Multiple Resistance in Junglerice.** V. Nandula*; USDA-ARS, Stoneville, MS (245)

3:00 **Metabolism-Based Resistance Predisposes Evolution of Cross Resistance to Herbicides: Palmer Amaranth - A Classic Example.** M. Jugulam*, S. Nakka, A. Vennapusa, C. Thompson; Kansas State University, Manhattan, KS (246)

3:15 **Biochemical and Molecular Mechanisms conferring Metabolic Resistance to Multiple Herbicides in *Amaranthus tuberculatus*.** R. Ma*[1], A. F. Evans[2], S. R. O'Brien[2], O. A. Obenland[2], A. V. Lygin[2], E. McIndoe[3], J. A. Morris[3], S. S. Kaundun[3], D. E. Riechers[2]; [1]University of Idaho, Moscow, ID, [2]University of Illinois, Urbana, IL, [3]Syngenta-UK, Bracknell, England (247)

Teaching Workshop

LOCATION: Grand Salon J
TIME: 3:00 PM - 5:00 PM
CHAIR: Tom Mueller
University of Tennessee
Knoxville, TN
MODERATOR: Tom Mueller
University of Tennessee
Knoxville, TN

***SPEAKER**

3:00 **Virtual Reality in Weed Science Education.** T. Tseng*; Mississippi State University, Mississippi State, MS (248)

3:30 **Discussions Toward a WSSA Online Textbook.** T. Mueller*; University of Tennessee, Knoxville, TN (249)

4:00 **Plagiarism in Higher Education Today.** T. Mueller*; University of Tennessee, Knoxville, TN (250)

Graduate Student Workshop

LOCATION: Arlington Salon III
TIME: 10:00 AM - 1:00 PM
CHAIR: Chase Samples
Mississippi State University
Mississippi State, MS
MODERATOR: Chase Samples
Mississippi State University
Mississippi State, MS

Section 1. Agronomic Crops

LOCATION: Grand Salon H
TIME: 10:00 AM - 12:00 PM
CHAIR: Ryan Lins
Syngenta Crop Protection
Rochester, MN
CO-CHAIR: Sandeep Rana
Monsanto Company
Galena, MD
MODERATOR: Ryan Lins
Syngenta Crop Protection
Rochester, MN

***SPEAKER**

10:00 **Cover Crops Mediate Weed - Corn Competition.** B. Baraibar*[1], D. A. Mortensen[2]; [1]Penn State University, State College, PA, [2]Penn State University, University Park, PA (251)

10:15 **Advances in Broadleaf Weed Management in Red and White Clovers Grown for Seed in Oregon.** A. G. Hulting*, K. Roerig, D. W. Curtis, C. Mallory-Smith; Oregon State University, Corvallis, OR (252)

10:30 **Targeting Seed Production of Herbicide Resistant Wild Mustard in Lentil with Weed Wiper Herbicide Application.** L. D. Syrovy*[1], S. J. Shirtliffe[1], E. Johnson[2], C. J. Willenborg[1]; [1]University of Saskatchewan, Saskatoon, SK, [2]College of Agriculture and Bioresources, University of Saskatchewan, Saskatoon, SK (253)

10:45 **Enhanced Tolerance of Common Lambsquarters (*Chenopodium album*) to Glyphosate in Corn-Sugar beet Rotations in the Western U.S.** V. Kumar*[1], P. Jha[2], D. W. Morishita[3], R. Yadav[4], A. J[2], C. A. Lim[2]; [1]Kansas State University, Hays, KS, [2]Montana State University, Huntley, MT, [3]University of Idaho, Kimberly, ID, [4]Montana State university, Huntley, MT (254)

11:00 **Effect of Elevated CO_2 Levels and Increased Temperatures on Glyphosate Efficacy.** M. Matzrafi*, C. Fautt, M. Jasieniuk; University of California, Davis, CA (255)

11:15 **Cultivation and Reduced-Rate Herbicides for Cost-Effective Weed Control in Sugarbeet Grown for Biofuel.** W. C. Johnson III*[1], T. M. Webster[1], T. Grey[2]; [1]USDA-ARS, Tifton, GA, [2]University of Georgia, Tifton, GA (256)

11:30 **A New Brake Herbicide for Weed Control in Cotton.** K. Briscoe*; SePRO Corporation, Rocky Mount, NC (257)

11:45 **Evaluation of 2,4-D and Dicamba Residual Effect on Cotton Establishment and Yield.** K. J. Price*, S. Li; Auburn University, Auburn, AL (258)

WEDNESDAY AFTERNOON JANUARY 31

Section 1. Agronomic Crops

LOCATION: Grand Salon H
TIME: 1:00 PM - 2:30 PM
CHAIR: Ryan Lins
Syngenta Crop Protection
Rochester, MN
CO-CHAIR: Sandeep Rana
Monsanto Company
Galena, MD
MODERATOR: Ryan Lins
Syngenta Crop Protection
Rochester, MN

***SPEAKER**

1:00 **Evaluation of Elevore™ on Glyphosate-Resistant Horseweed in Tennessee.** J. Copeland*[1], L. Steckel[1], B. Haygood[2], J. Ellis[3]; [1]University of Tennessee, Jackson, TN, [2], Collierville, TN, [3]Dow AgroSciences, Sterlington, LA (259)

1:15 **Harness MAX Herbicide: A New Product for Weed Management in Corn.** E. Riley*[1], G. Elmore[1], R. Montgomery[2]; [1]Monsanto Company, Saint Louis, MO, [2]Monsanto Company, Union City, TN (260)

1:30 **Broadleaf and Grass Weed Control with Tolpyralate in US Corn.** A. J. Raeder*[1], H. Kikugawa[2], H. Okamoto[2], M. Parks[1], D. Tonks[1]; [1]ISK Biosciences Americas, Concord, OH, [2]ISK Biosciences, Osaka, Japan (261)

1:45 **HPPD plus Growth Regulator Herbicides for Control of Divine Nightshade in Ratoon Sugarcane.** D. J. Spaunhorst*[1], A. Orgeron[2]; [1]USDA-ARS, Houma, LA, [2]LSU, Baton Rouge, LA (262)

2:00 **Break**

WEDNESDAY MORNING JANUARY 31

Section 13. Integrated Weed Management

LOCATION: Grand Salon J
TIME: 10:00 AM - 12:00 PM
CHAIR: Daniela Ribeiro
Monsanto Company
Leland, MS
CO-CHAIR: Harry Strek
Bayer Cropscience
Leverkusen, Germany
MODERATOR: Daniela Ribeiro
Monsanto Company
Leland, MS

***SPEAKER**

10:00 **Cereal Rye Management Affects Weed Control in Soybeans.** M. J. VanGessel*, Q. Johnson, B. Scott, K. Vollmer; University of Delaware, Georgetown, DE (263)

