WEED SCIENCE SOCIETY OF AMERICA

Fifty-Sixth Meeting

And

SOUTHERN WEED SCIENCE SOCIETY

Sixty-Ninth Meeting

2016 Meeting Program

Sheraton Puerto Rico Hotel and Casino
San Juan, Puerto Rico
February 8 to 11, 2016

2016 SWSS Sustaining Members

Agricenter International

AMVAC Chemical Corp.

BASF Corporation

Bayer CropScience

Bellspray, Inc

Diligence Technologies

Dow AgroSciences

DuPont Crop Protection

Farm Press Publications

Gylling Data Management Inc

Helena Chemical Co

Kumiai America

Monsanto Company

PBI/Gordon Corp

Practical Weed Consultants, LLC

Syngenta Crop Protection

The Scotts Company

United Phosphorus, Inc.

Valent USA Corp

Weed Systems Equipment

WSSA Sustaining Members
WEED SCIENCE SOCIETY OF AMERICA

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

LEADER
Helena Chemical
Valent USA

PATRON
Nufarm Americas
United Phosphorus, Inc.
Winfield Solutions

CONTRIBUTING
CID Bio-Science
Clariant Corporation
FMC Corporation
Greenleaf Technologies
Gylling Data Management, Inc.
ISK Biosciences Corp
Nichino American, Inc.
Nippon Soda Co. Ltd.
Pentair-Hypro

ASSOCIATE
ABG Ag Services
Adjuvants Plus, Inc.
Ag-quest Inc.
Chemorse Ltd.
Conviron
Gandy Corporation
Heartland Technologies
Marrone Bio Innovations, Inc.
Minnesota Valley Testing Lab
SePRO
TKI NovaSource

WSSA

2017 Annual Meeting
February 6-9, 2017
Hilton Tucson El Conquistador
Tucson, Arizona

2018 Annual Meeting
January 25- February 3, 2018
Crystal Gateway Marriott
Arlington, VA

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

SWSS

2017 Annual Meeting
January 23-25, 2017
Hyatt Regency- The Wynfrey Hotel
Birmingham, AL

2018 Annual Meeting
January 22-24, 2018
Hyatt Regency Atlanta
Atlanta, GA

56th Meeting
Weed Science Society of America
And
69th Meeting
Southern Weed Science Society

SWSS Sustaining Members .....Inside Front Cover
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WSSA Sustaining Members..... Inside Back Cover

Location of Special Committees and Activities February 2016

Registration (Including Guests) ..... San Juan Foyer
WSSA Board Meeting (Sat/Sun) .....San Felipe
SWSS Board Meeting (Sun).....Luna Boardroom
SWSS Board Meeting (Mon)..... San Cristobal
WSSA Board Meeting (Thurs).....San Felipe
SWSS Board Meeting (Thurs)..... San Cristobal

Local Arrangements Committee 2016-San Juan, Puerto Rico

Chair.....Wilfredo Robles

The Joint WSSA/SWSS 2016 Program

Welcome to the 2016 joint meeting of the Weed Science of America (WSSA) and the Southern Weed Science Society (SWSS) at the Sheraton Puerto Rico Hotel and Casino. The venue is outstanding and we have an excellent program planned. A pre-conference tour of the El Yunque National Rain Forest will be available on Sunday afternoon along with the SWSS Golf Tournament at the Dorado Beach Golf Resort. The tournament will be played on the Pineapple Course and will begin at 9:30 AM with a Shotgun Start.

The General Session and WSSA Awards Ceremony will begin Monday, Feb. 8th at 6:00 PM in the Miramar Ballroom. Our General Session will begin with an introduction from the Puerto Rican Secretary of Agriculture, Dr. Myrna Comas, and will continue with two informative presentations; one from Mr. Edwin Quiles who will provide us with some interesting insights into the background and history of San Juan, and another from Mr. Ricardo Valentin who will explain the endangered Puerto Rican parrot project. The Awards Ceremony will include presentations of the WSSA awards, Fellow, and Honorary Member recognitions. Be sure to attend this session to help recognize all the awardees. Following the Awards Ceremony, WSSA will host an awards reception beginning around 8:00 PM outside on the Bellavista Terrace. 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.

The program this year is bigger than ever with 564 total presentations, of which 252 are posters. There will be poster sessions on Tuesday and Wednesday mornings from 8:00 to 10:00 AM. Authors of even numbered posters should be present at the Tuesday poster session and authors of odd numbered posters should be present at the Wednesday poster session.

There will be a SWSS Graduate Student Oral Presentation Contest on Tuesday. These presentations will take place in two separate concurrent sessions and will run all day. A total of 58 graduate students have signed up for this contest. Anyone may attend these sessions to listen to and ask questions about the research our graduate students and their advisors are conducting. In addition to the SWSS oral contest, a total of 44 M.S. students and

40 PhD students will participate in the WSSA's second annual Graduate Student Poster Contests. These posters will also be judged on Tuesday.

There are four outstanding symposia that will be held during this joint meeting. The first symposium organized by John Madsen is "21st Century Challenges in Aquatic Weed Management". This symposium will occur on Tuesday morning and will present the latest developments in aquatic weed management technologies and approaches, as well as demonstrate the unique challenges facing large operational aquatic weed management. On Tuesday afternoon there will be another symposium entitled "Weed Control in 2050: Imagining Future Strategies and the Knowledge Needed to Achieve Them." This symposium was organized by Jim Westwood and will explore what weed control must look like in 2050 if agriculture is to realize the substantial yield increases required to sustain the population. On Wednesday morning, the graduate students will have a professional development workshop titled "WHO You Are is HOW You Lead". This workshop has been organized by Rand Merchant and Greg Elmore and will provide students with a personalized report of leadership strengths and qualities, and will discuss techniques to build effective relationships in the workplace. The workshop will be followed by a luncheon with WSSA and SWSS graduate student business meetings and brief presentations from SWSS Enrichment Scholarship recipients. The third symposium, organized by Michael Horak and Adam Davis, is entitled "Intersection of Agricultural and Wild Areas: Management of the Non-crop Vegetation as Habitat for Pollinator, Beneficial and Iconic Species" and is scheduled for Wednesday afternoon. This symposium will address some of the "hottest" issues being discussed right now by EPA and other agencies around the country. On Thursday morning, the final symposium will be "Use of Endemic Plant Diseases and Insect Pests for Biological Control of Invasive Weeds". This symposium, organized by William Bruckart, will be a forum to identify and discuss the potential for endemic diseases and insects occurring on introduced, invasive weeds, and to consider requirements for development and deployment of candidate agents, including risk assessments, regulatory requirements, and cost control.

The WSSA Business Meeting will be held on Tuesday at 5:00 PM. The SWSS Business Meeting, Graduate Stu-

dent Award Presentations, and SWSS Awards Ceremony will take place on Wednesday starting at 5 PM, which will be followed by a reception. All registered attendees are welcome and encouraged to attend.

Special thanks to our Local Arrangements Chair Wilfredo Robles, who has helped with local arrangements and the General Session speakers. Please also take the time to thank the following section co-chairs as you see them during the meeting: Roger Batts, Darrin Dodds, Stephen Enloe, Pete Eure, Darci Giacomini, Matthew Goddard, Mark Heilman, Rakesh Jain, Amit Jhala, Erik Lehnhoff, Ramon Leon, Cory Lindgren, Joseph Neal, Alejandro Perez-Jones, Angela Post, Karen Renner, Bob Scott, Andrew Skibo, Te-Ming Paul Tseng, Kate Venner, Ted Webster, Jerry Wells, Martin Williams. Also, let Phil Banks, Tony Ballard and Joyce Lancaster know how much you appreciate the work they do, not only on the annual meeting, but also for all of the Society's business.

We hope you find this year's annual meeting especially useful and rewarding. We have attempted to schedule something of interest for everyone each day.

Kevin Bradley, 2016 WSSA Program Chair
Peter Dotray, 2016 SWSS Program Chair

2016 Program Committee

General Program Chairs.....Kevin Bradley, Peter Dotray
Vice Chair ..... Janis McFarland, Gary Schwarzlose
Agronomic Crops..... Alejandro Perez-Jones, Peter Eure
Horticultural Crops .....Martin Williams, Roger Batts
Turf and Ornamentals .....Kate Venner, Ramon Leon
Pastures, Rangelands, Forests, & Right-of-Ways
.....Andrew Skibo, Stephen Enloe
Wildland and Aquatic Invasives .....Mark Heilman
Regulatory Aspects .....Cory Lindgren, Jerry Wells
Teaching and Extension ..... Angela Post, Paul Tseng
Formulation, Adjuvant, & Application Technology ... Rakesh Jain
Weed Biology and Ecology.....Eric Lehnhoff, Angela Post
Biocontrol of Weeds.....Joseph Neal
Physiology.....Darci Giacomini, Ted Webster
Soil and Environmental Aspects ..... Tom Mueller
Integrated Weed Management.....Amit Jhala
Sustaining Member Exhibits Session.....James Steffel
Poster Sessions..... Karen Renner, Bob Scott
Student Contest .....Darrin Dodds, Matt Goddard

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, look up the author in the author index in the back of the program.

SWSS Committee Meetings

SUNDAY, February 7

3:30 p.m. – 5:30 p.m.
SWSS Board of Directors .....Luna Boardroom

MONDAY, February 8

8:00 a.m. – 9:00 a.m.
SWSS Endowment Foundation.....Luna Boardroom

8:00 a.m. – 10:00 a.m.
SWSS Legislative (meeting with WSSA SPC Committee).....Laguna 1

9:00 a.m. – 10:00 a.m.
SWSS Finance Committee.....Luna Boardroom

10:00 a.m. – 11:00 a.m.
SWSS Weed Resistance and Technology Stewardship.....
.....Luna Boardroom

11:00 a.m. – noon
SWSS Site Selection Committee .....Luna Boardroom

1:00 p.m. – 2:00 p.m.
SWSS Board of Directors ..... San Cristobal

WSSA Committee Meetings

SATURDAY, February 6

7:00 a.m. - 5:00 p.m.
WSSA Board of Directors.....San Felipe

SUNDAY, February 7

8:00 a.m. - noon
WSSA Board of Directors.....San Felipe

MONDAY, February 8

7:00 a.m. – 8:00 a.m.
WSSA Board and Committee Chairs Breakfast
.....San Felipe

8:00 a.m. – 9:00 a.m.
Herbicide Resistant Plants Committee (E12)
.....San Geronimo

8:00 a.m. – 9:00 a.m.
IPSM Editorial Board (P4)..... Sol Boardroom

8:00 a.m. – 9:00 a.m.
Professional Development (F4) .....Bahia 1

8:00 a.m.– 10:00 a.m.
Science Policy Committee (E2) & SWSS Legislative.....
Laguna 1

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

9:00 a.m. - 10:00 a.m.
Biological Control of Weeds (W16) .....San Geronimo

10:00 a.m. – 11:00 a.m.
Weed Science Editorial Board (P2) ..... Sol Boardroom

10:00 a.m. – 11:00 a.m.
Terminology Committee (P22) .....Bahia 1

10:00 a.m. – 12:00 noon
Environmental Aspects of Weed Management (E8)
.....Laguna 2

10:00 a.m. – 12:00 noon
Herbicide Resistance Education (E12b) .....Laguna 1

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

1:00 p.m. – 2:00 p.m.
Extension (W11) .....Laguna 2

1:00 p.m. – 3:00 p.m.
Public Awareness Committee (E13) ..... Sol Boardroom

1:00 p.m. – 3:00 p.m.
Website Committee (E14).....Luna Boardroom

1:00 p.m. – 3:00 p.m.
Standardized Plant Names (P22b) .....Bahia 1

1:00 p.m. – 3:00 p.m.
Formulation, Adjuvant & Application Technology (W15)
.....Bahia 2

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

WEDNESDAY, February 10

6:00 a.m. – 8:00 a.m.
President's Breakfast with Regional Presidents
.....San Geronimo

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

THURSDAY, February 11

12:00 Noon – 3:00 p.m.
Board of Directors.....San Felipe

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 2016 PROGRAM

SATURDAY MORNING, February 6

7:00 a.m. – 5:00 p.m.
WSSA Board of Directors.....San Felipe

SUNDAY MORNING, February 7

8:00 a.m. – 12:00 noon
WSSA Board of Directors.....San Felipe

8:00 a.m. – 12:00 noon
ARM Tips, Techniques and Questions Workshop
Organized by Gylling Data Management ... San Juan 2&3

9:00 a.m. – 4:00 p.m.
Global HRAC.....Miramar 2

12:30 p.m. – 5:30 p.m.
Offsite El Yunque Rainforest Tour
SWSS Golf Tournament

3:30 p.m. – 5:30 p.m.
SWSS Board of Directors .....Luna Boardroom

MONDAY MORNING, February 8

7:00 a.m. – 8:00 a.m.
WSSA Board & Committee Chairs Breakfast
.....San Felipe

9:00 a.m. – 12:00 noon
Registration ..... San Juan Foyer

MONDAY AFTERNOON, February 8

1:00 p.m. – 3:00 p.m.
Ecology Visioning Session.....Laguna 1

1:00 p.m. – 4:00 p.m.
IWSS Board Meeting.....San Felipe

1:00 p.m. – 4:00 p.m.
Registration ..... San Juan Foyer

4:00 p.m. – 6:00 p.m.
General Session and WSSA Awards Presentations
.....Miramar Ballroom

6:00 p.m. – 8:00 p.m.
Welcome and Awardees Reception (open to all attendees and registered guests).....Exterior Terrace and Pool

TUESDAY, February 9

6:30 a.m. – 7:45 a.m.
Student Contest Judges Meeting & Breakfast
..... San Cristobal

7:00 a.m. – 5:00 p.m.
Registration ..... San Juan Foyer

7:00 a.m. – 9:00 a.m.
Ecology Visioning Session.....San Geronimo

10:00 a.m. – 6:00 p.m.
Contest Judges Work Room ..... San Cristobal

8:00 a.m. – 10:00 a.m.
Poster Session ..... San Juan 4&5

(Authors of even numbered posters will present)

8:00 a.m. – 10:00 a.m.
MA and PhD Poster Contest Presentations
(All Authors Present) .....San Juan Corridor

8:00 a.m. –5:00 p.m.
Sustaining Member Exhibits..... San Juan Foyer

8:30 a.m. – 12:00 noon
Symposium: 21st Century Challenges in Aquatic Weed Management.....San Juan 1

9:00 a.m. – 2:00 p.m.
SWSS Student MS Oral Contest
.....Bahia 1&2 and Laguna 1&2

10:00 a.m. – 2:00 p.m.
Offsite, Luquillo Beach Tour

10:00 a.m. – 5:00 p.m.
Posters on display without authors
.....San Juan 4&5 and San Juan Corridor

10:00 a.m. – 5:00 p.m.
1. Agronomic Crops.....Miramar 4

10:00 a.m. – 5:00 p.m.
9. Weed Biology and Ecology..... San Juan 2&3

10:30 a.m. – 4:15 p.m.
3. Turf and Ornamentals .....Miramar 2&3

1:00 p.m. – 5:00 p.m.
Symposium: Weed Control in 2050: Imagining Future Strategies and the Knowledge Needed to Achieve Them.....San Juan 1