10:15 **Farmer Attitudes Toward Cooperative Approaches to Herbicide Resistance Management.** D. E. Ervin*[1], E. Breshears[2], G. Frisvold[3], K. Dentzman[4], W. Everman[5], J. Gunsolus[6], T. Hurley[7], R. Jussaume[2], J. Norsworthy[8], M. Owen[9]; [1]Portland State University, Portland, OR, [2]Michigan State University, East Lansing, MI, [3]University of Arizona, Tucson, AZ, [4]Washington State University, Pullman, WA, [5]North Carolina State University, Raleigh, NC, [6]University of Minnesota, SAINT PAUL, MN, [7]University of Minnesota, Minneapolis, MN, [8]University of Arkansas, Fayetteville, AR, [9]Iowa State University, Ames, IA (264)

10:30 **Do Growers Manage Weeds on Owned and Rented Land Differently? Evidence from U.S. Corn and Soybean Farms.** G. Frisvold*[1], J. Albright[2], K. Dentzman[3], D. E. Ervin[4], T. Hurley[5], R. Jussaume[6], J. Norsworthy[7], M. Owen[8], W. Everman[9], J. Gunsolus[10]; [1]University of Arizona, Tucson, AZ, [2]Allstate Insurance, Naperville, IL, [3]Washington State University, Pullman, WA, [4]Portland State University, Portland, OR, [5]University of Minnesota, Minneapolis, MN, [6]Michigan State University, East Lansing, MI, [7]University of Arkansas, Fayetteville, AR, [8]Iowa State University, Ames, IA, [9]North Carolina State University, Raleigh, NC, [10]University of Minnesota, SAINT PAUL, MN (265)

10:45 **Applying Machine Learning.** J. Colquhoun*, Y. Saikai, F. Dong, P. Mitchell; University of Wisconsin, Madison, WI (266)

11:00 **Dose, pattern and targeted tissue of irradiation affect weed seedling response to laser.** C. Hu*[1], F. Michel[1], D. Doohan[2]; [1]The Ohio State University, Wooster, OH, [2]The Ohio State University, Wooser, OH (267)

11:15 **3-D Image Driven Morphological Crop Analysis - A Novel Method for Detection of Broomrape Initial Subsoil Parasitism.** R. N. Lati*[1], S. Filin[2], H. Eizenberg[1]; [1]Agricultural Research Organization, Newe Ya'ar Research Center, Ramat Yishay, Israel, [2]Technion – Israel Institute of Technology, Haifa, Israel (268)

11:30 **Sensor-Based Approach for Weed Species Detection and Differentiation for Precision Agriculture.** V. Singh*, A. Prosvirin, N. Rajan, J. Higby, A. Filippi, M. Bishop, M. Bagavathiannan; Texas A&M University, College Station, TX (269)

11:45 **Integrating Decision Making Processes into Cranberry Weed Management: Dodder as a Case Study.** H. A. Sandler*, K. M. Ghantous; UMass Cranberry Station, East Wareham, MA (270)

WEDNESDAY MORNING JANUARY 31

Pesticide Registration in the U.S. and How the WSSA Can Inform the Process

LOCATION:	Arlington Salon I & II
TIME:	10:00 AM - 12:00 PM
CHAIR:	Michael Barrett University of Kentucky Lexington, KY
CO-CHAIR:	William Chism U.S. Environmental Protection Agency Point of Rocks, MD
MODERATOR:	William Chism U.S. Environmental Protection Agency Point of Rocks, MD

***SPEAKER**

10:00 **Introduction to the Symposium and an EPA-OPP Overview of Pesticide Laws – FIFRA, FFDCA, FQPA, and PRIA plus the Definition of a Pesticide.** R. P. Keigwin, Jr.*[1], W. J. Chism[2], M. Barrett[3]; [1]Environmemtal Protection Agency - Office of Pesticide Programs, Arlington, VA, [2]U.S. Environmental Protection Agency, Point of Rocks, MD, [3]University of Kentucky, Lexington, KY (271)

10:15 **Biotechnology in the Office of Pesticide Programs.** E. Milewski*; Environmental Protection Agency - Office of Pesticide Programs, Arlington, VA (272)

10:45 **The Registration Program: New Active Ingredients, New Uses of Registered Herbicides, Emergency Exemptions (FIFRA Section 18s), and Other Registration Actions.** D. Kenny*; US Environmental Protection Agency, Washington, DC (273)

11:00 **The Registration Review Program: Data Needed to Support Re-evaluations Under the Registration Review Program.** B. Smith*; Environmental Protection Agency - Office of Pesticide Programs, Arlington, VA (274)

11:15 **Overview of Risk Assessments: Human Health.** M. Metzger*; Environmental Protection Agency - Office of Pesticide Programs, Arlington, VA (275)

11:30 **Overview of Risk Assessments: Ecological Risk.** S. Sankula*; Environmental Protection Agency - Office of Pesticide Programs, Arlington, VA (276)

11:45 **Overview of Risk Assessments: Endangered Species.** B. Anderson*; Environmental Protection Agency - Office of Pesticide Programs, Arlington, VA (277)

WEDNESDAY MORNING JANUARY 31

Section 9. Weed Biology and Ecology

LOCATION: Grand Salon K
TIME: 10:00 AM - 12:00 PM
CHAIR: Dan Tekiela
Virginia Tech
Laramie, WY
CO-CHAIR: Vijay Singh
Texas A&M University
College Station, TX
MODERATOR: Dan Tekiela
Virginia Tech
Laramie, WY

***SPEAKER**

10:00 **A Demographic Role for Hybridization in Plant Invasions.** M. B. Mesgaran*[1], M. Lewis[2], P. Addes[3], K. Danohue[4], S. Ohadi[5], C. Li[3], R. D. Cousens[3]; [1]University of California, Davis, CA, [2]University of Alberta, Edmonton, AB, [3]University of Melbourne, Melbourne, Australia, [4]Duke University, Durham, NC, [5]Texas A&M University, College Station, TX (278)

10:15 **Regional Responses to Drought on the Growth and Fitness of *Microstegium vimineum* (Trin.) A. Camus (Japanese Stiltgrass).** C. Huebner*[1], N. Waterland[2]; [1]Northern Research Station, US Forest Service USDA, Morgantown, WV, [2]West Virginia University, Morgantown, WV (279)

10:30 **Growth Phenology, Physiological and Biochemical Responses of Two Australian Biotypes of African Turnip (*Sisymbrium thellungii* L.) to Varied Soil Moisture Regimes.** G. Mahajan*[1], B. George-Jaeggli[2], M. J. Walsh[3], B. S. Chauhan[1]; [1]The University of Queensland, Gatton, Australia, [2]University of Queensland, Warwick-4370, Australia, [3]University of Sydney, Narrabri, Australia (280)

10:45 **Could Recent Increases in Atmospheric Carbon Dioxide Act as a Selection Factor in Wild Oat Populations? A Case Study.** L. H. Ziska*; USDA-ARS, Beltsville, MD (281)

11:00 **Sicklepod Extract as an Effective Deer Repellent: Field Data.** Z. Yue*[1], T. Tseng[2], M. Lashley[1], S. Shrestha[1], G. Captu[1]; [1]Mississippi State University, Starkville, MS, [2]Mississippi State University, Mississippi State, MS (282)

11:15 **Root Foraging Strategies of Maize and Four Common Agricultural Weeds: Implications for Belowground Competition.** C. J. Lowry*[1], M. R. Ryan[2], R. G. Smith[1]; [1]University of New Hampshire, Durham, NH, [2]Cornell University, Ithaca, NY (283)

11:30 **Life-Cycle Analysis and Fitness Characteristics of Glyphosate Susceptible and Resistant Common Ragweed (*Ambrosia artemisiifolia* L.).** J. Bae*[1], R. E. Nurse[2], E. R. Page[2]; [1]Agriculture and Agri-Food Canada, Harrow, BC, [2]Agriculture and Agri-Food Canada, Harrow, ON (284)

11:45 **Distribution and Frequency of Herbicide-Resistant Italian Ryegrass Populations in the Central Valley of California.** P. Tehranchian*[1], I. M. Heap[2], T. Deveaud[3], M. Matzrafi[1], M. Jasieniuk[1]; [1]University of California, Davis, CA, [2]WeedSmart, Corvallis, OR, [3]AgroParis Tech, Paris, France (285)

WEDNESDAY AFTERNOON JANUARY 31

Section 9. Weed Biology and Ecology

LOCATION: Grand Salon K
TIME: 1:00 PM - 5:00 PM
CHAIR: Dan Tekiela
Virginia Tech
Laramie, WY
CO-CHAIR: Vijay Singh
Texas A&M University
College Station, TX
MODERATOR: Dan Tekiela
Virginia Tech
Laramie, WY

***SPEAKER**

1:00 **Genomewide Characterization of California Weedy Red Rice Reveals Multiple Possible Origins.** T. B. De Leon*[1], C. Andaya[2], V. Andaya[2], K. B. McKenzie[2], K. Al-Khatib[1], L. A. Espino[3], T. Blank[4], R. G. Mutters[5], M. Leinfelder-Miles[6], B. A. Linquist[1], W. B. Brim-Deforest[7]; [1]University of California, Davis, CA, [2]California Rice Experiment Station, Biggs, CA, [3]University of California Cooperative Extension, Colusa, CA, [4]California Crop Improvement Association, Davis, CA, [5]University of California Cooperative Extension, Oroville, CA, [6]University of California Cooperative Extension, Stockton, CA, [7]University of California Cooperative Extension, Yuba City, CA (286)

1:15 **Elucidating the Differential Physiological Responses to Glyphosate in Palmer Amaranth Biotypes with Varying Resistance to Glyphosate.** A. S. Maroli*[1], V. Nandula[2], N. Tharayil[1]; [1]Clemson University, Clemson, SC, [2]USDA-ARS, Stoneville, MS (287)

1:30 **One in a Million? Empirical Determination of Mutation Frequency for Herbicide Resistance.** F. Casale[1], P. Tranel*[2]; [1]University of Illinois, Urbana, IL, [2]University of Illinois, Urbana, IL (288)

1:45 **Q_{ST}-F_{ST} Genetic Analysis Confirms Evolution of Adaptive Traits in Palmer Amaranth (*Amaranthus palmeri*).** R. Leon*[1], R. van der Laat[2], W. Bravo[3], J. Ferrell[3]; [1]University of Florida, Raleigh, NC, [2]University of Florida, Jay, FL, [3]University of Florida, Gainesville, FL (289)

2:00 **Applied Transcriptomics- Our Journey in Utilizing Transcriptomic Data for Weed Science Research.** C. Rouse*, N. R. Burgos; University of Arkansas, Fayetteville, AR (290)

2:15 **Crop Characteristics and Weed Interactions of Diverse Recurrent Inbred Lines (RILs) from a Weed-Suppressive x Non-Suppressive Rice Mapping Population.** D. Gealy*; USDA ARS DBNRRC, Stuttgart, AR (291)

2:30 **Weeds of the DMV.** P. Banks*; Marathon-Ag & Environ. Consulting, Inc., Arlington, VA (292)

2:45 **The Effect of 48 Years of Tillage and Fertility Treatments on Weed Communities.** K. Gage*[1], R. Krausz[2]; [1]Southern Illinois University, Carbondale, IL, [2]Southern Illinois University, Belleville, IL (293)

3:00 **Break**

3:15 **Fate of Weed Seed in Compost During Commercial Mushroom Production.** K. Vollmer*, M. J. VanGessel; University of Delaware, Georgetown, DE (294)

3:30 **Seed Germination Ecology and its resistance of Catchweed Bedstraw (*Galium aparine* L.).** H. Wang*, Y. Lou; Institute of Plant Protection, Nanjing, Peoples Republic (295)

3:45 **The Impact of Germination Phenology and Seed Set on the Potential Weediness of Hairy Vetch (*Vicia villosa*).** K. B. Pittman*[1], M. Flessner[1], J. Barney[1], C. Cahoon[2]; [1]Virginia Tech, Blacksburg, VA, [2]Eastern Shore ARC Virginia Tech, Painter, VA (296)

4:00 **Ecological Approaches to Manage Kochia Seed Bank in Irrigated Western Cropping Systems.** P. Jha*[1], A. Kniss[2], G. M. Sbatella[2], N. C. Lawrence[3], R. Yadav[1]; [1]Montana State University, Huntley, MT, [2]University of Wyoming, Laramie, WY, [3]University of Nebraska, Pullman, WA (297)

4:15 **Germination and Emergence of Black Medic in Response to Constant and Fluctuating Temperatures, Osmotic Potential and Burial Depth.** S. M. Sharpe*, N. Boyd; University of Florida, Wimauma, FL (298)

4:30 **Modification of Weed Seed Germination and Seedling Growth with Fermentation Residuals from Bioethanol Production.** R. Leon*[1], R. van der Laat[2]; [1]University of Florida, Raleigh, NC, [2]University of Florida, Jay, FL (299)

WEDNESDAY AFTERNOON JANUARY 31

Pesticide Registration in the U.S. and How the WSSA Can Inform the Process

LOCATION: Arlington Salon I & II
TIME: 1:00 PM - 2:00 PM
CHAIR: Michael Barrett
University of Kentucky
Lexington, KY
CO-CHAIR: William Chism
U.S. Environmental Protection Agency
Point of Rocks, MD
MODERATOR: William Chism
U.S. Environmental Protection Agency
Point of Rocks, MD

***SPEAKER**

1:00 **Benefits/Impact Analyses: Herbicide Risk Management Case Studies - Paraquat and Enlist Duo.** W. J. Chism*[1], T. Wyatt[2]; [1]U.S. Environmental Protection Agency, Point of Rocks, MD, [2]Enivronmental Protection Agency - Office of Pesticide Programs, Arlington, VA (300)

1:15 **Information needs for the EPA-Office of Pesticide Programs.** T. Kiely*; Environmental Protection Agency - Office of Pesticide Programs, Arlington, VA (301)

1:30 **How can the EPA and WSSA Improve Information Transfer to Users?** M. Barrett*; University of Kentucky, Lexington, KY (302)