2:00 p.m. – 5:45 p.m.
SWSS Student PhD Oral Contest
.....Bahia 1&2 and Laguna 1&2

5:00 p.m. – 6:00 p.m.
WSSA Business Meeting.....Miramar 1

6:00 p.m. – 7:00 p.m.
IWSS General Meeting..... San Juan 2&3

WEDNESDAY, February 10

6:00 a.m. – 8:00 a.m.
Regional Presidents Breakfast .....San Geronimo

7:00 a.m. – 9:00 a.m.
Ecology Visioning Session..... San Juan 6&7

7:00 a.m. – 3:00 p.m.
Registration..... San Juan Foyer

8:00 a.m. – 10:00 a.m.
Poster Session ..... San Juan 4&5

(Authors of odd-numbered posters will present)

8:00 a.m. – 5:00 p.m.
Sustaining Members Exhibits ..... San Juan Foyer

9:00 a.m. – 12:00 noon
Graduate Student Workshop .....Laguna 1&2

9:15 a.m. – 5:00 p.m.
11. Physiology.....San Felipe

10:15 a.m. – 12:00 noon
6. Regulatory Aspects ..... Bahia 1 & 2

10:15 a.m. – 4:30 p.m.
1. Agronomic Crops 1 .....Miramar 4

10:15 a.m. – 4:30 p.m.
1. Agronomic Crops 2 .....Miramar 2&3

10:15 a.m. – 4:45 p.m.
13. Integrated Weed Management..... San Juan 2&3

12:00 noon – 1:00 p.m.
Graduate Student Luncheon.....San Juan 8

1:00 p.m. – 5:00 p.m.
Symposium: The Intersection of Agricultural Lands and Wild Areas – Management of Non-Crop Vegetation as Habitat for Pollinator, Beneficial, and Iconic Species ..... San Juan 1

1:00 p.m. – 2:30 p.m.
10. Biocontrol of Weeds..... Bahia 1&2

2:15 p.m. – 5:00 p.m.
7. Education and Extension..... Laguna 1&2

5:00 p.m. – 5:30 p.m.
SWSS Business Meeting ..... Miramar 1

5:30 p.m. – 6:45 p.m.
Student Contest Awards and SWSS Awards ..... Miramar 1

6:45 p.m. – 8:00 p.m.
SWSS Reception (open to all attendees) ..... Bellavista Terrace

THURSDAY MORNING, February 11

8:00 a.m. – 10:00 a.m.
Registration ..... San Juan Foyer

8:00 a.m. – 11:00 a.m.
Posters on Display without Authors
..... San Juan 4&5 and San Juan Corridor

8:00 a.m. – 11:00 a.m.
Sustaining Members Exhibits ..... San Juan Foyer

8:00 a.m. – 12:00 noon
Symposium: Use of Endemic Plant Diseases and Insect Pests for Biological Control of Invasive Weeds ..... San Juan 1

8:00 a.m. – 12:00 noon
1. Agronomic Crops ..... Miramar 4

8:00 a.m. – 12:00 noon
2.. Horticultural Crops ..... Miramar 1

8:15 a.m. – 11:00 a.m.
5. Wildland and Aquatic Invasives..... San Juan 2&3

8:15 a.m. – 11:30 a.m.
8. Formulation, Adjuvant and Application Technology ..... Miramar 2&3

8:15 a.m. – 11:45 a.m.
4. Pastures, Rangelands, Forests and Right-of-Ways ..... Laguna 1&2

11:00 a.m. – 12:00 noon
Dismantle Posters and Exhibits

12:00 noon – 3:00 p.m.
WSSA Board of Directors..... San Felipe

12:00 noon – 3:00 p.m.
SWSS Board of Directors ..... San Cristobal

COMPLETE PROGRAM

MONDAY PM, February 8
GENERAL SESSION

Location: Mirarmar Ballroom
Chair: Kevin Bradley

4:00 p.m.
Introduction and Announcements: Kevin Bradley, President Elect, WSSA

4:10 p.m.
Welcome to Puerto Rico: Myrna Comas, Secretary of Agriculture, San Juan, Puerto Rico

4:20 p.m.
San Juan Behind the Façade: Mr. Edwin R. Quiles, Architect and Author, San Juan, Puerto Rico

4:40 p.m.
An Overview of the Puerto Rican Parrot Recovery Effort : Ricardo Valentin, Biologist, Department of Natural and Environmental Resources, Aquadilla, Puerto Rico

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

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

6:00 p.m. - 8:00 p.m.
WSSA Awardee Reception and Member Social

Location: ..... Exterior Terrace and Pool Area

TUESDAY to THURSDAY
February 9 to 11

WSSA/SWSS SUSTAINING MEMBERS
EXHIBITS SESSION

Location: San Juan Foyer
Chair: Steve Gylling, Gylling Data Management
7:45 a.m. Tuesday
Sustaining Members Exhibits Session meeting to elect a Chair-Elect.

Setup 12:00 noon - 3:00 p.m. Monday
8:00 a.m. - 5:00 p.m. Tuesday, Wednesday
8:00 a.m. - 12:00 noon Thursday
Please remove exhibits by 1:00 p.m. on Thursday

TUESDAY February 9

Location: San Juan 4&5
Chair: Karen Renner, Bob Scott
Posters may be set up on Monday from 12:00 noon until 3:00 pm prior to the General Session. Authors should remove Posters before 11:00 a.m. on Thursday.

7:45 a.m. – 8:00 a.m.
Business Meeting to elect Chair-Elect

PROGRAM

TUESDAY MORNING FEBRUARY 9
WSSA MS Poster Contest

*PRESENTER† STUDENT POSTER CONTEST

†Effects of Cover Crops on Weed Suppression in Sub-Tropical South Texas. S. Rugg*; University of Texas Rio Grande, Edinburg, TX (1)

†Establishment of Cover Crop Species Following Residual Herbicides Applied in Corn and Soybean. K. B. Pittman*[1], M. L. Flessner[1], C. W. Cahoon[2], T. Hines[2]; [1]Virginia Tech, Blacksburg, VA, [2]Virginia Tech, Painter, VA (2)

†Seasonal Biomass and Starch Content of *Paspalum fasciculatum* in Puerto Rico. M. Y. Berrios Rivera*[1], W. Robles[2], J. O'Hallorans[3], G. Ortiz[4]; [1]University of Puerto Rico, Mayaguez, Barranquitas, PR, [2]University of Puerto Rico, Mayaguez, Dorado, PR, [3]University of Puerto Rico, Mayaguez, San Juan, PR, [4]University of Puerto Rico, Mayaguez, Mayaguez, PR (3)

†Value of Various Cover Crops in Suppresing Weed Emergence and Protecting Cotton Yield. M. G. Palhano*, J. K. Norsworthy, Z. Lancaster, S. Martin, G. T. Jones; University of Arkansas, Fayetteville, AR (4)

†Pattern of Dormancy in Kochia scoparia and the Influence of Hormones on Dormancy Status. S. Khadka*; Kansas State University, Manhattan, KS (5)

†Characterization of Backcross Progeny Resulting from S. halepense x S. bicolor Hybridization. M. N. Carlson*, W. Rooney, G. Hodnett, M. V. Bagavathiannan; Texas A&M University, College Station, TX (6)

†Evaluation of Tillage, Cover Crop, & Herbicide Effects on Weed Control, Yield and Grade in Peanut. J. P. Williams*[1], A. J. Price[2], J. S. McElroy[1], E. A. Guertal[1], J. Tredaway-Ducar[1], S. Xi[1], R. S. Tubbs[3]; [1]Auburn University, Auburn, AL, [2]USDA-ARS, Auburn, AL, [3]University of Georgia, Tifton, GA (7)

†Identifying Molecular Markers Associated with Herbicide Tolerance in Tomato. G. Sharma*, T. Tseng; Mississippi State University, Starkville, MS (8)

†Non-destructive, Rapid Leaf Assay for Resistance to ALS herbicides in *Echinochloa*. T. M. Penka*[1], N. Burgos[2], R. A. Salas[2]; [1]University of Arkansas, Amarillo, AR, [2]University of Arkansas, Fayetteville, AR (9)

†Rolled Cover Crop Mulch for Suppression of *Amaranthus palmeri* in Pickling Cucumber. S. J. McGowen*, K. M. Jennings, D. W. Monks, N. T. Basinger, S. C. Beam, M. B. Bertucci, S. Chaudhari, S. C. Reberg-Horton; North Carolina State University, Raleigh, NC (10)

†Sustainable Cropping Systems for AVS-8080 Vegetable Soybean in Arkansas. S. E. Abugho*[1], N. R. Burgos[1], J. Ross[1], T. Roberts[1], D. Motes[1], L. Earnest[2], L. E. Estorninos Jr[1]; [1]University of Arkansas, Fayetteville, AR, [2]University of Arkansas, Rohwer, AR (11)

†Crop Safety Assessment of Mutagenesis-derived ACCase Resistant Wheat Lines. C. M. Hildebrandt*, P. Westra, S. Haley, T. A. Gaines; Colorado State University, Fort Collins, CO (12)

†Evaluation of Tank-Mix Options for Provisia Herbicide in Provisia Rice. J. S. Rose*, L. T. Barber, J. K. Norsworthy, R. C. Scott, Z. Lancaster, M. S. McCown; University of Arkansas, Fayetteville, AR (13)

†Evaulation of a Benzobicyclon plus Halosulfuron Premix for Weed Control in Drill-seeded Rice. M. L. Young*, J. K. Norsworthy, C. J. Meyer, J. A. Godwin, R. R. Hale; University of Arkansas, Fayetteville, AR (14)

†Examining the Potential for Insecticide Seed Treatments to Reduce Injury Associated with Herbicide Application in Soybean and Grain Sorghum. N. R. Steppig*, J. K. Norsworthy, M. L. Young, R. R. Hale, S.

Martin, J. A. Godwin; University of Arkansas, Fayetteville, AR (15)

†Will an Insecticide Seed Treatment Reduce Injury to ClearfieldRice Caused by ALS-inhibiting Herbicides? S. M. Martin*[1], J. K. Norsworthy[1], G. M. Lorenz[2], J. Hardke[3], R. C. Scott[1], C. J. Meyer[1], P. Tehranchian[1]; [1]University of Arkansas, Fayetteville, AR, [2]University of Arkansas, Lonoke, AR, [3]University of Arkansas, Stuttgart, AR (16)

†Rice Tolerance to Sharpen: Influence of Rate, Timing, and Adjuvants. R. R. Hale*, J. K. Norsworthy, L. T. Barber, M. G. Palhano, J. A. Godwin Jr., M. R. Miller; University of Arkansas, Fayetteville, AR (17)

†Weed Control and Crop Tolerance of Inzen Grain Sorghum When Treated With ALS Inhibiting Herbicides. H. C. Foster*[1], D. B. Reynolds[1], J. D. Smith[2]; [1]Mississippi State University, Starkville, MS, [2]DuPont Crop Protection, Madison, MS (18)

†Evaluation of Double-Cropped Peanut and Tobacco After Autumn or Winter Applications of Pyrasulfotole to Winter Wheat. A. A. Diera*[1], T. L. Grey[2], K. S. Rucker[3], W. Vencill[1], T. M. Webster[4], C. L. Butts[5], J. Moore[2]; [1]University of Georgia, Athens, GA, [2]University of Georgia, Tifton, GA, [3]Bayer Crop Science, Tifton, GA, [4]USDA-ARS, Tifton, GA, [5]USDA-ARS, Dawson, GA (19)

†PRE Herbicdes Applied EPOST in Sorghum: Efficacy and Crop Tolerance. W. J. Everman, L. Vincent, J. T. Sanders*; North Carolina State University, Raleigh, NC (20)

†Surveying for Herbicide Resistance in Italian Ryegrass Collected from Eastern Texas Wheat Fields. R. A. Garetson*[1], J. Swart[2], P. Baumann[3], C. Jones[4], M. V. Bagavathiannan[1]; [1]Texas A&M University, College Station, TX, [2]Texas A&M AgriLife Extension, Commerce, TX, [3]Texas A&M AgriLife Extension, College Station, TX, [4]Texas A&M University, Commerce, TX (21)

†Trinexapac-ethyl Winter Wheat Cultivar Evaluations With Variable Rates of Nitrogen. D. B. Simmons*[1], T. L. Grey[2], W. Faircloth[3], W. Vencill[1], T. M. Webster[4]; [1]University of Georgia, Athens, GA, [2]University of Georgia, Tifton, GA, [3]Sygenta, Albany, GA, [4]USDA-ARS, Tifton, GA (22)

†Residual *Amaranthus spp.* Control with VLCFA Herbicides. M. M. Hay*, D. E. Peterson, D. E. Shoup; Kansas State University, Manhattan, KS (23)

†Cultural Practices to Support Palmer Amaranth Management in Michigan. K. M. Rogers*, C. L. Sprague, K. A. Renner; Michigan State University, East Lansing, MI (24)

†Multi-Tactic Weed Management for Organic No-Till Planted Soybean. J. A. Liebert*, M. R. Ryan; Cornell University, Ithaca, NY (25)

†Sequential Timing Applications for Rescue Control of Palmer amaranth. D. Denton*[1], D. M. Dodds[1], C. A. Samples[2], M. T. Plumblee[2], L. X. Franca[2], A. L. Catchot[1], T. Irby[2], J. A. Bond[3], D. B. Reynolds[2]; [1]Mississippi State University, Mississippi State, MS, [2]Mississippi State University, Starkville, MS, [3]Mississippi State University, Stoneville, MS (26)

†Common Ragweed (Ambrosia artemisiifolia L) Interference in Nebraska Soybeans. E. R. Barnes*[1], A. Jhala[1], S. Knezevic[1], P. H. Sikkema[2], J. L. Lindquist[1]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]University of Guelph, Ridgetown, ON (27)

†Next Day Air: Waterfowl and Weed Seed Distribution. J. A. Farmer*, M. D. Bish, A. Long, M. Biggs, K. W. Bradley; University of Missouri, Columbia, MO (28)

†Waterhemp Growth and Development in a Common Garden. J. M. Heneghan*, W. G. Johnson; Purdue University, West Lafayette, IN (29)

†ALS and Glyphosate Resistance Mechanisms in Palmer Amaranth Populations from Arkansas. S. Singh*[1], V. Singh[2], J. C. Argenta[1], P. C. De Lima[1], N. R. Burgos[1], A. Lawton- Rauh[3], V. Shivrain[4], L. Glasgow[5]; [1]University of Arkansas, Fayetteville, AR, [2]Texas A&M University, College Station, TX, [3]Clemson University, Clemson, SC, [4]Syngenta Crop Protection, Singapore, Singapore, [5]Syngenta Crop Protection, Greensboro, NC (30)

†Seed Retention of Palmer amaranth and Barnyardgrass in Soybean. J. K. Green*, J. K. Norsworthy, M. G. Palhano, C. J. Meyer, S. M. Martin, L. M. Schwartz; University of Arkansas, Fayetteville, AR (31)