1:45 **Break**

WEDNESDAY AFTERNOON JANUARY 31

Fostering Sustainable Programs to Improve Pesticide Applications and Promote Resistance Management

LOCATION: Arlington Salon V & VI
TIME: 1:00 PM - 5:00 PM
CHAIR: A. S. Culpepper
University of Georgia
Tifton, GA
MODERATOR: A. S. Culpepper
University of Georgia
Tifton, GA

***SPEAKER**

1:00 **Break**

1:05 **Synergy - Practical vs. Academic.** B. Young*; Purdue University, Brookston, IN (303)

1:25 **Tank Mixtures Improve Weed Control and Reduce Herbicide Resistance - Midwest.** C. Sprague*; Michigan State University, East Lansing, MI (304)

1:45 **Opportunities for Tank Mix and Sequential Herbicide Programs for Season-Long Management of Weeds in Western Tree and Vine Cropping Systems.** B. Hanson*[1], C. Brunharo[2], L. M. Sosnoskie[3], M. Moretti[4]; [1]University of California, Winters, CA, [2]University of California, Davis, CA, [3]University of Georgia, Davis, CA, [4]Oregon State University, Corvallis, OR (305)

2:05 **Tank Mixtures Improve Weed Control and Reduce Herbicide Resistance - South.** A. Culpepper*[1], A. York[2]; [1]University of Georgia, Tifton, GA, [2]North Carolina State University, Cary, NC (306)

2:25 **On Target: Equipment Technology to Reduce Drift.** M. Anderson*; AEM Sprayer Leadership Group, East Berlin, PA (307)

2:45 **Improving On-Target Aerial Pesticide Applications.** S. Bretthauer*; National Agricultural Aviation Association, Alexandria, VA (308)

3:05 **Break**

3:15 **USDA's Role in Helping Growers Manage Herbicide Resistance.** J. Schroeder*[1], S. Able[2], S. Koehler[2]; [1]USDA Office of Pest Management Policy, Arlington, VA, [2]USDA, Washington, DC (309)

3:35 **Restrictions and Regulations are Overwhelming at the Farm Level - Developing a More Friendly Approach.** L. Steckel*; University of Tennessee, Jackson, TN (310)

3:55 **Dicamba Update - 2017 Season.** R. Baris*; U.S. Environmental Protection Agency, Washington, DC (311)

4:15 **How can EPA, WSSA, and Industry work together to Foster New Herbicide MOA Development?** W. Miller*[1], A. Jones[1], W. J. Chism[2], J. Becker[1]; [1]U.S. Environmental Protection Agency, Washington, DC, [2]U.S. Environmental Protection Agency, Point of Rocks, MD (312)

4:35 **Cooperative Efforts of Academics, Industry, Growers, and the U.S. EPA are Critical for Managing Off-Target Pesticide Movement and Managing Herbicide Resistance.** R. Keigwin*; U.S. Environmental Protection Agency, Washington, DC (313)

WEDNESDAY AFTERNOON JANUARY 31

Section 10. Biocontrol of Weeds

LOCATION: Grand Salon J
TIME: 1:00 PM - 2:00 PM
CHAIR: Clyde Boyette
USDA-ARS
Stoneville, MS
CO-CHAIR: Min Rayamajhi
USDA
Fort Lauderdale, FL
MODERATOR: Clyde Boyette
USDA-ARS
Stoneville, MS

***SPEAKER**

1:00 **Performance of *Orseolia javanica* (Diptera: Cecidomyiidae), a Candidate Biological Control Agent, on Two Florida Biotypes of Cogongrass, *Imperata cylindrica*.** J. P. Cuda*[1], P. Hidayat[2], K. Simamora[2]; [1]University of Florida, Gainesville, FL, [2]Bogor Agricultural University, Bogor, Malaysia (314)

1:15 **A Review of Winter Annual Invasive Grass Biocontrol.** D. R. Tekiela*; Virginia Tech, Laramie, WY (315)

1:30 **Suppression of Air Potato Vine Infestations in Florida and Beyond by Using Biological Control Agent *Liliocerис cheni*.** M. B. Rayamajhi*[1], P. D. Pratt[2], E. Rohrig[3], P. W. Tipping[1], C. Kerr[3]; [1]USDA, Fort Lauderdale, FL, [2]USDA, Albany, CA, [3]Florida Department of Agriculture, Gainesville, FL (316)

WEDNESDAY AFTERNOON JANUARY 31

Grade Report for New Dicamba Technology in 2017

LOCATION: Arlington Salon I & II
TIME: 1:55 PM - 5:00 PM
CHAIR: Gregory Dahl
WinField United
Eagan, MN
MODERATOR: Gregory Dahl
WinField United
Eagan, MN

***SPEAKER**

1:55 **Setting the Stage.** G. Dahl*; WinField United, Eagan, MN (317)

2:00 **U. S. Environmental Protection Agency Considerations.** G. Rowland*; U.S. Environmental Protection Agency, Arlington, VA (318)

2:15 **Drift and Getting Droplet Size Right.** G. Kruger*; University of Nebraska, North Platte, NE (319)

2:30 **Monsanto Considerations.** R. Rector*, T. Witten; Monsanto Company, St. Louis, MO (320)

2:45 **Engenia Herbicide Stewardship for 2018.** C. Asmus*; BASF, Research Triangle Park, NC (321)

3:00 **Break**

3:15 **Distributor Considerations.** L. C. Magidow*[1], E. Spandl[2], R. L. Pigati[2]; [1]WinField United, Maplewood, MN, [2]WinField United, Shoreview, MN (322)

3:30 **Dealer/Applicator Considerations.** B. Baddeley*; Asmus Farm Supply, Esterville, CO (323)

3:45 **Southern Extension Weeds Specialist Concerns.** L. Steckel*; University of Tennessee, Jackson, TN (324)

4:00 **Mid-West Extension Weed Specialist Concerns.** R. Zollinger*; North Dakota State University, Fargo, ND (325)

4:15 **State Regulator Considerations.** D. Slade*; Missouri Department of Agriculture, Jefferson City, CO (326)

4:30 **Dicamba Considerations and Concerns of the Specialty Crop Industry.** S. Smith*; Red Gold, Inc., Elwood, IN (327)

4:45 **Dicamba, a Resource and a Challenge for the Cotton Industry.** R. Nichols*; Cotton Incorporated, Cay, NC (328)

5:00 **Questions and Answers.** G. Dahl*; WinField United, Eagan, MN (329)

WEDNESDAY AFTERNOON JANUARY 31

WSSA Business Meeting

LOCATION: Arlington Salon I & II
TIME: 5:30 PM - 6:30 PM
CHAIR: Janis McFarland
Syngenta Crop Protection
Greensboro, NC
MODERATOR: Janis McFarland
Syngenta Crop Protection
Greensboro, NC

***SPEAKER**

THURSDAY MORNING FEBRUARY 1

Section 2. Horticultural Crops

LOCATION: Grand Salon H
TIME: 8:00 AM - 12:00 PM
CHAIR: Jayesh Samtani
Virginia Tech
Virginia Beach, VA
CO-CHAIR: Katherine Jennings
North Carolina State University
Raleigh, NC
MODERATOR: Jayesh Samtani
Virginia Tech
Virginia Beach, VA

***SPEAKER**

8:00 **Precision Application Technology for Weed Management in Plasticulture Vegetable Production.** N. Boyd*[1], A. Schumann[2]; [1]University of Florida, Wimauma, FL, [2]University of Florida, Lake Alfred, FL (330)

8:15 **Application of Dimethenamid-p Through Drip Irrigation Lines Controls Yellow Nutsedge in Direct-seeded Onion.** J. Felix*, J. Ishida; Oregon State University, Ontario, OR (331)

8:30 **The Final Word in Onion Weed Control.** B. Zandstra*, C. Phillippo; Michigan State University, East Lansing, MI (332)

8:45 **Potato Weed Management: Active Ingredients Exhibiting Potential for the Future.** D. Heider*, J. Colquhoun, R. A. Rittmeyer; University of Wisconsin, Madison, WI (333)

9:00 **Chipping Potato Response to Sublethal Doses of Glyphosate and/or Dicamba.** H. Hatterman-Valenti*, J. E. Stenger, C. P. Auwarter; North Dakota State University, Fargo, ND (334)

9:15 **Effect of Simulated Rice Herbicide Drift on English Walnut (*Juglans regia*) Growth and Development.** M. F. Galla*[1], K. Al-Khatib[2], B. Hanson[3]; [1]UCCE, Orland, CA, [2]University of California, Davis, CA, [3]University of California, Winters, CA (335)

9:30 **Evaluation of Pre- and Post-emergence Herbicides for Carolina Redroot Control in New Jersey Cranberry Bogs.** T. E. Besancon*; Rutgers University, CHATSWORTH, NJ (336)

9:45 **Comparison of Alternative Weed Management Strategies with Four Interspecific Grape Cultivars.** J. E. Stenger, H. Hatterman-Valenti*, C. P. Auwarter; North Dakota State University, Fargo, ND (337)

10:00 **Break**

10:15 **An Alternative Approach to Preplant Fumigation with Paper Pellet and Mustard Seed Meal in Annual Strawberry Production.** J. Samtani*, S. Das; Virginia Tech, Virginia Beach, VA (338)

10:30 **Evaluation of Multiple Rates of Paladin EC and Paladin Pic-21 EC for Weed Control in Florida Tomato.** J. Yu*[1], N. Boyd[2]; [1]University of Florida, Tampa, FL, [2]University of Florida, Wimauma, FL (339)

10:45 **Rye Mulch has Potential for Weed Management in Edamame.** L. Crawford[1], M. M. Williams*[2], S. E. Wortman[3]; [1]University of Illinois, urbana, IL, [2]USDA-ARS, Urbana, IL, [3]University of Nebraska, Urbana, IL (340)

11:00 **Weed Management in Lettuce on Organic Soils in Florida.** D. Odero*[1], A. L. Wright[2]; [1]University of Florida, Belle Glade, FL, [2]University of Florida, Fort Pierce, FL (341)

11:15 **Using Living Mulch and Strip Tillage to Suppress Weeds in Organic Vegetables.** A. W. Leslie*, C. R. Hooks; University of Maryland, College Park, MD (342)

11:30 **Integrated Weed Management Strategies with Rye Mulch in Processing Vegetable Legumes.** Y. Kitis*[1], M. M. Williams[2], N. Hausman[2], J. Moody[3]; [1]Akdeniz University, Antalya, Turkey, [2]USDA-ARS, Urbana, IL, [3]University of Illinois, Urbana, IL (343)

11:45 **Integrated Vegetable Weed Management with Bicyclopyrone.** C. Phillippo*, B. Zandstra; Michigan State University, East Lansing, MI (344)

THURSDAY AFTERNOON FEBRUARY 1

Section 2. Horticultural Crops

LOCATION: Grand Salon H
TIME: 1:00 PM - 2:00 PM
CHAIR: Jayesh Samtani
Virginia Tech
Virginia Beach, VA
CO-CHAIR: Katherine Jennings
North Carolina State University
Raleigh, NC
MODERATOR: Jayesh Samtani
Virginia Tech
Virginia Beach, VA

***SPEAKER**

1:00 **Hop Tolerance to Directed Applications of Glufosinate.** R. A. Boydston*; USDA-ARS, Prosser, WA (345)

1:15 **Survey of Weed Species and Test of Herbicides Mixed in Barrels for Weeds Control in *Camellia oleifera* Abel Forest in Hunan Province.** C. Jin*, X. Zhang, Y. Zhou, Y. Hu; Hunan University of Humanities, Science and Technology, Loudi, Peoples Republic (346)

1:30 **Base-editing Efficiently Creates Non-GM Herbicide Resistant Plants.** L. Jiang*; China Agricultural University, Beijing, Peoples Republic (347)

THURSDAY MORNING FEBRUARY 1

Learning by Listening: Herbicide Resistance Listening Sessions

LOCATION: Arlington Salon I & II
TIME: 8:00 AM - 12:00 PM
CHAIR: Jill Schroeder
USDA Office of Pest Management Policy
Arlington, VA
CO-CHAIR: David Shaw
Mississippi State University
Mississippi State, MS
MODERATOR: Jill Schroeder
USDA Office of Pest Management Policy
Arlington, VA

***SPEAKER**

8:00 **Introduction to the Symposium and Summary of the Listening Sessions.** D. Shaw[1], M. Barrett[2], J. Schroeder*[3]; [1]Mississippi State University, Mississippi State, MS, [2]University of Kentucky, Lexington, KY, [3]USDA Office of Pest Management Policy, Arlington, VA (348)

8:30 **Panel discussion 1: Representative Stakeholders from the Regional Listening Sessions: Impressions of the Listening Sessions and Recommendations for Next Steps.** M. Barrett[1], J. Schroeder[2], D. Shaw*[3]; [1]University of Kentucky, Lexington, KY, [2]USDA Office of Pest Management Policy, Arlington, VA, [3]Mississippi State University, Mississippi State, MS (349)

10:00 **Break**

10:15 **Panel discussion 2: Listening Session Coordinators: Outcomes, Impressions, and Recommendations for Next Steps.** J. Schroeder[1], D. Shaw[2], M. Barrett*[3]; [1]USDA Office of Pest Management Policy, Arlington, VA, [2]Mississippi State University, Mississippi State, MS, [3]University of Kentucky, Lexington, KY (350)

THURSDAY MORNING FEBRUARY 1

Section 6. Regulatory Aspects

LOCATION: Grand Salon J
TIME: 8:00 AM - 10:00 AM
CHAIR: Cherilyn Moore
Syngenta Crop Protection, LLC
Greensboro, NC
MODERATOR: Cherilyn Moore
Syngenta Crop Protection, LLC
Greensboro, NC

***SPEAKER**

8:00 **An Overview of the New EPA Mandated Requirements for Paraquat Containing Products: What Does That Mean for the End-User and Registrant?** M. U. Dixon*; Syngenta Crop Protection, Greensboro, NC (351)