†Glyphosate-resistant Palmer amaranth Management with Engenia Herbicide in Bollgard II® XtendFlex™ Cotton. A. T. Koonce*[1], W. Keeling[2], P. A. Dotray[3], J. D. Reed[4], A. C. Hixson[5]; [1]Texas A&M AgriLife, Lubbock,

TX, [2]Texas A&M, Lubbock, TX, [3]Texas Tech University, Lubbock, TX, [4]BASF Corporation, Wolfforth, TX, [5]BASF Corporation, Lubbock, TX (32)

†Relating Dicamba Injury and Residue to Yield in Dry Bean. T. A. Reinhardt*, R. Zollinger; North Dakota State University, Fargo, ND (33)

†Appearance of Auxin-like Symptomology on Soybean Progeny Exposed to an Actual Dicamba Drift Event the Previous Year. G. T. Jones*, J. K. Norsworthy, M. G. Palhano, N. R. Steppig, Z. Lancaster, R. R. Hale; University of Arkansas, Fayetteville, AR (34)

†Comparison of Postemergent Herbicides in Corn and Soybean. R. S. Randhawa*[1], M. L. Flessner[1], C. W. Cahoon[2], K. M. Vollmer[3], T. Hines[2]; [1]Virginia Tech, Blacksburg, VA, [2]Virginia Tech, Painter, VA, [3]University of Delaware, Georgetown, DE (35)

†Do Indeterminate and Determinate Soybean Cultivars Differ in Response to Low Rates of Dicamba? M. S. McCown*[1], L. T. Barber[1], J. K. Norsworthy[1], J. S. Rose[1], A. W. Ross[2], L. M. Collie[2]; [1]University of Arkansas, Fayetteville, AR, [2]University of Arkansas, Little Rock, AR (36)

†Characterization of *Avena sterilis* Population Tolerant to Glyphosate. P. T. Fernandez*[1], R. Alcantara-de la Cruz[1], A. M. Rojano-Delgado[1], H. E. Cruz-Hipolito[2], J. M. de Portugal[3], R. Smeda[4], D. Rafael[1]; [1]University of Cordoba, Cordoba, Spain, [2]Bayer CropScience, Mexico City, Mexico, [3]Agrarian Superior College of Beja, Beja, Portugal, [4]University of Missouri, Columbia, MO (37)

†A Survey of Crop Weed Management in Virginia. S. C. Haring*, M. L. Flessner; Virginia Tech, Blacksburg, VA (38)

†Investigations of Multiple Herbicide Resistancein a Missouri Waterhemp Population. B. R. Barlow*, M. D. Bish, A. Long, M. Biggs, K. W. Bradley; University of Missouri, Columbia, MO (39)

†Group VI Soybean Response to Sub-lethal Rates of Dicamba. A. M. Growe*[1], M. K. Bansal[1], D. Copeland[2], J. T. Sanders[1], B. W. Schrage[1], L. Vincent[1], W. J. Everman[1]; [1]North Carolina State University, Raleigh, NC, [2]North Carolina State University, Cary, NC (40)

†Weed Control and Tolerance of "Bolt" Soybean (*Glycine max* L.) to Application of Various ALS Inhibiting Herbicides. Z. A. Carpenter*[1], D. B. Reynolds[2], J. D.

Smith[3]; [1]Mississippi State University, Mississippi State, MS, [2]Mississippi State University, Starkville, MS, [3]DuPont Crop Protection, Madison, MS (41)

†Effects of Dicamba and Glyphosate Combinations on Peanut. D. L. Teeter*[1], T. A. Baughman[1], P. A. Dotray[2], W. Grichar[3], R. W. Peterson[1]; [1]Oklahoma State University, Ardmore, OK, [2]Texas Tech University, Lubbock, TX, [3]Texas AgriLife Research, Yoakum, TX (42)

†The Effect of Cotton (*Gossypium hirsutum* L.) Growth Stage on Susceptibility to Injury and Yield Effects from Exposure to a Sub-Lethal Concentration of Dicamba. J. Buol*[1], D. B. Reynolds[2]; [1]Mississippi State University, Mississippi State, MS, [2]Mississippi State University, Starkville, MS (43)

†Evaluation of Staple LX in Enlist Cotton. Z. D. Lancaster*, J. K. Norsworthy, N. R. Steppig, M. L. Young, S. Martin; University of Arkansas, Fayetteville, AR (44)

TUESDAY MORNING FEBRUARY 9
WSSA PhD Poster Contest

***PRESENTER† STUDENT POSTER CONTEST**

†Avoiding Livestock Suicides. D. P. Russell*, J. D. Byrd, Jr.; Mississippi State University, Mississippi State, MS (45)

†Control of Cadillo in Grazinglands. J. C. Dias*[1], G. E. Duarte[2], B. A. Sellers[1], L. J. Martin[1]; [1]University of Florida, Ona, FL, [2]UNESP-Jaboticabal, Jaboticabal, Brazil (46)

†Dose Response of Black Medic to Clopyralid. S. M. Sharpe*[1], N. Boyd[2], P. J. Dittmar[1]; [1]University of Florida, Gainesville, FL, [2]University of Florida, Wimauma, FL (47)

†Herbicide Screening for Late Season Application in Tobacco. M. D. Inman*, T. Whaley, M. Vann, L. Fisher; North Carolina State University, Raleigh, NC (48)

†Improve Soil Quality, Decrease Costs, or Reduce the Weed Seedbank? Insights from a Systems Comparison of Prominent Organic Weed Management Strategies. B. Brown*, E. R. Gallandt; University of Maine, Orono, ME (49)

†Improved Weed Management and Crop Establishment in Dry Direct Seeded System Using Anaerobic

Germination Tolerant Rice (*Oryza Sativa*L.) Cultivars. B. S. Chamara*[1], B. Marambe[2], V. Kumar[1], B. S. Chauhan[3]; [1]International Rice Research Institute, Los Banos, Philippines, [2]University of Peradeniya, Peradeniya, Sri Lanka, [3]University of Queensland, Toowoomba, Australia (50)

†Soil Solarization for Improved Stale Seedbed Preparation in the Northeast. S. K. Birthisel*, E. R. Gallandt; University of Maine, Orono, ME (51)

†Japanese Stiltgrass Control in Lawns. J. R. Brewer*, S. S. Rana, S. Askew; Virginia Tech, Blacksburg, VA (52)

†Sources of Error that Interfere with Measuring Annual Bluegrass Influence on Ball Roll Trajectory. S. S. Rana*, S. Askew, J. R. Brewer; Virginia Tech, Blacksburg, VA (53)

†Effect of Herbicide Application Timing and Mowing on POST Vaseygrass Control. M. D. Jeffries*, T. Gannon, F. H. Yelverton; North Carolina State University, Raleigh, NC (54)

†Indaziflam: Potential New Herbicide to Control Invasive Winter Annual Grasses. D. J. Sebastian*, C. T. Hicks, K. C. Kessler, S. J. Nissen; Colorado State University, Fort Collins, CO (55)

†Effect of Delayed Dicamba/Glufosinate Application on Palmer Amaranth Control and Cotton Yield. R. A. Atwell*, A. C. York, R. W. Seagroves; North Carolina State University, Raleigh, NC (56)

†Control of *Chloris* spp. with Four Different Spray Quality Producing Nozzles Across Six Post-emergence Herbicides. J. Ferguson*[1], R. G. Chechetto[2], A. J. Hewitt[3], B. S. Chauhan[4], S. W. Adkins[1], G. R. Kruger[5], C. C. O'Donnell[1]; [1]University of Queensland, Gatton, Australia, [2]University of Queensland and UNESP - Botucatu, Gatton, Australia, [3]University of Queensland and University of Nebraska-Lincoln, Gatton, Australia, [4]The University of Queensland, Toowoomba, Australia, [5]University of Nebraska-Lincoln, North Platte, NE (57)

†Control of Glyphosate-resistant Giant Ragweed (*Ambrosia trifida* L.) in 2,4-D choline plus Glyphosate-resistant (Enlist™) Soybean. P. S. Chahal*[1], K. Rosenbaum[2], A. Jhala[1]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]DowAgrosciences, Crete, NE (58)

†Cotton Varietal Response to Glufosinate Tank Mix Combinations. M. T. Plumblee*[1], D. M. Dodds[2], B.

Blanche[3], C. A. Samples[1], D. Denton[2], L. X. Franca[1]; [1]Mississippi State University, Starkville, MS, [2]Mississippi State University, Mississippi State, MS, [3]Dow AgroSciences, Tensas Parrish, LA (59)

†Palmer amaranth Control Programs in Enlist Cotton. L. X. Franca*[1], D. M. Dodds[2], L. C. Walton[3], M. T. Plumblee[1], C. A. Samples[1], D. Denton[2]; [1]Mississippi State University, Starkville, MS, [2]Mississippi State University, Mississippi State, MS, [3]Dow AgroSciences, Tupelo, MS (60)

†Weed Management in Dicamba-Resistant Soybean. D. Sarangi*[1], M. S. Malik[2], A. Jhala[1]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]Monsanto Company, St. Louis, MO (61)

†Effect of Temperature on Efficacy of 2,4-D and Glyphosate for Control of Common Ragweed. Z. A. Ganie*[1], M. Jugulam[2], A. Jhala[1]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]Kansas State University, Manhattan, KS (62)

†Effect of Spray Water pH, Foliar Fertilizers, and Ammonium Sulfate on Efficacy of a 2,4-D plus Glyphosate Formulation. P. Devkota*, W. G. Johnson; Purdue University, West Lafayette, IN (63)

†Optimizing Rate and Interval Between Sequential Applications of Glufosinate in LibertyLink Soybean. C. J. Meyer*, J. K. Norsworthy, J. K. Green, S. M. Martin; University of Arkansas, Fayetteville, AR (64)

†Glyphosate Resistant Giant Ragweed (*Ambrosia trifida*): Phenotypic Variation, Genotypic Diversity, and Resistance Mechanisms. J. C. Walker*[1], T. Tseng[2], D. B. Reynolds[2], D. R. Shaw[1]; [1]Mississippi State University, Mississippi State, MS, [2]Mississippi State University, Starkville, MS (65)

†RNA-Seq Transcriptome Analysis for Glufosinate Tolerance in Palmer Amaranth. R. A. Salas*[1], N. R. Burgos[1], A. Lawton-Rauh[2], R. Noorai[2], C. Saski[2]; [1]University of Arkansas, Fayetteville, AR, [2]Clemson University, Clemson, SC (66)

†Using Transcriptomics to Investigate Glyphosate Resistance and the Rapid Necrosis Response in Giant Ragweed. C. R. Van Horn*, P. Westra; Colorado State University, Fort Collins, CO (67)

†Environmental Fate of Rinskor™ Active: Field Dissipation and Replant Interval for Soybean. M. R.

Miller*[1], J. K. Norsworthy[1], M. R. Weimer[2], R. Huang[2], Z. Lancaster[1], S. Martin[1]; [1]University of Arkansas, Fayetteville, AR, [2]Dow AgroSciences, Indianapolis, IN (68)

†Herbicide and Nitrogen Applications Impact Nitrous Oxide Emissions. A. M. Knight*, W. J. Everman, S. C. Reberg-Horton, S. Hu, D. L. Jordan, N. Creamer; North Carolina State University, Raleigh, NC (69)

†Evaluating the Physiological Basis of 2,4-D Tolerance in Hybrid Watermilfoil (*Myriophyllum spicatum* X *sibiricum*). K. C. Kessler*[1], S. J. Nissen[1], R. A. Thum[2], T. A. Gaines[1]; [1]Colorado State University, Fort Collins, CO, [2]Montana State University, Bozeman, MT (70)

†Comparative Flux Analysis of Nitrogen Metabolism in Glyphosate Resistant and Susceptible *Amaranthus palmeri* Biotypes. A. S. Maroli*[1], N. Tharayil[1], V. K. Nandula[2]; [1]Clemson University, Clemson, SC, [2]USDA-ARS, Stoneville, MS (71)

†Pollen-mediated Resistance Transfer from HPPD-resistant Waterhemp to Palmer amaranth in Nebraska. M. C. Oliveira*[1], T. A. Gaines[2], A. Jhala[1], S. Z. Knezevic[3]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]Colorado State University, Fort Collins, CO, [3]University of Nebraska-Lincoln, Concord, NE (72)

†Population Genomics of Glyphosate-resistant Palmer amaranth (*Amaranthus palmeri*) Using Genotyping-by-sequencing (GBS). A. Kuepper*[1], W. McCloskey[2], H. Manmathan[1], E. L. Patterson[1], S. J. Nissen[1], S. Haley[1], T. A. Gaines[1]; [1]Colorado State University, Fort Collins, CO, [2]University of Arizona, Tucson, AZ (73)

†Target-Site Resistance to ALS-Inhibitors in Weedy Sorghum Species. R. Werle*, K. Begcy, M. K. Yerka, J. L. Lindquist; University of Nebraska-Lincoln, Lincoln, NE (74)

†Influence of Soil Type and Growing Environment on the Selectivity Index in Herbicide Resistance Studies. C. W. Coburn*, A. R. Kniss; University of Wyoming, Laramie, WY (75)

†Combining Cover Crops and Fall Applied Herbicides for Italian Ryegrass Control. G. Montgomery*[1], L. Steckel[1], J. A. Bond[2], H. M. Edwards[2]; [1]University of Tennessee, Jackson, TN, [2]Mississippi State University, Stoneville, MS (76)

†Control of Palmer amaranth with Residual Herbicides plus Cover Crops in Soybean. D. J. Spaunhorst*,

W. G. Johnson; Purdue University, West Lafayette, IN (77)

†Modeling Growth of*Echinochloa phyllopogon* (late watergrass) in California Rice. W. B. Brim-DeForest*, A. Fischer, K. Al-Khatib; University of California, Davis, Davis, CA (78)

†Characterization and Biology of a New Arkansas Rice Weed: Schoenoplectus spp. C. E. Rouse*[1], N. Burgos[1], Z. T. Hill[2]; [1]University of Arkansas, Fayetteville, AR, [2]University of Arkansas-Monticello, Monticello, AR (79)

†Determining Seed Retention of Key Annual Weeds at Wheat Harvest, and the Potential for Harvest Weed Seed Control. N. Soni*, T. A. Gaines; Colorado State University, Fort Collins, CO (80)

†Optical Properties of Common Lambsquarters, Redroot Pigweed and Tomato Leaves. L. Ma*, M. K. Upadhyaya; University of British Columbia, Vancouver, BC (81)

†Role of Shade Avoidance in Critical Period of Weed Control in *Beta vulgaris*. A. T. Adjesiwor*, T. J. Schambow, A. R. Kniss; University of Wyoming, Laramie, WY (82)

†Stakeholder Perspectives on Weed Management Issues in Texas Rice. R. Liu*[1], J. Samford[2], V. Singh[2], X. Zhou[3], M. V. Bagavathiannan[1]; [1]Texas A&M University, College Station, TX, [2]Texas A&M Universtiy, College Station, TX, [3]Texas A&M University, Beaumont, TX (83)

†Sorgoleone Phytotoxicity on Different Weed and Crop Species. M. K. Bansal*; North Carolina State University, Raleigh, NC (84)

TUESDAY MORNING FEBRUARY 9
Section 1. Agronomic Crops

***PRESENTER**

Trends in Herbicide Diversity in United States Crop Production, 1991 to 2014. A. R. Kniss*; University of Wyoming, Laramie, WY (85)

Trends in Farming Practices and Changes in Weed Flora on Arable Land: A Farm Survey in Czech Republic. J. Soukup*, K. Hamouzova, M. Jursik; Czech

University of Life Sciences Prague, Prague, Czech Republic (86)

Herbicide Weed Resistance in Mexico. An Update. R. Alcantara-de la Cruz[1], P. T. Fernandez*[1], H. E. Cruz-Hipolito[2], I. Travlos[3], J. A. Dominguez-Valenzuela[4], D. Rafael[1]; [1]University of Cordoba, Cordoba, Spain, [2]Bayer CropScience, Mexico City, Mexico, [3]Agricultural University of Athens, Athens, Greece, [4]Chapingo Autonomous University, Texcoco, Mexico (87)

Adzuki Bean Sensitivity to Preemergence Herbicides. N. Soltani*[1], R. E. Nurse[2], C. Shropshire[1], P. H. Sikkema[1]; [1]University of Guelph, Ridgetown, ON, [2]Agriculture Canada, Harrow, ON (88)

Efficacy of Acuron and Armezon Flex in Corn. A. W. Ross*[1], T. Barber[1], R. C. Doherty[2], L. M. Collie[1], Z. T. Hill[3]; [1]University of Arkansas, Little Rock, AR, [2]University of Arkansas-Monticello, Lonoke, AR, [3]University of Arkansas-Monticello, Monticello, AR (89)

Alfalfa Seed Development Impaired by Auxin Disrupter Herbicides. R. A. Boydston*[1], S. Kesoju[2], S. Greene[3]; [1]USDA-Agricultural Research Service, Prosser, WA, [2]Washington State University, Prosser, WA, [3]USDA-Agricultural Research Service, Fort Collins, CO (90)

Response of White Clover to Auxinic Herbicides. W. Vencill*, A. Missaoi; University of Georgia, Athens, GA (91)

Efficacy and Tolerance to Herbicide Programs in Corn. R. W. Peterson*[1], D. L. Teeter[1], P. Baumann[2], M. Matocha[2], T. A. Baughman[1]; [1]Oklahoma State University, Ardmore, OK, [2]Texas A&M AgriLife Extension, College Station, TX (92)

Performance Review: Impact(R) Programs for Weed Management in Corn in the Southern US. N. M. French*; AMVAC Chemical Co., LIttle Rock, AR (93)

Examining the Plant-back Interval for Glyphosate- and Glufosinate-Resistant Corn after Group 1 Herbicide Application. N. Soltani*[1], K. J. Mahoney[2], C. Shropshire[1], P. H. Sikkema[1]; [1]University of Guelph, Ridgetown, ON, [2]University of Guelph Ridgetown Campus, Ridgetown, ON (94)

Pre-and Postemergence Herbicide Combinations in Bollgard II(R) XtendFlex(TM) Cotton. C. J. Webb*[1], W. Keeling[2], J. D. Everitt[3]; [1]Texas A&M Research, Lubbock,

TX, [2]Texas A&M, Lubbock, TX, [3]Monsanto Company, Shallowater, TX (95)

Determining the Most Effective and Economical PRE Herbicides for GLB2 Cotton. T. B. Buck*[1], A. C. York[1], A. S. Culpepper[2], L. E. Steckel[3]; [1]North Carolina State University, Raleigh, NC, [2]University of Georgia, Tifton, GA, [3]University of Tennessee, Jackson, TN (96)

Evaluation of Weed Control using Engenia in Xtend Cotton. L. M. Collie*[1], L. T. Barber[2], R. C. Doherty[3], Z. T. Hill[4], A. W. Ross[1]; [1]University of Arkansas, Little Rock, AR, [2]University of Arkansas, Fayetteville, AR, [3]University of Arkansas, Monticello, AR, [4]University of Arkansas-Monticello, Monticello, AR (97)

Using Leaf Hyperspectral Data to Distinguish Two Pigweeds from Cotton with Different Leaf Colors. R. S. Fletcher*[1], K. N. Reddy[2]; [1]USDA, Stoneville, MS, [2]USDA-ARS, Stoneville, MS (98)

Peanut Response to Postemergence Herbicides in Presence and Absence of Thrips Injury. M. D. Inman*, D. L. Jordan; North Carolina State University, Raleigh, NC (99)

Evaluation of Application Intervals of Postemergence Graminicides for Common Bermudagrass Control in Peanut. M. W. Durham*[1], J. A. Ferrell[1], J. Taylor[2], P. Munoz[1]; [1]University of Florida, Gainesville, FL, [2]Syngenta, North Palm Beach, FL (100)

Herbicide Injury and Weed Control in Rice. X. Zhou*[1], J. Samford[2], J. Vawter[2]; [1]Texas A&M AgriLife Research, Beaumont, TX, [2]Texas A&M AgriLife Research, Eagle Lake, TX (101)

Management of Common Weeds Found in Louisiana Rice Production with Benzobicyclon. B. M. McKnight*, E. P. Webster, E. A. Bergeron, S. Y. Rustom Jr; Louisiana State University, Baton Rouge, LA (102)

Evaluation of Rice Tolerance to Pethoxamid Applied Alone and in Combination with other Rice Herbicides. J. A. Godwin Jr.*, J. K. Norsworthy, M. Palhano, R. R. Hale, P. Tehranchian, J. S. Rose; University of Arkansas, Fayetteville, AR (103)

Weed Control Attributes and Tolerance of Rinskor Active in MidSouth Rice. D. H. Perry[1], D. T. Ellis*[1], J. M. Ellis[2], L. C. Walton[3], M. R. Weimer[4]; [1]Dow AgroSciences, Greenville, MS, [2]Dow AgroSciences, Ster-

lington, LA, [3]Dow AgroSciences, Tupelo, MS, [4]Dow AgroSciences, Indianapolis, IN (104)

Grass Control with Mixtures of Quizalofop and Broadleaf Herbicides in Provisia™Rice. H. T. Hydrick*, B. Lawrence, H. M. Edwards, T. L. Phillips, J. A. Bond, J. D. Peeples; Mississippi State University, Stoneville, MS (105)

Evaluating Rate and Timing Effects of Facet L Applications on Grass Species in the Greenhouse. L. Vincent, W. J. Everman, J. Copeland*; North Carolina State University, Raleigh, NC (106)

Screening of ALS-resistance in *Echinochloa* spp. from Rice Fields in Portugal. D. Oliveira[1], T. Marina[1], A. Monteiro[1], I. M. Calha[2], D. Rafael*[3]; [1]University of Lisbon, Lisbon, Portugal, [2]National Institute of Biological Resources (INIAV I.P.), Lisbon, Portugal, [3]University of Cordoba, Cordoba, Spain (107)

Management of Weedy Rice Utilizing Crop Rotation. S. Y. Rustom Jr*, E. P. Webster, E. A. Bergeron, B. M. McKnight; Louisiana State University, Baton Rouge, LA (108)

Sesame Response to POST Timing Applications. W. Grichar*[1], P. A. Dotray[2], J. Rose[3], D. Langham[4], T. Baughman[5]; [1]Texas AgriLife Research, Yoakum, TX, [2]Texas Tech University, Lubbock, TX, [3]Sesaco Corp, Austin, TX, [4]Sesame Research LLC, San Antonio, TX, [5]Oklahoma State University, Ardmore, OK (109)

Weed Control Programs in Arkansas Grain Sorghum. M. T. Bararpour*, J. K. Norsworthy, Z. Lancaster, G. T. Jones; University of Arkansas, Fayetteville, AR (110)

Broadleaf Weeds Management in Grain Sorghum as Affected by Agronomic Practices and Herbicide Program. T. E. Besancon*, W. J. Everman, R. W. Heiniger; North Carolina State University, Raleigh, NC (111)

Identification of HPPD-Tolerant Sorghum Genotypes from A Diversity Panel. A. Varanasi, C. R. Thompson, P. Prasad, M. Jugulam*; Kansas State University, Manhattan, KS (112)

Soybean Yield Comparison in Liberty Link Systems versus Roundup Ready Systems. N. D. Pearrow*[1], W. J. Ross[2], R. C. Scott[3]; [1]University of Arkansas, Newport, AR, [2]University of Arkansas, Lonoke, AR, [3]University of Arkansas, Fayetteville, AR (113)

Management of Glyphosate-Resistant Palmer Amaranth in Liberty-Link Soybean. D. D. Joseph*, M. W. Marshall, C. H. Sanders; Clemson University, Blackville, SC (114)

Comparing Non-GMO Herbicide Programs to Glyphosate-based Ones in Corn and Soybean. D. Lingenfelter*, W. S. Curran; Pennsylvania State University, University Park, PA (115)

Roundup Ready Xtend Soybean Technology in Oklahoma. T. A. Baughman*, D. L. Teeter, R. W. Peterson; Oklahoma State University, Ardmore, OK (116)

Four years of Balance™GT Soybeans in Kentucky. S. K. Lawson*; University of Kentucky, Lexington, KY (117)

Isoxaflutole-Based Herbicide Programs in HPPD-Tolerant Soybean. M. W. Marshall, C. H. Sanders*; Clemson University, Blackville, SC (118)

Grower Perception of Fierce XLT Herbicide: Collaboration between ASA and Valent USA. D. Refsell*[1], J. Pawlak[2], F. Carey[3], K. R. Caffrey[4], E. Ott[5], R. Estes[6], J. Cranmer[7]; [1]Valent USA, Lathrop, MO, [2]Valent USA, Lansing, MI, [3]Valent USA, Olive Branch, MS, [4]BASF Corporation, Ridgeland, MS, [5]Valent USA, Greenfield, IN, [6]Valent USA, Champaign, IL, [7]Valent USA, Morrisville, NC (119)

Effect of Late-Season Diphenyl Ether Herbicide Application on Soybean. M. L. Flessner*; Virginia Tech, Blacksburg, VA (120)

Effect of Rice Herbicides on Soybean with BOLT™Technology. H. M. Edwards*, J. D. Peeples, B. Lawrence, H. T. Hydrick, T. L. Phillips, J. A. Bond; Mississippi State University, Stoneville, MS (121)

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Herbicide Resistance In-Season Quick Assay for Italian Ryegrass and Annual Bluegrass. J. C. Argenta[1], R. A. Salas*[1], N. R. Burgos[1], J. T. Brosnan[2]; [1]University of Arkansas, Fayetteville, AR, [2]University of Tennessee-Knoxville, Knoxville, TN (217)

Multiple Herbicide Resistance in Kansas . P. W. Stahlman*, J. Jester; Kansas State University, Hays, KS (218)

An Update on Mississippi State-wide Herbicide Resistance Screening in Pigweed (*Amaranthus*) Populations. V. K. Nandula*; USDA-ARS, Stoneville, MS (219)

Molecular Screening for Resistance to PPO Inhibitors in Palmer amaranth (*Amaranthus palmeri*). P. J. Tranel*[1], J. Song[1], C. Riggins[1], N. Burgos[2], J. Martin[3], L. Steckel[4]; [1]University of Illinois, Urbana, IL, [2]University of Arkansas, Fayetteville, AR, [3]University of Kentucky, Lexington, KY, [4]University of Tennessee, Jackson, TN (220)

Geographic Distribution of EPSPS Copy Number Variation in Palmer amaranth (*Amaranthus palmeri)*. J. Hart*[1], E. Mutegi[1], M. Loux[1], M. Reagon[2]; [1]Ohio State University, Columbus, OH, [2]Ohio State University, Lima, Lima, OH (221)

Increased HPPD Gene and Protein Expression Contribute Significantly to Mesotrione Resistance in Palmer Amaranth (*Amaranthus palmeri*). S. Betha, C. R. Thompson, D. E. Peterson, M. Jugulam*; Kansas State University, Manhattan, KS (222)

To What Extent Does Repeated Use of Dicamba Select for Resistance in *Palmer amaranth*? P. Tehranchian*[1], J. K. Norsworthy[1], S. Powles[2]; [1]University of Arkansas, Fayetteville, AR, [2]University of Western Australia, Perth, Australia (223)

Interactions of Auxinic Compounds on Ca^{2+} Signaling and Root Growth in *Arabidopsis thaliana*. N. D. Teaster[1], J. A. Sparks[2], E. Blancaflor[2], R. E. Hoagland*[3]; [1]USDA-ARS, Stuttgart, AR, [2]Samuel Roberts Noble

Foundation, Inc., Ardmore, OK, [3]USDA-ARS, CPSRU, Stoneville, MS (224)

Using RNA-Seq to Explore Dicamba Resistance Mechanisms in Kochia scoparia. D. J. Pettinga*, E. L. Patterson, P. Westra, T. A. Gaines; Colorado State University, Fort Collins, CO (225)

***Bidens pilosa* L., Characterization of the First Case of Glyphosate Resistance of This Species.** R. Alcantara-de la Cruz[1], P. T. Fernandez*[1], H. E. Cruz-Hipolito[2], J. A. Dominguez-Valenzuela[3], D. Rafael[1]; [1]University of Cordoba, Cordoba, Spain, [2]Bayer CropScience, Mexico City, Mexico, [3]Chapingo Autonomous University, Texcoco, Mexico (226)

Characterization Molecular of Genus *Chloris* in Cuba Treated and Non Treated with Glyphosate. R. Alcantara-de la Cruz[1], P. T. Fernandez*[1], H. E. Cruz-Hipolito[2], M. D. Osuna[3], I. Travlos[4], D. Rafael[1]; [1]University of Cordoba, Cordoba, Spain, [2]Bayer CropScience, Mexico City, Mexico, [3]Finca La Orden-Valdesequera Research Centre, Badajoz, Spain, [4]Agricultural University of Athens, Athens, Greece (227)

Transgene and Glyphosate Effects onSeed Chemical Composition in Glyphosate-resistant Soybean Isolines Grown on Glyphosate Legacy and No Legacy Soils. K. N. Reddy*[1], N. Bellaloui[1], S. O. Duke[1], J. Maul[2], M. Williams[3]; [1]USDA-ARS, Stoneville, MS, [2]USDA-ARS, Beltsville, MD, [3]USDA-ARS, Urbana, IL (228)

Water Potential and Salinity Effects on Germination of Glyphosate-susceptible and -resistant Junglerice (Echinochloa colona) Seeds. L. Larocca de Souza[1], L. M. Sosnoskie[2], S. Morran[2], B. D. Hanson[2], A. Shrestha*[1]; [1]California State University, Fresno, CA, [2]University of California, Davis, Davis, CA (229)

Target-site Resistance to ACCase Inhibitors in a Biotype of *Echinochloa* spp from Rice Fields in Spain. M. D. Osuna[1], Y. Romano[1], I. Amaro[1], F. Mendoza[1], J. A. Palmerin[1], R. Alcantara-de la Cruz[2], D. Rafael*[2]; [1]Finca La Orden-Valdesequera Research Centre, Badajoz, Spain, [2]University of Cordoba, Cordoba, Spain (230)