8:15 **Taking Advantage of Global Field Trial Exchangeability and Crop Grouping for Pesticide Residue Studies.** D. Kunkel*[1], J. J. Baron[2], W. P. Barney[2]; [1]Rutgers University, Princeton, NJ, [2]Rutgers University, IR-4 Project, Princeton, NJ (352)

8:30 **Pollinator Habitats - Weeds & Management Challenges.** C. Savinelli*, D. Campbell, J. McFarland, C. Moseley; Syngenta Crop Protection, Greensboro, NC (353)

8:45 **Importance of Atrazine in Weed Management and Best Management Practices.** C. Moseley*[1], D. Bridges[2], P. Mitchell[3], P. Laird[1], G. Hill[1]; [1]Syngenta Crop Protection, Greensboro, NC, [2]Abraham Baldwin Agricultural College, Tifton, GA, [3]University of Wisconsin, Madison, WI (354)

9:00 **Atrazine - Stewardship and Water Monitoring - a Watershed Approach.** M. White*[1], W. Chen[2]; [1]Syngenta Crop Protection, Macon, MO, [2]Syngenta Crop Protection, Greensboro, NC (355)

9:15 **Piloting a Voluntary Conservation Approach in Mississippi to Improve the Endangered Species Act Pesticide Regulatory Process.** B. Sacher*[1], D. Campbell[1], T. Huggins[2], T. Cook[2]; [1]Syngenta Crop Protection, Greensboro, NC, [2]Delta Wildlife, Greenville, MS (356)

9:30 **Piloting a Voluntary Conservation Approach in Iowa to Improve the Endangered Species Act Pesticide Regulatory Process.** D. Campbell*[1], B. Sacher[1], K. Kult[2], R. Wolf[2]; [1]Syngenta Crop Protection, Greensboro, NC, [2]Iowa Soybean Association, Des Moines, IA (357)

THURSDAY MORNING FEBRUARY 1

The State of the Weed Control Industry In 2018

LOCATION: Arlington Salon V & VI
TIME: 9:00 AM - 12:00 PM
CHAIR: Steve Fennimore
University of California
Salinas, CA
MODERATOR: Steve Fennimore
University of California
Salinas, CA

***SPEAKER**

9:00 **The Business of Weed Control.** S. A. Fennimore*; University of California, Salinas, CA (358)

9:20 **Past and Future Trends in the World Herbicide Market.** J. Shoham*; Syngenta (retired), Greensboro, NC (359)

9:40 **Consolidation and Competition in the Agricultural Chemical Industry.** J. MacDonald*; USDA, Washington, DC (360)

10:00 **Evolution of the Herbicide Marketplace.** P. J. Porpiglia*; AMVAC Chemical Corporation, Irvine, CA (361)

10:20 **Break**

10:35 **The Role of Smart Machines in the Business of Weed Control.** W. Patzoldt*[1], E. Ehn[2], M. Keely[1], B. Chostner[1]; [1]Blue River Technology, Sunnyvale, CA, [2]Blue River Technology, Capitola, CA (362)

10:55 **Innovative Automation for Vegetable Production.** R. Herbon*; Agmechtronix, Silver City, NM (363)

11:15 **Balancing Declining Herbicide Efficacy with New Technology.** D. A. Mortensen*; Penn State University, University Park, PA (364)

THURSDAY MORNING FEBRUARY 1

Section 8. Formulation, Adjuvant and Application Technology

LOCATION: Grand Salon K
TIME: 8:00 AM - 10:00 AM
CHAIR: Connor Ferguson
Mississippi State University
MS State, MS
MODERATOR: Bryan Young
Purdue University
Brookston, IN

***SPEAKER**

8:00 **Effects of Selected Adjuvants on Weed Control with Glufosinate-Ammonium in Colorado and South Dakota.** J. Daniel*[1], P. Westra[2], E. Westra[2], P. Johnson[3]; [1]Daniel Ag Consulting, Hudson, CO, CO, [2]Colorado State University, Fort Collins, CO, [3]South Dakota State University, Brookings, SD (365)

8:15 **AccuDrop™ - A New Drift Control and Deposition Adjuvant.** T. A. Hayden*[1], G. Dahl[2], R. Edwards[3], J. A. Gillilan[4], R. L. Pigati[5], J. Gednalske[6], E. Spandl[5], L. C. Magidow[7], A. Clark[3], D. C. Bissell[8]; [1]WinField United, Owensboro, KY, [2]WinField United, Eagan, MN, [3]WinField United, River Falls, WI, [4]WinField United, Springfield, TN, [5]WinField United, Shoreview, MN, [6], River Falls, WI, [7]WinField United, Maplewood, MN, [8]WinField United, River Falls, WV (366)

8:30 **Evaluation of a New TwinJet Nozzle for Weed Control in Peanut.** E. P. Prostko*[1], B. Ward[2], G. C. Rains[1], W. Carter[1]; [1]University of Georgia, Tifton, GA, [2]University of Georgia, Colquitt, GA (367)

8:45 **Nozzle and Pressure Effects on Herbicide Efficacy using Enlist One™, Engenia™, and Xtendimax™ Approved Tank Mixes.** C. Ferguson*[1], P. H. Urach Ferreira[1], M. T. Wesley[1], D. Reynolds[2]; [1]Mississippi State University, MS State, MS, [2]Mississippi State University, Mississippi State, MS (368)

9:00 **Collection of Quantitative Herbicide Performance Data: Why Should We not Rely Solely on Visible Assessments?** N. E. Korres*[1], J. Norsworthy[2]; [1]University of Arkansas, Fayettevile, AR, [2]University of Arkansas, Fayetteville, AR (369)

9:15 **The Influence of Pump Shear on the Droplet Spectrum of Spray Mixtures Containing Dicamba, Glyphosate and Various Drift Reduction Agents.** D. C. Bissell[1], L. C. Magidow[2], A. Clark[3], R. L. Pigati*[4], G. Dahl[5], J. Gednalske[6], E. Spandl[4]; [1]WinField United, River Falls, WV, [2]WinField United, Maplewood, MN, [3]WinField United, River Falls, WI, [4]WinField United, Shoreview, MN, [5]WinField United, Eagan, MN, [6], River Falls, WI (370)

9:30 **Performance of New High Loaded 2,4-D and Dicamba Formulations with Built-In Drift Reduction Technology.** J. Daniel[1], E. Westra*[2], P. Westra[2], G. Kruger[3], S. K. Parrish[4]; [1]Daniel Ag Consulting, Hudson, CO, CO, [2]Colorado State University, Fort Collins, CO, [3]University of Nebraska, North Platte, NE, [4]Agrasyst Inc., Spokane, WA (371)

THURSDAY MORNING FEBRUARY 1

Section 12. Soil and Environmental Aspects

LOCATION: Grand Salon K
TIME: 10:00 AM - 12:00 PM
CHAIR: Travis Gannon
North Carolina State University
Raleigh, NC
CO-CHAIR: Te-Ming Tseng
Mississippi State University
Mississippi State, MS
MODERATOR: Travis Gannon
North Carolina State University
Raleigh, NC