Effect of Shade and Soil Moisture Levels on the Efficacy of Postemergence Herbicides on Junglerice (*Echinochola colona*). R. Cox, A. Shrestha*; California State University, Fresno, CA (231)

Investigating the Effect of High Temperature and its Duration on Seed Mortality of *Phalaris minor*. J. Gherekhloo[1], M. Khadempir[1], A. Nehbandani[1], D. Rafael*[2]; [1]Gorgan University of Agricultural Sciences and Natural Resources, Gorgan, Iran, [2]University of Cordoba, Cordoba, Spain (232)

Physiological and Molecular Characterization of Resistance to Glyphosate in Johnsongrass from Louisiana. S. E. Abugho*[1], R. A. Salas[1], Y. Mohammed[1], H. Guo[2], N. R. Burgos[1], D. O. Stephenson IV[3]; [1]University of Arkansas, Fayetteville, AR, [2]Rutgers University, Rutgers, NJ, [3]LSU AgCenter, Alexandria, LA (233)

Section 12. Soil and Environmental Aspects

***PRESENTER**

Degradation of Mesotrione in Brazilian Soils with Contrasting Texture. K. F. Mendes*[1], S. A. Collegari[1], R. F. Pimpinato[1], V. L. Tornisielo[1], K. Spokas[2]; [1]University of São Paulo, Piracicaba, Brazil, [2]University of Minnesota, St. Paul, MN (234)

Mineralization of ^{14}C-Diuron in Commercial Mixture with Hexazinone and Sulfometuron-methyl. F. C. Reis*[1], V. L. Tornisielo[2], K. F. Mendes[3], R. F. Pompinato[4], B. A. Martins[4], R. Victória Filho[1]; [1]Luiz de Queiroz College of Agriculture, Piracicaba, Brazil, [2]University of São Paulo, Piracicaba, Brazil, [3]Center of Nuclear Energy in Agriculture - University of SÃ£o Paulo, Piracicaba, Brazil, [4]Center of Nuclear Energy in Agriculture (CENA), Piracicaba, Brazil (235)

Section 13. Integrated Weed Management

***PRESENTER**

OpenCV Software Interactive Training for Weed Image Recognition in Residential and Agricultural Settings. C. Lowell*[1], A. Erdman[2], J. Jackson[2]; [1]Central State University, Wilberforce, OH, [2]Global Neighbor, Inc., Centerville, OH (236)

Manual for Propane-fueled Flame Weeding in Corn, Soybean & Sunflower. A. Datta[1], C. Bruening[2], G. Gogos[2], S. Z. Knezevic*[3]; [1]Asian Institute of Technology, Bangkok, Thailand, [2]University of Nebraska-Lincoln, Lincoln, NE, [3]University of Nebraska-Lincoln, Concord, NE (237)

A New Hoe Blade for Inter-Row Weeding. O. Green[1], L. Znova[1], B. Melander*[2]; [1]Agro Intelligence, Aarhus, Denmark, [2]Aarhus University, Research Center Flakkebjerg, Slagelse, Denmark (238)

Interactive Effects of Hand Weeding, Tine and Sweep Cultivation for Weed Control in Organic Peanut Production. R. S. Tubbs*[1], D. Q. Wann[2]; [1]University of Georgia, Tifton, GA, [2]Algrano Peanuts, Brownfield, TX (239)

Implementing Non-herbicidal Strategies for Weed Management in Cranberry. H. Sandler*, K. M. Ghantous; UMass Cranberry Station, East Wareham, MA (240)

Integrated Weed Management for Snap Bean Production. M. VanGessel*, B. Scott, Q. Johnson; University of Delaware, Georgetown, DE (241)

The Importance of Weed Control in the Development of Integrated Disease Management Strategies. J. E. Woodward*; Texas A&M AgriLIfe Extension Service & Texas Tech University, Lubbock, TX (242)

Influence of Photosynthetically Active Radiation Interception by Wheat Varieties on Weed Suppression. M. E. Cena[1], M. V. Buratovich[2], H. A. Acciaresi*[3]; [1]Comision Investigaciones Cientificas (CIC), Pergamino, Argentina, [2]UNNOBA-ECANA, Pergamino, Argentina, [3]Instituto Nacional Tecnologia Agropecuaria, Pergamino, Argentina (243)

Cover Crop Management Strategies for Improving Winter Annual Weed Suppression in Mid-Atlantic No-till Cropping Systems. J. M. Wallace*[1], W. S. Curran[2], D. A. Mortensen[2], M. VanGessel[3]; [1]Pennsylvania State University, State College, PA, [2]Pennsylvania State University, University Park, PA, [3]University of Delaware, Georgetown, DE (244)

Nutrient Management Impact on Weeds in Organic Field Corn in the Mid-Atlantic Region. V. J. Ackroyd*[1], S. B. Mirsky[1], J. T. Spargo[2], M. A. Cavigelli[1]; [1]USDA-ARS, Beltsville, MD, [2]Pennsylvania State University, University Park, PA (245)

Does Poultry Litter Influence Weed Dynamics in Corn and Soybeans? E. Haramoto*[1], E. Ritchey[2], J. Gray[2]; [1]University of Kentucky, Lexington, KY, [2]University of Kentucky Research and Education Center, Princeton, KY (246)

Cover Crop Species Response to Herbicide Dose. B. S. Heaton*, M. L. Bernards; Western Illinois University, Macomb, IL (247)

Directed Energy Common Ragweed Control. F. Hayes*[1], C. Lowell[1], J. Jackson[2]; [1]Central State University, Wilberforce, OH, [2]Global Neighbor, Inc., Centerville, OH (248)

Vertical Distribution of Nutsedge (*Cyperus* spp. L.) and Bahiagrass (*Paspalumnotatum* L.) Seed Bank in Rice Growth Cycle. M. Yaghubi[1], H. Pirdashti[1], M. Mohseni-Moghadam*[2], R. Roham[3]; [1]Sari Agricultural Sciences and Natural Resources University, Sari, Iran, [2]Ohio State University, Wooster, OH, [3]Lorestan University, Khorram Abad, Iran (249)

Quails Contribution to Weed Seed Bank. J. M. Urbano*[1], F. Forcella[2], P. Gonzalez-Redondo[1]; [1]Universidad de Sevilla, Sevilla, Spain, [2]USDA ARS, Morris, MN (250)

Impacts of Reduced Tillage on Weed Populations in the Pacific Northwest. C. A. Benedict*; Washington State University, Bellingham, WA (251)

Cross- and Multiple-resistance in Barnyardgrass (Echinochloa crus-galli) Populations from Rice Fields in Brazil. B. A. Martins*[1], J. A. Noldin[2], D. Karam[3], C. Mallory-Smith[4]; [1]Center of Nuclear Energy in Agriculture (CENA), Piracicaba, Brazil, [2]Santa Catarina State Agricultural Research and Rural Extension Agency, Itajai, Brazil, [3]Brazilian Agricultural Research Corporation (EMBRAPA), Sete Lagoas, Brazil, [4]Oregon State University, Corvallis, OR (252)

TUESDAY MORNING FEBRUARY 9
SWSS MS Oral Contest

LOCATION:	Bahia 1 & 2
TIME:	9:00 AM - 2:00 PM
CHAIR:	Matthew Goddard Monsanto Company Sherwood, AR
MODERATOR:	Charlie Cahoon Virginia Tech University Painter, VA

***SPEAKER† STUDENT CONTEST**

9:00 †Comparative Growth of Henbit (*Lamium amplexicaule*) Based on Emergence Date. B. C. Woolam*, D. O. Stephenson IV, S. L. Racca; LSU AgCenter, Alexandria, LA (253)

9:15 †Chinese Tallowtree (*Triadica sebifera* (L.) Small) Seed Biology: An Evaluation of Seed-fill, Germination and Seed Bank Longevity. H. VanHeuveln*; University of Florida, Gainesville, FL (254)

9:30 †Biology and Seed Production of*Mimosa pigra*L.on the east of Puerto Rico. J. D. Arocho*[1], W. Robles[2], M. Lugo Torres[1], R. Couto[1]; [1]University of Puerto Rico, Mayaguez, Mayaguez, PR, [2]University of Puerto Rico, Mayaguez, Dorado, PR (255)

9:45 †Distribution of Herbicide Resistance in Palmer amaranth and Waterhemp in Texas. R. A. Garetson*[1], P. A. Dotray[2], J. A. McGinty[3], P. Baumann[4], G. D. Morgan[1], W. Grichar[5], R. M. Merchant[2], M. V. Bagavathiannan[1]; [1]Texas A&M University, College Station, TX, [2]Texas Tech University, Lubbock, TX, [3]Texas A&M AgriLife Extension, Corpus Christi, TX, [4]Texas A&M AgriLife Extension, College Station, TX, [5]Texas AgriLife Research, Yoakum, TX (256)

10:00 †Rescue Treatments for Palmer amaranth Control. D. Denton*[1], D. M. Dodds[1], C. A. Samples[2], M. T. Plumblee[2], L. X. Franca[1], A. L. Catchot[1], T. Irby[2], J. A. Bond[3], D. B. Reynolds[2]; [1]Mississippi State University, Mississippi State, MS, [2]Mississippi State University, Starkville, MS, [3]Mississippi State University, Stoneville, MS (257)

10:15 Break

10:30 †Characterization of Gene Flow from S. halepense to S. bicolor under Field Conditions. M. N. Carlson*, W. Rooney, G. Hodnett, M. V. Bagavathiannan; Texas A&M University, College Station, TX (258)

10:45 †Can Plant Growth Regulators Improve Rice Tolerance to Pre-flood Herbicides?. T. M. Penka*[1], C. E. Rouse[2], N. R. Burgos[2], J. Hardke[3], R. C. Scott[2]; [1]University of Arkansas, Amarillo, AR, [2]University of Arkansas, Fayetteville, AR, [3]University of Arkansas, Stuttgart, AR (259)

11:00 †Does Sharpen Addition to Rice Herbicides Lessen Barnyardgrass Control? R. R. Hale*, J. K. Norsworthy, L. T. Barber, Z. Lancaster, M. L. Young, N. R. Steppig; University of Arkansas, Fayetteville, AR (260)

11:15 †Influence of Insecticide Seed Treatments on Rice Tolerance to Low Rates of Glyphosate and Imazethapyr. S. M. Martin*[1], J. K. Norsworthy[1], R. C. Scott[1], G. M. Lorenz[2], J. Hardke[3], Z. Lancaster[1]; [1]University of Arkansas, Fayetteville, AR, [2]University of Arkansas, Lonoke, AR, [3]University of Arkansas, Stuttgart, AR (261)

11:30 †Weedy Rice Control with Benzobicyclon in Rice: Is this Possible? M. L. Young*[1], J. K. Norsworthy[1], C. A. Sandoski[2], M. Palhano[1], S. Martin[1]; [1]University of Arkansas, Fayetteville, AR, [2]Gowan, Collierville, TN (262)

11:45 †Efficacy of PrePare for Rescuegrass (*Bromus catharticus*) Control in Winter Wheat. L. Roberts*[1], A. R. Post[1], G. Strickland[2], C. Effertz[3]; [1]Oklahoma State University, Stillwater, OK, [2]Oklahoma State University, Altus, OK, [3]Arysta LifeScience, Velva, ND (263)

12:00 Lunch

1:00 †S-metolachlor Interactions with Sesame Establishment. B. P. Sperry*[1], J. A. Ferrell[1], R. Leon[2], M. J. Mulvaney[3], D. L. Rowland[1]; [1]University of Florida, Gainesville, FL, [2]University of Florida, Jay, FL, [3]University of Florida, Jay, FL, FL (264)

1:15 †Genetic Diversity, Population Structure and Marker-herbicide Tolerance Trait Association of a Diverse Tomato Germplasm. G. Sharma*, T. Tseng; Mississippi State University, Starkville, MS (265)

1:30 †Sweetpotato (*Ipomoea batatas*) Tolerance to Linuron POST. S. C. Beam*, K. M. Jennings, D. W. Monks, J. R. Schultheis, S. J. McGowen, N. T. Basinger, M. B. Bertucci; North Carolina State University, Raleigh, NC (266)

1:45 †Impact of Reduced Rates of Hormonal Herbicides on Sweetpotato (*Ipomoea batatas*Lam.) Growth and Development. T. M. Batts*[1], D. K. Miller[1], T. P. Smith[2], A. Villordon[2], J. L. Griffin[3],

D. O. Stephenson IV[4]; [1]LSU AgCenter, St Joseph, LA, [2]LSU AgCenter, Chase, LA, [3]LSU AgCenter, Baton Rouge, LA, [4]LSU AgCenter, Alexandria, LA (267)

TUESDAY MORNING FEBRUARY 9
SWSS MS Oral Contest

LOCATION: Laguna 1 & 2
TIME: 9:00 AM - 2:00 PM
CHAIR: Matthew Goddard
Monsanto Company
Sherwood, AR
MODERATOR: Neha Rana
Monsanto Company
Chesterfield, MO

***SPEAKER† STUDENT CONTEST**

9:00 †Weed Control in Inzen Grain Sorghum. N. R. Steppig*, J. K. Norsworthy, M. Bararpour, J. K. Green, C. J. Meyer; University of Arkansas, Fayetteville, AR (268)

9:15 †Postemergence Control of Large Crabgrass (*Digitaria sanguinalis*) with Non-synthetic Herbicides. M. E. Babb-Hartman*[1], C. Waltz[1], G. Henry[2]; [1]University of Georgia, Griffin, GA, [2]University of Georgia, Athens, GA (269)

9:30 †Sandbur (*Cenchrus echinatus*) Head Deformation Using Postemergence Herbicides. E. Jenkins*, A. R. Post, J. Q. Moss; Oklahoma State University, Stillwater, OK (270)

9:45 †Increasing Winter Survivability of Winter Canola with Plant Growth Regulators. K. McCauley*, J. Matz, A. R. Post; Oklahoma State University, Stillwater, OK (271)

10:00 †Determining Nozzle Type Effects on Peanut Weed Control Systems. O. W. Carter*, E. P. Prostko; University of Georgia, Tifton, GA (272)

10:15 Break

10:30 †Cogongrass Management Using Chemical Control and Cover Cropping Systems. M. L. Zaccaro*, J. D. Byrd, Jr.; Mississippi State University, Mississippi State, MS (273)

10:45 †Timing of Herbicide Application for Cover Crop Termination of Sunn Hemp (*Crotalaria juncea*)and Sorghum. B. Farrow, C. Hofegartner, V. R. Bodnar*, J. Warren, A. R. Post; Oklahoma State University, Stillwater, OK (274)

11:00 †Evaluation of Chemical Termination Options for Cover Crops. M. G. Palhano*, J. K. Norsworthy, M. L. Young, R. R. Hale, J. K. Green; University of Arkansas, Fayetteville, AR (275)

11:15 †Weed Control in Soybean with Mixtures of Herbicides and Foliar Nutrition Products. H. T. Hydrick*, J. A. Bond, B. R. Golden, B. Lawrence, J. D. Peeples, H. M. Edwards, T. L. Phillips; Mississippi State University, Stoneville, MS (276)

11:30 †Evaluation of Pethoxamid in Cotton and Soybean. J. S. Rose*, L. T. Barber, J. K. Norsworthy, M. S. McCown; University of Arkansas, Fayetteville, AR (277)

11:45 †The Effect of Cotton (*Gossypium hirsutum* L.) Growth Stage on Injury and Yield When Subjected to a Sub-Lethal Concentration of 2,4-D. J. Buol*[1], D. B. Reynolds[2]; [1]Mississippi State University, Mississippi State, MS, [2]Mississippi State University, Starkville, MS (278)

12:00 Lunch

1:00 †Injury Criteria Associated With Soybean Exposure to Dicamba and Potential for Yield Loss Prediction. M. R. Foster*[1], J. L. Griffin[2]; [1]Louisiana State University, Baton Rouge, LA, [2]LSU AgCenter, Baton Rouge, LA (279)

1:15 †Soybean Response to Off-target Movement of DGA and BAPMA Dicamba. G. T. Jones*, J. K. Norsworthy, L. T. Barber, M. S. McCown; University of Arkansas, Fayetteville, AR (280)

1:30 †Sub-lethal Dicamba Dose Impact on Group V Soybean Growth and Yield. A. M. Growe*[1], M. K. Bansal[1], T. E. Besancon[1], D. Copeland[2], J. T. Sanders[1], B. W. Schrage[1], L. Vincent[1], W. J. Everman[1]; [1]North Carolina State University, Raleigh, NC, [2]North Carolina State University, Cary, NC (281)

1:45 †Does Pod Location on Soybean Influence the Degree of Dicamba-like Symptoms Observed on Progeny? M. S. McCown*[1], L. T. Barber[1], J.