***SPEAKER**

10:00 **Phosphate status effects glyphosate uptake, translocation and transport in *Eucalyptus grandis*.** W. Peer*[1], F. Campos Mastrotti Pereira[2], P. Aguiar Alves[2]; [1]University of Maryland, College Park, MD, [2]São Paulo State University, Jaboticabal, Brazil (372)

10:15 **Reduction on surface runnoff of S-metolachlor and metolachlor oxalic acid by using vegetative filter strip.** V. Gehrke[1], E. R. Camargo*[1], L. Avila[1], J. Arias[2], E. Primel[2], F. Brunetto[1], S. Pereira[1]; [1]Federal University of Pelotas, Pelotas, Brazil, [2]Federal University of Rio Grande, Rio Grande, Brazil (373)

10:30 **Response of Five Cover Crop Species to Glyphosate and Aminomethylphosphonic acid (AMPA) Residues in Silty Clay Soil.** Z. Ganie*, A. Jhala; University of Nebraska, Lincoln, NE (374)

10:45 **Soil Volumetric Water Content Influence Herbicide Bioavailability and Lateral Mobility.** T. Gannon, S. Brinton, P. J. Maxwell*; North Carolina State University, Raleigh, NC (375)

11:00 **Dicamba Volatility under Field and Controlled conditions.** T. Mueller*[1], L. Steckel[2]; [1]University of Tennessee, Knoxville, TN, [2]University of Tennessee, Jackson, TN (376)

11:15 **Humidome study on the volatility of dicamba from soil surfaces.** C. D. Willett*, E. M. Grantz, J. Norsworthy; University of Arkansas, Fayetteville, AR (377)

11:30 **Comparison of 2,4-D amine and 2,4-D choline volatility under field conditions.** T. Mueller*[1], C. Sayer[2], P. Hay[2], C. Silva[2], B. Bruss[3]; [1]University of Tennessee, Knoxville, TN, [2]Nufarm, Laverton North, Australia, [3]Nufarm, Raleigh, NC (378)

11:45 **Air sampler demonstration and discussion: Lessons learned.** T. Mueller*[1], L. Steckel[2]; [1]University of Tennessee, Knoxville, TN, [2]University of Tennessee, Jackson, TN (379)

THURSDAY MORNING FEBRUARY 1

Section 11. Physiology

LOCATION: Arlington Salon III
TIME: 8:00 AM - 12:00 PM
CHAIR: Christopher Van Horn
USDA
Parlier, CA
CO-CHAIR: Christopher Rouse
University of Arkansas
Fayetteville, AR
MODERATOR: Christopher Van Horn
USDA
Parlier, CA

***SPEAKER**

8:00 **Field Evaluation of the Potential Herbicide Tolerant Tomato Screened from Diverse Germplasm.** G. Sharma*[1], C. Barickman[1], R. Snyder[1], T. Tseng[2]; [1]Mississippi State University, Starkville, MS, [2]Mississippi State University, Mississippi State, MS (380)

8:15 **Characterizing the Tolerance Mechanism of Rice Cultivars to the HPPD-inhibitor Benzobicyclon.** C. Brabham*, V. Varanasi, J. Norsworthy; University of Arkansas, Fayetteville, AR (381)

8:30 **Study on Sensitivity of Different Leaf Age of Barnyardgrass to Bispyribac-sodium and Cyhalofop-butyl.** X. Liu*, Y. Deng, J. li, C. Jin; Hunan University of Humanities, Science and Technology, Loudi, Peoples Republic (382)

8:45 **Multiple Resistance to Glyphosate, Paraquat, ACCase- and ALS-inhibitors in California Italian Ryegrass: Confirmation, Control and Resistance Mechanisms.** P. Tehranchian*[1], V. Nandula[2], M. Jugulam[3], M. Jasieniuk[1]; [1]University of California, Davis, CA, [2]USDA-ARS, Stoneville, MS, [3]Kansas State University, Manhattan, KS (383)

9:00 **Non-Target Site Resistance to Flucarbazone, Imazamethabenz, and Pinoxaden is Controlled by Three Linked Genes in *Avena fatua*.** E. E. Burns*[1], B. K. Keith[2], L. E. Talbert[2], W. e. Dyer[2]; [1]Michigan State University, East Lansing, MI, [2]Montana State University, Bozeman, MT (384)

9:15 **Differential Synthetic Auxin Binding to TIR1 and AFB5 and Comparative Downstream Perception of 2,4-D and Florpyrauxifen-benzyl in *Arabidopsis thaliana*.** P. R. Schmitzer*[1], J. L. Bell[2], J. Prusinska[3], R. Napier[3], D. Riar[1], M. Donahue[1], N. Elango[1]; [1]Dow AgroSciences LLC, Indianapolis, IN, [2]Dow Agrosciences, Brownsburg, IN, [3]University of Warwick, Coventry, England (385)

9:30 **Co-evolution of Abiotic Stress Adaptation and Quinclorac Resistance in *Echinochloa colona*.** C. Rouse*[1], N. R. Burgos[1], C. A. Saski[2], R. E. Noorai[2], V. Shankar[2]; [1]University of Arkansas, Fayetteville, AR, [2]Clemson University, Clemson, SC (386)

9:45 **Convergence of Gene Networks in Multiple-Resistant *Echinochloa*.** N. Roma-Burgos*[1], C. Rouse[1], C. A. Saski[2], R. E. Noorai[2], A. L. Lawton-Rauh[2], V. Shankar[2]; [1]University of Arkansas, Fayetteville, AR, [2]Clemson University, Clemson, SC (387)

10:00 **Break**

10:15 **Molecular Insights into Glyphosate Resistance Mechanisms in North American Giant Ragweed.** P. Westra*[1], C. R. Van Horn[2], T. Gaines[1], D. E. Stoltenberg[3], K. Ravet[1]; [1]Colorado State University, Fort Collins, CO, [2]USDA, Parlier, CA, [3]University of Wisconsin, Madison, WI (388)

10:30 **Differing Mechanisms of Glyphosate Resistance in *Chloris truncata* and *Chloris virgata* in Australia.** T. D. Ngo, J. M. Malone, M. Krishnan, P. Boutsalis, G. S. Gill, C. Preston*; University of Adelaide, Glen Osmond, Australia (389)

10:45 ***EPSPS* Amplification Triggers Genome Alteration and Rapid Evolution of Glyphosate Resistance in *Amaranthus tuberculatus*.** M. Jugulam*[1], D. Koo[2], B. Friebe[2], B. S. Gill[2]; [1]Kansas State University, Manhattan, KS, [2]Educational, Manhattan, KS (390)

11:00 **Expression Hotspots in Herbicide Resistant Waterhemp (*Amaranthus tuberculatus*).** D. Giacomini*[1], T. Gaines[2], R. S. Beffa[3], P. Tranel[4]; [1]University of Illinois, Urbana, IL, [2]Colorado State University, Fort Collins, CO, [3]Bayer CropScience, Frankfort / Main, Germany, [4]University of Illinois, Urbana, IL (391)

11:15 **Identification of the Genetic Basis for Dicamba Resistance in *Kochia scoparia*.** P. Westra*[1], S. LeClere[2], D. Sammons[3], T. Gaines[1]; [1]Colorado State University, Fort Collins, CO, [2]Monsanto Company, St Louis, MO, [3], Chesterfield, MO (392)

11:30 **Herbicide Metabolic Resistance Characterization. A Review.** R. S. Beffa*; Bayer CropScience, Frankfort / Main, Germany (393)

11:45 **Genes Driving Detoxification in *Amaranthus palmeri* Under Glyphosate Exposure.** W. Molin*[1], C. A. Saski[2]; [1]USDA-ARS, Stoneville, MS, [2]Clemson University, Clemson, SC (394)

Section 11. Physiology

LOCATION: Arlington Salon III
TIME: 1:00 PM - 2:30 PM
CHAIR: Christopher Van Horn
USDA
Parlier, CA
CO-CHAIR: Christopher Rouse
University of Arkansas
Fayetteville, AR
MODERATOR: Christopher Van Horn
USDA
Parlier, CA

***SPEAKER**

1:00 **Inheritance and Comparison of PPO-inhibitor Resistance Mechanisms in Palmer amaranth.** V. Varanasi*, C. Brabham, J. Norsworthy; University of Arkansas, Fayetteville, AR (395)

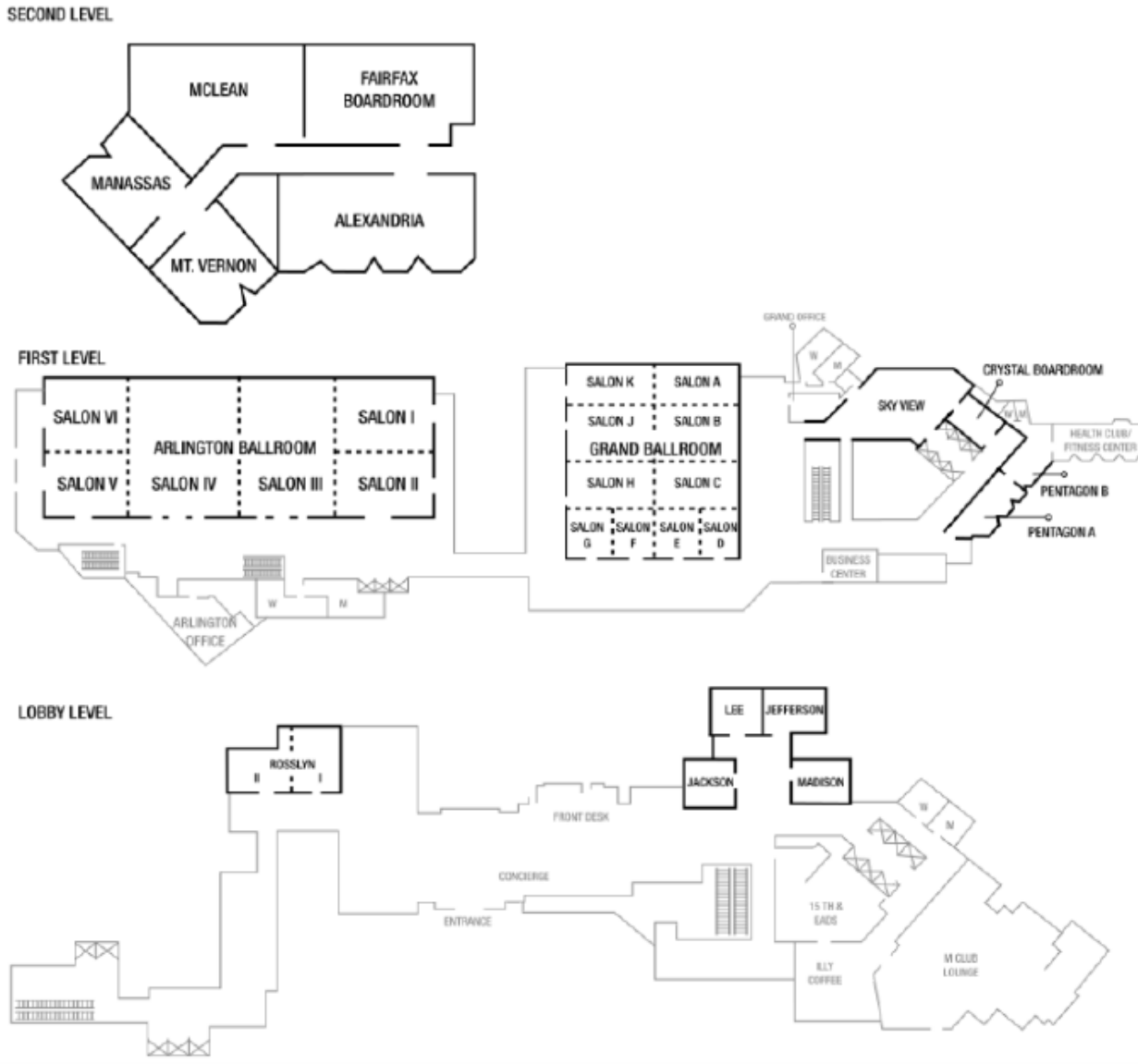
1:15 **A Novel Amino Acid Substitution ($Gly_{399}Ala$) in Protoporphyrinogen Oxidase 2 Confers Broad Spectrum PPO-Inhibitor Resistance in *Amaranthus palmeri*.** G. Rangani[1], R. Salas*[1], R. A. Aponte[2], A. Landes[2], N. Roma-Burgos[1]; [1]University of Arkansas, Fayetteville, AR, [2]BASF SE, Limburgerhof, Germany (396)

1:30 **Are Resistant Weeds More Resilient? Differential Induction of Secondary Metabolite Profiles Across Glyphosate Susceptible and Resistant Populations of *Amaranthus palmeri* in Response to Abiotic Stressors.** N. Tharayil*[1], E. M. Leonard[1], A. S. Maroli[1], V. Nandula[2], S. Duke[3]; [1]Clemson University, Clemson, SC, [2]USDA-ARS, Stoneville, MS, [3]USDA-ARS, Oxford, MS (397)

1:45 **WeedGenomics: An Online Repository for Genomic Information of Weeds.** J. S. McElroy*, S. Sivaraj, S. Wilkhu, H. Zhang; Auburn University, Auburn, AL (398)

2:00 **Possibilities and Potential Consequences of Microbiome Mediated Herbicide Resistance.** J. Gressel*; Weizmann Institute of Science, Rehovot, Israel (399)

CRYSTAL GATEWAY MARRIOTT HOTEL



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2017-2018
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NOTES

PERSONAL TIME SCHEDULE

Time	Monday	Tuesday	Wednesday	Thursday
7:30		Poster Session	Poster Session	
8:00				
8:15				
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4:00	General Session and Awards Presentation			
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5:00			WSSA Business Meeting	
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6:00	WSSA Awardee Reception			
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