K. Norsworthy[1], M. G. Palhano[1], R. R. Hale[1], Z. Lancaster[1], R. C. Doherty[2]; [1]University of Arkansas, Fayetteville, AR, [2]University of Arkansas, Monticello, AR (282)

TUESDAY AFTERNOON FEBRUARY 9
SWSS PhD Oral Contest

LOCATION: Bahia 1 & 2
TIME: 2:00 PM - 5:45 PM
CHAIR: Matthew Goddard
Monsanto Company
Sherwood, AR
MODERATOR: Kelly Backscheider
DuPont Crop Protection
Shelbyville, IN

***SPEAKER† STUDENT CONTEST**

2:00 †Impact of Weed Management Systems on Nitrous Oxide Emissions. A. M. Knight*, W. J. Everman, S. C. Reberg-Horton, S. Hu, D. L. Jordan, N. Creamer; North Carolina State University, Raleigh, NC (283)

2:15 †Emergence Patterns of Waterhemp and Palmer amaranth under No-till and Tillage Conditions in Southern Illinois. L. X. Franca*[1], B. G. Young[2], J. Matthews[3], D. M. Dodds[4]; [1]Mississippi State University, Starkville, MS, [2]Purdue University, West Lafayette, IN, [3]Southern Illinois University, Carbondale, IL, [4]Mississippi State University, Mississippi State, MS (284)

2:30 †RNA-seq Analysis of Early Response of Susceptible and Resistant *Echinochloa colona* Populations to Imazamox Treatment. A. A. Wright*[1], K. C. Showmaker[2], V. K. Nandula[3], J. A. Bond[1], D. G. Peterson[2], J. D. Ray[3], D. R. Shaw[2]; [1]Mississippi State University, Stoneville, MS, [2]Mississippi State University, Mississippi State, MS, [3]USDA-ARS, Stoneville, MS (285)

2:45 †Herbicide Resistance Mechanisms of Multiple-resistant junglerice (Echinochloa colona) from Arkansas. C. E. Rouse*[1], N. Burgos[1], A. Lawton- Rauh[2], R. A. Salas[1]; [1]University of Arkansas, Fayetteville, AR, [2]Clemson University, Clemson, SC (286)

3:00 †Environmental Influences and Time of Day Effects on PPO-Inhibiting Herbicides. G. B. Montgomery*[1], L. Steckel[1], B. Lawrence[2], H. M. Edwards[2], J. A. Bond[2]; [1]University of Tennessee, Jackson, TN, [2]Mississippi State University, Stoneville, MS (287)

3:15 Break

3:30 †Confirmation and Characterization of PPO-inhibitor-resistant Palmer Amaranth Accession in Arkansas. R. A. Salas*[1], N. R. Burgos[1], P. J. Tranel[2], J. Song[2], R. C. Scott[1], R. L. Nichols[3]; [1]University of Arkansas, Fayetteville, AR, [2]University of Illinois, Urbana, IL, [3]Cotton Incorporated, Cary, NC (288)

3:45 †Evaluation of Rate and Timing of Indaziflam Herbicide in Muscadine and Bunch Grapes. N. T. Basinger*, K. M. Jennings, D. W. Monks, S. J. McGowen, S. C. Beam, M. B. Bertucci; North Carolina State University, Raleigh, NC (289)

4:00 †Emergence, Growth and Development of Black Medic in Florida Strawberry Fields. S. M. Sharpe*[1], N. Boyd[2], P. J. Dittmar[1]; [1]University of Florida, Gainesville, FL, [2]University of Florida, Wimauma, FL (290)

4:15 †Evaluation of Plastic Mulches on Fomesafen Dissipation. T. V. Reed*[1], N. Boyd[2]; [1]University of Florida, Riverview, FL, [2]University of Florida, Wimauma, FL (291)

4:30 †Evaluation of Aqautic Herbicides for Brazilian Pepper Tree (*Schinus terebinfolius*) Control. C. A. Lastinger*[1], S. F. Enloe[2]; [1]University of Florida, Lakeland, FL, [2]University of Florida, Gainesville, FL (292)

4:45 †Indaziflam and Non-Selective Herbicide Combinations for Native Warm Season Grass Safety. M. P. Richard*; Mississippi State University, Starkville, MS (293)

5:00 †An Integrated System for Toxic, Endophyte-Infected Tall Fescue Eradication. D. P. Russell*, J. D. Byrd, Jr.; Mississippi State University, Mississippi State, MS (294)

5:15 †Maximizing Winter Wheat YieldFollowing Sorghum Using Pre-plant Nitrogen. M. K.

Bansal*; North Carolina State University, Raleigh, NC (295)

5:30 †Fall Managment of Field Bindweed (*Convolvulus arvensis*) Before and After Frost. E. B. Duell*, A. R. Post; Oklahoma State University, Stillwater, OK (296)

TUESDAY AFTERNOON FEBRUARY 9
SWSS PhD Oral Contest

LOCATION: Laguna 1 & 2
TIME: 2:00 PM - 5:45 PM
CHAIR: Matthew Goddard
Monsanto Company
Sherwood, AR
MODERATOR: Michael Flessner
Virginia Tech University
Blacksburg, VA

***SPEAKER† STUDENT CONTEST**

2:00 †Greenhouse Evaluation of Spray Adjuvants and Fertilizer Additives for Grass Weed Management with Facet L. L. Vincent, W. J. Everman, J. Copeland*; North Carolina State University, Raleigh, NC (297)

2:15 †Effect of Flooding on the Germination and Growth of Prominent Rice Weeds. R. Liu*[1], V. Singh[2], X. Zhou[3], M. V. Bagavathiannan[1]; [1]Texas A&M University, College Station, TX, [2]Texas A&M Universtiy, College Station, TX, [3]Texas A&M University, Beaumont, TX (298)

2:30 †Influence of Petroleum-derived Spray Oil on Silvery-thread Moss Suppression with Fungicide and Herbicide Programs. J. R. Brewer*, D. McCall, S. Askew; Virginia Tech, Blacksburg, VA (299)

2:45 †Measuring the Impact of Annual Bluegrass on Ball Roll Trajectory from a Golf Putt. S. S. Rana*, S. Askew, J. R. Brewer; Virginia Tech, Blacksburg, VA (300)

3:00 †Alternative Uses of Ametryn in Cotton. M. T. Plumblee*[1], D. M. Dodds[2], T. Barber[3], J. A. Ferrell[4], C. A. Samples[1], D. Denton[2], L. X. Franca[1]; [1]Mississippi State University, Starkville, MS, [2]Mississippi State University, Mississippi State,

MS, [3]University of Arkansas, Little Rock, AR, [4]University of Florida, Gainesville, FL (301)

3:15 Break

3:30 †Corn Response to Low Rates of Paraquat and Fomesafen. B. H. Lawrence*[1], J. A. Bond[1], H. M. Edwards[1], J. D. Peeples[1], H. T. Hydrick[1], D. B. Reynolds[2], T. L. Phillips[1]; [1]Mississippi State University, Stoneville, MS, [2]Mississippi State University, Starkville, MS (302)

3:45 †Impact of Irrigation Rate on Pre-emergence Herbicide Activity. H. C. Smith*[1], J. A. Ferrell[1], T. M. Webster[2], P. Munoz[1]; [1]University of Florida, Gainesville, FL, [2]USDA-ARS, Tifton, GA (303)

4:00 †Palmer Amaranth (*Amaranthus palmeri*) Control with Sonic and Surestart II in Agronomic Crops. A. Umphres-Lopez*[1], B. Haygood[2], A. Weiss[3], Z. Lopez[4], T. C. Mueller[1]; [1]University of Tennessee, Knoxville, TN, [2]Dow AgroSciences, Jackson, TN, [3]Dow AgroSciences, Raleigh, NC, [4]Dow AgroSciences, Bishop, TX (304)

4:15 †Drift Potential of Rinskor™ Active: Assessment of Off-Target Movement to Soybean. M. R. Miller*[1], J. K. Norsworthy[1], M. R. Weimer[2], M. L. Young[1], J. K. Green[1], G. T. Jones[1]; [1]University of Arkansas, Fayetteville, AR, [2]Dow AgroSciences, Indianapolis, IN (305)

4:30 †Evaluation of Dicamba Sequestration in Various Types of Sprayer Hoses. G. T. Cundiff*[1], D. B. Reynolds[1], T. C. Mueller[2]; [1]Mississippi State University, Starkville, MS, [2]University of Tennessee, Knoxville, TN (306)

4:45 †Volatility Comparison of 2,4-D Formulations in Soybeans. E. T. Parker*, T. C. Mueller; University of Tennessee, Knoxville, TN (307)

5:00 †Weed Management with Enlist™in Texas High Plains Cotton. M. R. Manuchehri*[1], P. A. Dotray[1], W. Keeling[2], R. M. Merchant[1], S. L. Taylor[1]; [1]Texas Tech University, Lubbock, TX, [2]Texas A&M, Lubbock, TX (308)

5:15 †Differential Sensitivity of Fall Panicum (*Panicum dichotomiflorum*Michx.) Populations to Asulam. J. V. Fernandez*[1], D. C. Odero[1], G. MacDonald[2], J. A. Ferrell[2], B. A. Sellers[3], P. C. Wilson[2]; [1]University of Florida, Belle Glade, FL,

[2]University of Florida, Gainesville, FL, [3]University of Florida, Ona, FL (309)

5:30 †Tolerance of Xtendflex™Cotton to Various Herbicide Tank Mix Combinations. C. A. Samples*[1], D. M. Dodds[2], A. L. Catchot[2], T. Irby[1], D. B. Reynolds[1], G. R. Kruger[3], D. Denton[2], L. X. Franca[1], M. T. Plumblee[1], J. T. Fowler[4]; [1]Mississippi State University, Starkville, MS, [2]Mississippi State University, Mississippi State, MS, [3]University of Nebraska-Lincoln, North Platte, NE, [4]Monsanto Company, St. Louis, MO (310)

TUESDAY MORNING FEBRUARY 9
21st Century Challenges in Aquatic Weed Management

LOCATION: San Juan 1
TIME: 8:30 AM - 12:00 PM
ORGANIZER: John Madsen
USDA ARS
Davis, CA

***SPEAKER**

8:30 What Does Integrated Pest Management Mean for Aquatic Weeds? J. D. Madsen*; USDA ARS, Davis, CA (311)

9:00 Approaches and Progress in Weed Biological Control Programs in Florida. P. W. Tipping*; USDA-ARS, Davie, FL (312)

9:30 Developing Aquatic Herbicide Use Patterns:Recent Progress, Challenges,and Establishing Priorities. M. D. Netherland*; US Army ERDC, Gainesville, FL (313)

10:00 Remote Sensing and Modeling for Improving Operational Aquatic Plant Management. D. Bubenheim*; NASA - Ames Research Center, Moffett Field, CA (314)

10:30 Environmental Issues for Large Operational Programs in North America. J. H. Rodgers*[1], A. Calomeni[1], K. Iwinski[1], R. Wersal[2], W. Ratajczyk[3]; [1]Clemson University, Clemson, SC, [2]Lonza, Atlanta, GA, [3]Lonza, Germantown, WI (315)

11:00 The USDA Area-Wide Projects: Integrated Science and Operations for Adaptive Managment.

A. S. Llaban*; California State Parks, Sacramento, CA (316)

11:30 Panel Discussion

TUESDAY MORNING FEBRUARY 9
Section 1. Agronomic Crops

LOCATION:	Miramar 4
TIME:	10:00 AM - 5:00 PM
CHAIR:	Alejandro Perez-Jones Monsanto St Louis, MO
CO-CHAIR:	Pete Eure Syngenta Rosenberg, TX
MODERATOR AM:	Mandy Bish University of Missouri Columbia, MO
MODERATOR PM:	Alejandro Perez-Jones

***SPEAKER**

10:00 Dessication of Winter Canola with Herbicides to Protect Yield. E. Jenkins*, J. Matz, A. R. Post; Oklahoma State University, Stillwater, OK (317)

10:15 Impact of Late Glyphosate Application on Canola Flowering and Yield. J. Bushong, A. R. Post*, J. Lofton; Oklahoma State University, Stillwater, OK (318)

10:30 Allelopathic Effects of Winter Wheat Residue on Winter Canola Germination and Establishment in Oklahoma. A. R. Post*, P. Curl, J. Belvin; Oklahoma State University, Stillwater, OK (319)

10:45 Evaluation of Pre- and Post-emergence Herbicides for Weed Control in Cassava (*Manihot esculenta*) in Africa. F. Ekeleme*[1], A. Dixon[1], S. Hauser[1], S. O. Lagoke[2], H. Usman[3], A. O. Olojede[4], G. Atser[1], S. Weller[5]; [1]International Institute of Tropical Agriculture, Ibadan, Nigeria, [2]Federal University of Agriculture, Abeokuta, Abeokuta, Nigeria, [3]University of Agriculture, Makurdi, Makudi, Nigeria, [4]National Root Crops Research Institute, Umudike, Umuahia, Nigeria, [5]University of Purdue, Indiana, IN (320)

11:00 Bicyclopyrone Tolerance by Oilseed Cuphea. F. Forcella*; USDA, Morris, MN (321)

11:15 Weed Management in Energy Beet Production in the Southeastern U. S.: the Unknown of Controlling Cool-Season Weeds. W. C. Johnson III*[1], T. M. Webster[1], T. L. Grey[2]; [1]USDA-ARS, Tifton, GA, [2]University of Georgia, Tifton, GA (322)

11:30 Sulfentrazone Tank-mix Partners for Grass Control in Ontario Dry Beans (*Phaseolus vulgaris* L.). A. N. Taziar*, D. E. Robinson, P. H. Sikkema; University of Guelph, Ridgetown, ON (323)

11:45 LumaxEZ: A New Herbicide for Preemergence and Postemergence Weed Control in Sugarcane. E. K. Rawls*[1], G. D. Vail[2], M. Saini[2], S. R. Moore[3], E. Palmer[2]; [1]Syngenta Crop Protection, Vero Beach, FL, [2]Syngenta Crop Protection, Greensboro, NC, [3]Syngenta Crop Protection, Monroe, LA (324)

12:00 Break

1:00 Developing an Improved Weed Control Program in Liberty Link Soybean: Is this possible? J. K. Norsworthy*[1], A. Cotie[2], C. Starkey[3], J. Allen[4], B. Philbrook[4], K. Price[4]; [1]University of Arkansas, Fayetteville, AR, [2]Bayer CropScience, Research Triangle Park, NC, [3]Bayer CropScience, DeWitt, AR, [4]Bayer CropScience, Raleigh, NC (325)

1:15 Effect of Harvest Aid Application Timing on Soybean (*Glycine max*) Yield. S. G. Flint*[1], J. Irby[2], J. M. Orlowski[3], A. B. Scholtes[1], S. M. Carver[1]; [1]Mississippi State University, Starkville, MS, [2]Mississippi State University, Mississippi State, MS, [3]Mississippi State University, Stoneville, MS (326)

1:30 The Effect of Harvest Aids and Harvest Dates on Seed Shattering and Yield of Soybean. J. M. Orlowski*[1], T. Irby[2], S. M. Carver[2], A. B. Scholtes[2], S. G. Flint[2]; [1]Mississippi State University, Stoneville, MS, [2]Mississippi State University, Starkville, MS (327)

1:45 Effect of Row Spacing, Seeding Rate, and Plant Architecture on Weed Suppression in Arkansas Soybean. W. J. Ross*[1], R. C. Scott[2], N. D.

Pearrow[3], C. D. Bokker[4]; [1]University of Arkansas Division of Agriculture, Little Rock, AR, [2]University of Arkansas, Fayetteville, AR, [3]University of Arkansas, Newport, AR, [4]University of Arkansas Division of Agriculture, Lonoke, AR (328)

2:00 Efficacy and Crop (*Glycine max)* Response of Encapsulated Acetochlor and Fomesafen Formulated as a Premix: Warrant$_{(R)}$ Ultra. R. F. Montgomery*[1], A. Mills[2], J. B. Willis[3], R. C. Scott[4], E. P. Prostko[5], P. Baumann[6], H. J. Beckie[7], J. A. Bond[8], B. Kirksey[9], H. James[10], T. Irby[11], E. Wesley[12], J. Martin[13]; [1]Monsanto, Union City, TN, [2]Monsanto, Collierville, TN, [3]Monsanto, Saint Louis, MO, [4]University of Arkansas, Fayetteville, AR, [5]University of Georgia, Tifton, GA, [6]Texas A&M AgriLife Extension, College Station, TX, [7]Agriculture and Agri-Food Canada, Saskatoon, SK, [8]Mississippi State University, Stoneville, MS, [9]AgriCenter International, Memphis, TN, [10]University of Missouri, Portageville, MO, [11]Mississippi State University, Starkville, MS, [12]North Carolina State University, Raleigh, NC, [13]University of Kentucky, Lexington, KY (329)

2:15 Evaluation of a New Arylex™ Active Herbicide for Burndown of Glyphosate-Resistant Horseweed in No-till Soybean. L. Steckel*[1], R. A. Haygood[2], J. M. Ellis[3], M. A. Peterson[4], C. J. Voglewede[4]; [1]University of Tennessee, Jackson, TN, [2]Dow AgroSciences, Germantown, TN, [3]Dow AgroSciences, Sterlington, LA, [4]Dow AgroSciences, Indianapolis, IN (330)

2:30 Utilityof ARYLEX™ Active Herbicidefor Preplant Burndown Applications. J. M. Ellis*[1], L. L. Granke[2], L. A. Campbell[3], D. M. Simpson[4], R. A. Haygood[5], M. A. Peterson[4]; [1]Dow AgroSciences, Smithville, MO, [2]Dow AgroSciences, Columbus, OH, [3]Dow AgroSciences, Carbondale, IL, [4]Dow AgroSciences, Indianapolis, IN, [5]Dow AgroSciences, Germantown, TN (331)

2:45 Evaluation of Metribuzin Combinations in Soybean Weed Control Systems. D. L. Teeter*[1], T. A. Baughman[1], T. L. Grey[2], R. W. Peterson[1]; [1]Oklahoma State University, Ardmore, OK, [2]University of Georgia, Tifton, GA (332)

3:00 Break

3:15 Metribuzin Provides Cost-effective Residual Control of Resistant Amaranthus and Other Problem Weeds in Soybeans. N. Rana*[1], K. Kretzmer[1], J. Gilsinger[2], A. Perez-Jones[1], P. Feng[1], J. Travers[1]; [1]Monsanto Company, Chesterfield, MO, [2]Monsanto Company, Mt. Olive, NC (333)

3:30 Evaluation of Sonic and Surveil for Palmer amaranth (*Amaranthus palmeri*) Management in Mississippi Soybean. S. M. Carver*[1], J. Irby[2], L. C. Walton[3], A. B. Scholtes[1], S. G. Flint[1]; [1]Mississippi State University, Starkville, MS, [2]Mississippi State University, Mississippi State, MS, [3]Dow AgroSciences, Tupelo, MS (334)

3:45 Introduction of Surveil™ Herbicide from Dow AgroSciences for Preplant and Preemergence Weed Control in Soybeans. L. C. Walton*[1], J. A. Armstrong[2], L. B. Braxton[3], J. M. Ellis[4], R. A. Haygood[5], R. M. Huckaba[6], M. A. Peterson[7], J. S. Richburg[8], C. J. Voglewede[7]; [1]Dow AgroSciences, Tupelo, MS, [2]Dow AgroSciences, Fresno, CA, [3]Dow AgroSciences, Travelers Rest, SC, [4]Dow AgroSciences, Sterlington, LA, [5]Dow AgroSciences, Germantown, TN, [6]Dow AgroSciences, Wake Forrest, NC, [7]Dow AgroSciences, Indianapolis, IN, [8]Dow AgroSciences, Dothan, AL (335)

4:00 Introducing BOLT™ Technology: a New Herbicide System for Cleaner Fields and Greater Management Flexibility in Soybeans. D. Johnson*[1], H. Flanigan[2], J. Carpenter[3], S. Strachan[3], S. Mitchell[4], A. Trepanier[4], M. Vogt[4], S. Sebastian[4]; [1]DuPont Crop Protection, Des Moines, IA, [2]DuPont Crop Protection, Greenwood, IN, [3]DuPont Crop Protection, Johnston, IA, [4]DuPont Pioneer, Johnston, IA (336)

4:15 New Zero-Day Plant-Back Options for DuPont™ LeadOff® andBasis® Blend Herbicides in BOLT™ Technology Soybeans. K. A. Backscheider*[1], P. T. Marquardt[2], K. L. Hahn[3], M. D. Meyer[4], L. H. Hageman[5], K. A. Diedrick[6], K. D. Johnson[7], S. E. Swanson[5], J. T. Krumm[8], D. Edmund[9], D. H. Johnson[2]; [1]DuPont Crop Protection, Shelbyville, IN, [2]DuPont Crop Protection, Johnston, IA, [3]DuPont Crop Protection, Bloomington, IL, [4]DuPont Crop Protection, Norwalk, IA,

[5]DuPont Crop Protection, Rochelle, IL, [6]DuPont Crop Protection, Rio, WI, [7]DuPont Crop Protection, Grand Forks, ND, [8]DuPont Crop Protection, Hastings, NE, [9]DuPont Crop Protection, Little Rock, AR (337)

4:30 Palmer amaranth Control and Soybean Tolerance to Balance Bean Herbicide. B. W. Schrage*, W. J. Everman; North Carolina State University, Raleigh, NC (338)

4:45 Preemergence Weed Control in Soybean Using Flumioxazin, Metribuzin, and Pyroxasulfone. K. M. Vollmer*[1], M. VanGessel[1], C. W. Cahoon[2], T. Hines[2], Q. Johnson[1], B. Scott[1]; [1]University of Delaware, Georgetown, DE, [2]Virginia Tech, Painter, VA (339)

TUESDAY MORNING FEBRUARY 9
Section 3. Turf and Ornamental Crops

LOCATION: Miramar 2&3
TIME: 10:30 AM - 4:15 PM
CHAIR: Katelyn Venner
BASF
Raleigh, NC
CO-CHAIR: Ramon Leon
University of Florida
Jay, FL
MODERATOR: Sheryl Wells
Bayer CropScience
High Springs, FL

***SPEAKER**

10:30 Post Emergent Goosegrass Control in Bentgrass Greens. P. J. Brown*; Clemson University, Clemson, SC (340)

10:45 MSMA Environmental Fate: What We Know and Existing Knowledge Gaps. T. Gannon*, M. Polizzotto; North Carolina State University, Raleigh, NC (341)

11:00 Postemerge Goosegrass Control in Bermudagrass Turf. N. J. Gambrell*, R. B. Cross, B. McCarty; Clemson University, Clemson, SC (342)

11:15 Integrating Triclopyr and Quinclorac in Topramezone Programs for Crabgrass and Goosegrass Control in Bermudagrass Turf. J.

R. Brewer*[1], J. McCurdy[2], M. Elmore[3], S. Askew[1], M. P. Richard[2]; [1]Virginia Tech, Blacksburg, VA, [2]Mississippi State University, Starkville, MS, [3]Texas A & M University, Dallas, TX (343)

11:30 Efficacy of Topramezone to Remove Bermudagrass From Cool-season Turfgrasses. K. Umeda*; University of Arizona, Phoenix, AZ (344)

11:45 Effect of Spray Carrier Volume and Nozzle Type on Dislodgeable 2,4-D Residues From Hybrid Bermudagrass Turf. T. Gannon*[1], M. D. Jeffries[1], K. Ahmed[1], J. T. Brosnan[2], G. K. Breeden[3]; [1]North Carolina State University, Raleigh, NC, [2]University of Tennessee-Knoxville, Knoxville, TN, [3]University of Tennessee, Knoxville, TN (345)

12:00 Break

1:00 Diamond Zoysiagrass Postemergent Herbicide Tolerance. P. O. Signoretti*; Clemson University, Clemson, SC (346)

1:15 Natural Management with Specticle Formulations and Programs. S. Wells*[1], D. Myers[2], J. Michel[2], B. Monke[3]; [1]Bayer CropScience, High Springs, FL, [2]Bayer CropScience, RTP, NC, [3]Bayer CropScience, Kansas City, MO (347)

1:30 Effect of Edaphic Conditions and Management Inputs on Indaziflam-Soil Bioavailability. M. D. Jeffries*, T. Gannon; North Carolina State University, Raleigh, NC (348)

1:45 Three Way Interactions Involving Trifloxysulfuron, Cultural Practice, and Nitrogen Fertilization Enable Mature Tropical Signalgrass *Urochloa subquadripara* Control. N. G. Young*[1], R. G. Leon[2], J. T. Brosnan[3], J. R. James[4]; [1]Turfgrass Environmental Research Inc., Fort Lauderdale, FL, [2]University of Florida, Jay, FL, [3]University of Tennessee-Knoxville, Knoxville, TN, [4]Syngenta Crop Protection LLC, Greensboro, NC (349)

2:00 Postemergence Tropical Signalgrass Control in Florida. R. B. Cross*, B. McCarty; Clemson University, Clemson, SC (350)

2:15 Tropical Signalgrass*Urochloa subquadripara* Control is Influenced by Differential Response of Acetolactate Synthase Inhibitor Class to

Exogenous Gibberellic Acid (GA3)and Controlled-release Urea. N. G. Young*[1], R. G. Leon[2], J. T. Brosnan[3], J. R. James[4]; [1]Turfgrass Environmental Research Inc., Fort Lauderdale, FL, [2]University of Florida, Jay, FL, [3]University of Tennessee-Knoxville, Knoxville, TN, [4]Syngenta Crop Protection LLC, Greensboro, NC (351)

2:30 Preemergence and Postemergence Control of Longspine Sandbur (*CenchrusÂ longispinus*). J. F. Derr*; Virginia Tech, Virginia Beach, VA (352)

2:45 Fall Applications of ALS Inhibiting Herbicides for Annual Bluegrass (*Poa annua*) Control. E. H. Reasor*[1], J. T. Brosnan[1], G. K. Breeden[2]; [1]University of Tennessee-Knoxville, Knoxville, TN, [2]University of Tennessee, Knoxville, TN (353)

3:00 Break

3:15 Applying Ethephon in Fall or Spring to Improve Annual Bluegrass Seedhead Suppression. S. S. Rana*, S. Askew, J. R. Brewer; Virginia Tech, Blacksburg, VA (354)

3:30 Perspectives on the Mode of Action of Methiozolin. S. Askew*, K. Venner; Virginia Tech, Blacksburg, VA (355)

3:45 Chlorophyll Fluorescence Induction Kinetics on Herbicide Resistant *Poa annua*. J. J. Vargas*[1], J. T. Brosnan[2], G. K. Breeden[3], D. A. Kopsell[1]; [1]The University of Tennessee, Knoxville, TN, [2]University of Tennessee-Knoxville, Knoxville, TN, [3]University of Tennessee, Knoxville, TN (356)

4:00 Section Business Meeting

TUESDAY MORNING FEBRUARY 9
Section 9. Weed Biology and Ecology

LOCATION: San Juan 2&3
TIME: 10:00 AM - 5:00 PM
CHAIR: Erik Lehnhoff
New Mexico State University
Las Cruces, NM

***SPEAKER**

10:00 Invasive Species Undergo Major Niche Shifts as they Cross Continents. D. Z. Atwater*, J. Barney; Virginia Tech, Blacksburg, VA (357)

10:15 Plant Community Interactions are Stronger Drivers than Climate in Cheatgrass Invasion of Montana's Sagebrush Steppe. L. J. Rew*[1], C. Larson[1], E. A. Lehnhoff[2]; [1]Montana State University, Bozeman, MT, [2]New Mexico State University, Las Cruces, NM (358)

10:30 Weed Seed Diversity in a Long-Term Fertility Management Trial. S. Wayman*, M. R. Ryan, Q. Ketterings; Cornell University, Ithaca, NY (359)

10:45 Diversity and Habitat Preferences of Weed Communities in Sugar Cane Fields in the Tropics. R. G. Leon*[1], R. Aguero[2], D. Calderon[2]; [1]University of Florida, Jay, FL, [2]University of Costa Rica, San Jose, Costa Rica (360)

11:00 Relationships between Spatial Weed Distribution and Soil Properties. N. E. Korres*[1], J. K. Norsworthy[1], K. R. Brye[1], V. Skinner Jr.[1], A. Mauromoustakos[1], M. V. Bagavathiannan[2]; [1]University of Arkansas, Fayetteville, AR, [2]Texas A&M University, College Station, TX (361)

11:15 Tillage and Cover Crop Effects on Seed Predation and Decay in a Long-term Vegetable Rotation. D. C. Brainard*[1], N. Quinn[1], E. Haramoto[2], M. Frost[1], Z. Szendrei[1]; [1]Michigan State University, East Lansing, MI, [2]University of Kentucky, Lexington, KY (362)

11:30 Waterhemp Emergence as Influenced by Tillage, Soil Moisture and Soil Temperature. J. M. Heneghan*, W. G. Johnson; Purdue University, West Lafayette, IN (363)

11:45 Identity Recognition in Soybean: The Potential to Regulate Intra and Inter-Specific Competition. G. P. Murphy*[1], R. C. Van Acker[2], I. Rajcan[2], C. J. Swanton[2]; [1]University of Guelph, Hamilton, ON, [2]University of Guelph, Guelph, ON (364)

12:00 Break

1:00 Effects of Shade Avoidance on Growth and Yield of *Beta vulgaris*. A. T. Adjesiwor*, T. J. Schambow, A. R. Kniss; University of Wyoming, Laramie, WY (365)

1:15 Suppression of Palmer Amaranth (*Amaranthus palmeri*) with High-Biomass Rye (*Secale cereale*). T. M. Webster*[1], T. L. Grey[2], D. B. Simmons[3], A. S. Culpepper[2], B. T. Scully[4]; [1]US-

DA-ARS, Tifton, GA, [2]University of Georgia, Tifton, GA, [3]University of Georgia, Athens, GA, [4]USDA-ARS, Ft. Pierce, FL (366)

1:30 Influence of Intermittent Irrigation,Red Rice Biotype, and Rice Grain Type on Outcrossing between Red Rice and Imidazolinone-Resistant Rice. D. R. Gealy*[1], L. Ziska[2]; [1]USDA-ARS, Stuttgart, AR, [2]USDA-ARS, Belstville, MD (367)

1:45 Herbicide Drift Impact on Floral Resources and Pollination Services: A Landscape Approach. M. Kammerer*[1], D. A. Mortensen[2], F. Egan[3], F. Bianchi[4], W. van der Werf[4], J. Tooker[2]; [1]Pennsylvania State University, State College, PA, [2]Pennsylvania State University, University Park, PA, [3]Pennsylvania Association for Sustainable Agriculture, Millheim, PA, [4]Wageningen University, Wageningen, Netherlands (368)

2:00 Palmer Amaranth Emergence, Growth, and Fecundity is Influenced by Crop. J. R. Kohrt*, C. L. Sprague, K. A. Renner; Michigan State University, East Lansing, MI (369)

2:15 Modeling Shattercane Population Dynamics in a Herbicide-Tolerant Sorghum Cropping System. R. Werle*, B. Tenhumberg, J. L. Lindquist; University of Nebraska-Lincoln, Lincoln, NE (370)

2:30 Characterization of Multiple *ALS* and *ACCase* Resistant Italian Ryegrass (*Lolium perenne* ssp. *multiflorum*) from Northeast Texas. V. Singh*[1], J. Swart[2], C. Jones[3], M. V. Bagavathiannan[1]; [1]Texas A&M University, College Station, TX, [2]Texas A&M AgriLife Extension, Commerce, TX, [3]Texas A&M University, Commerce, TX (371)

2:45 Correlation Between Dormancy and Herbicide Resistance Levels in Kochia. V. Kumar*, P. Jha, C. A. Lim, A. J, S. Leland; Montana State University-Bozeman, Huntley, MT (372)

3:00 Break

3:15 Biomarker of Multiple Herbicde Resistancein *Alopecurus myosuroides* (Black-grass). R. S. Stafford*; University of Newcastle, Newcastle upon Tyne, England (373)

3:30 Effect of Late Glyphosate Application on Seed Production and Viability in Woolly Cupgrass. R. E. Nurse*[1], M. Simard[2], S. Darbyshire[3]; [1]Ag-

riculture Canada, Harrow, ON, [2]Agriculture and Agri-Food Canada, Quebec, QC, [3]Agriculture and Agri-food Canada, Ottawa, ON (374)

3:45 Foliar Applied Glyphosate Alters Leafy Spurge Growth, Hormone, and Transcript Profiles During Perennial Life Cycles. M. Dogramaci*, D. P. Horvath, J. V. Anderson, W. S. Chao, M. E. Foley; USDA-ARS, Fargo, ND (375)

4:00 Effect of Glyphosate Selection on Survival and Fecundity Characteristics of Glyphosate-Resistant Kochia with Variable *EPSPS* Gene Copies. P. Jha*, C. A. Lim, V. Kumar, A. J, S. Leland; Montana State University-Bozeman, Huntley, MT (376)

4:15 Fecundity of Glyphosate-Resistant and –Sensitive Palmer Amaranth in the Field. C. W. Cahoon*[1], A. C. York[2], D. L. Jordan[2], P. J. Tranel[3], M. D. Inman[2]; [1]Virginia Tech, Painter, VA, [2]North Carolina State University, Raleigh, NC, [3]University of Illinois, Urbana, IL (377)

4:30 PPO-Inhibitor-Resistant Palmer Amaranth Has Arrived. N. R. Burgos*[1], R. A. Salas[1], P. J. Tranel[2], J. Song[2], R. C. Scott[1], T. Barber[3], J. K. Norsworthy[1], R. L. Nichols[4], L. Glasgow[5]; [1]University of Arkansas, Fayetteville, AR, [2]University of Illinois, Urbana, IL, [3]University of Arkansas, Little Rock, AR, [4]Cotton Incorporated, Cary, NC, [5]Syngenta Crop Protection, Greensboro, NC (378)

4:45 Section Business Meeting

TUESDAY AFTERNOON FEBRUARY 9
Weed Control in 2050: Imagining Future Strategies and the Knowledge Needed to Achieve Them

LOCATION: San Juan 1
TIME: 1:00 PM - 5:00 PM
ORGANIZER: James Westwood
Virginia Tech
Blacksburg, VA

***SPEAKER**

1:00 Challenges for World Agriculture by the Year 2050. J. Westwood*; Virginia Tech, Blacksburg, VA (379)

1:15 Herbicides: What Will We Be Usingin 2050? S. O. Duke*; USDA-ARS, Oxford, MS (380)

1:45 Discovery and Development of Novel Biopesticides for Weed Management in Conventional and Organic Production. P. G. Marrone*; Marrone Bio Innovations, Inc., Davis, CA (381)

2:15 Precision Application Technologies:A Way for Specialty Crops to Lead the Way. S. A. Fennimore*; University of California Davis, Salinas, CA (382)

2:45 Co-robotics, the Symbiosis Between Man, Machine and Crop Plants for the Automation of On-farm Individual Plant Care Tasks. D. C. Slaughter*; University of California, Davis, Davis, CA (383)

3:15 Break

3:30 Information Technology for Farmers/Extension. J. M. Urbano*; Universidad de Sevilla, Sevilla, Spain (384)

4:00 Plant Breeding for Weed Control: Enhancing Crops for Improved Competitive Ability. C. J. Swanton*; University of Guelph, Guelph, ON (385)

4:30 Panel Discussion

WEDNESDAY MORNING FEBRUARY 10
Graduate Student Workshop
Who You Are is How You Lead

LOCATION: Laguna 1 & 2
TIME: 9:00 AM - 12:00 PM
CHAIR: Rand Merchant
Texas Tech University
Lubbock, TX
CO-CHAIR: Sandeep Rana
Virginia Tech University
Blacksburg, VA

***SPEAKER**

WEDNESDAY MORNING FEBRUARY 10
Section 1. Agronomic Crops

LOCATION: Miramar 4
TIME: 10:15 AM - 4:30 PM

CHAIR: Alejandro Perez-Jones
Monsanto
St Louis, MO
CO-CHAIR: Pete Eure
Syngenta
Rosenberg, TX
MODERATOR AM: Pete Eure
MODERATOR PM: John Schultz
BASF
Sherwood, AR

***SPEAKER**

10:15 To Infinity and Beyond:Challenging the Status Quo in Herbicide Invention. A. M. Seville*; Syngenta, Reading, England (386)

10:30 Huskie, Improved Weed Control in Arkansas Grain Sorghum. R. C. Doherty*[1], T. Barber[2], L. M. Collie[2], Z. T. Hill[3], A. W. Ross[4]; [1]University of Arkansas-Monticello, Lonoke, AR, [2]University of Arkansas, Little Rock, AR, [3]University of Arkansas-Monticello, Monticello, AR, [4]University of Arkansas, Lonoke, AR (387)

10:45 Performance of Inzen Sorghum Technology in Oklahoma and Texas. T. A. Baughman*[1], P. Baumann[2], P. A. Dotray[3], W. Keeling[4], R. W. Peterson[1], M. Matocha[2], S. L. Taylor[3], D. L. Teeter[1]; [1]Oklahoma State University, Ardmore, OK, [2]Texas A&M AgriLife Extension, College Station, TX, [3]Texas Tech University, Lubbock, TX, [4]Texas A&M, Lubbock, TX (388)

11:00 Weed Control Programs in Grain Sorghum. J. C. McKibben*, D. O. Stephenson IV, B. C. Woolam, S. L. Racca; LSU AgCenter, Alexandria, LA (389)

11:15 Options for PPO-Resistant *Palmer Amaranth* in Arkansas Cotton. L. T. Barber*, R. C. Scott, J. K. Norsworthy; University of Arkansas, Fayetteville, AR (390)

11:30 Brake® Herbicide: A New Mode of Action for Weed Control in Cotton. K. R. Briscoe*; SePRO Corporation, Whitakers, NC (391)

11:45 Influence of Timing of Application of Postemergence Herbicides on Cotton Yield. M. D. Inman*, D. L. Jordan, A. C. York, D. T. Hare; North Carolina State University, Raleigh, NC (392)

12:00 Break

1:00 Preemergence Herbicide Programs for Weed Control in Cotton and Peanut. R. W. Peterson*[1], T. A. Baughman[1], P. A. Dotray[2], W. Grichar[3], D. L. Teeter[1], S. L. Taylor[2]; [1]Oklahoma State University, Ardmore, OK, [2]Texas Tech University, Lubbock, TX, [3]Texas AgriLife Research, Yoakum, TX (393)

1:15 Peanut Cultivar Response to Selected Herbicides. B. J. Brecke*[1], R. Leon[1], B. Tillman[2]; [1]University of Florida, Jay, FL, [2]University of Florida, Marianna, FL (394)

1:30 Rinskor™ Active: A New Herbicide for Midsouth U.S. Rice. D. H. Perry*[1], J. M. Ellis[2], L. C. Walton[3], M. R. Weimer[4]; [1]Dow AgroSciences, Greenville, MS, [2]Dow AgroSciences, Sterlington, LA, [3]Dow AgroSciences, Tupelo, MS, [4]Dow AgroSciences, Indianapolis, IN (395)

1:45 Provisia™ Rice Production System Efficacy and Stewardship. C. Youmans*[1], J. Guice[2], A. Rhodes[3], J. Schultz[4], J. Harden[5]; [1]BASF Corporation, Dyersburg, TN, [2]BASF Corporation, Winnsboro, LA, [3]BASF Corporation, Madison, MS, [4]BASF Corporation, North Little Rock, AR, [5]BASF Corporation, Research Triangle Park, NC (396)

2:00 Evaluation of Provisia Rice for Arkansas Rice Production Systems. Z. D. Lancaster*, J. K. Norsworthy, S. M. Martin, R. R. Hale, M. R. Miller; University of Arkansas, Fayetteville, AR (397)

2:15 Weed Management Options in Provisia Rice Production. S. Y. Rustom Jr*, E. P. Webster, B. M. McKnight, E. A. Bergeron; Louisiana State University, Baton Rouge, LA (398)

2:30 New Developments in Rice Weed Management. E. P. Webster*, E. A. Bergeron, B. M. McKnight, S. Y. Rustom Jr; Louisiana State University, Baton Rouge, LA (399)

2:45 Effects of Crop and Herbicide Rotation on Likelihood of Red Rice to Develop Herbicide Resistance. J. T. Dauer*[1], C. Mallory-Smith[2], A. Hulting[2], D. R. Carlson[3], L. Mankin[4], J. Harden[4]; [1]Oregon State University, Corvalis, OR, [2]Oregon State University, Corvallis, OR, [3]BASF Plant

Science LP, Research Triangle Park, NC, [4]BASF Corporation, Research Triangle Park, NC (400)

3:00 Break

3:15 Impact of Residual Herbicides on Rice Growth and Yield. B. H. Lawrence*, J. A. Bond, H. M. Edwards, H. T. Hydrick, B. R. Golden, T. L. Phillips, J. D. Peeples; Mississippi State University, Stoneville, MS (401)

3:30 Comparison of Rice Tolerance to Group 15 Herbicides at Different Application Timings. J. A. Godwin Jr.*, J. K. Norsworthy, Z. Lancaster, M. R. Miller, M. Bararpour, C. J. Meyer; University of Arkansas, Fayetteville, AR (402)

3:45 Herbicide Mixture and Sequential Application for Weed Control in Direct Seeded Rice in India. S. Singh*; CCS Haryana Agricultural University, Hisar, India (403)

4:00 Comparing Command and Obey for Controlling Barnyardgrass and Amazon sprangletop in Late Planted Rice. Z. T. Hill*[1], L. T. Barber[2], R. C. Doherty[1], L. M. Collie[3], A. W. Ross[4]; [1]University of Arkansas, Monticello, AR, [2]University of Arkansas, Fayetteville, AR, [3]University of Arkansas, Lonoke, AR, [4]University of Arkansas, Little Rock, AR (404)

4:15 Section Business Meeting

WEDNESDAY MORNING FEBRUARY 10
Section 1. Agronomic Crops II

LOCATION: Miramar 2&3
TIME: 10:15 AM - 4:30 PM
CHAIR: Alejandro Perez-Jones
Monsanto
St Louis, MO
CO-CHAIR: Pete Eure
Syngenta
Rosenberg, TX
MODERATOR AM: John Schultz
BASF
Sherwood, AR
MODERATOR PM: Pete Eure

***SPEAKER**

10:15 Herbicide Options for Controlling Glyphosate-Resistant Kochia. B. M. Jenks*; North Dakota State University, Minot, ND (405)

10:30 Herbicide Programs for Control of Atrazine- and HPPD inhibitor-resistant Palmer amaranth in Glyphosate-resistant Corn. P. S. Chahal*[1], J. Aulakh[2], A. Jhala[1]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]Connecticut Agricultural Experiment Station, Windsor, CT (406)

10:45 How to Improve the Consistency of Glyphosate-resistant Canada Fleabane (Conyza canadensis L. Cronq.) Control with Saflufenacil: An Investigation of Tank Mix Partners and Optimal Time of Day Application. C. M. Budd*[1], P. H. Sikkema[1], D. E. Robinson[1], D. C. Hooker[1], R. T. Miller[2]; [1]University of Guelph, Ridgetown, ON, [2]University of Guelph, Mississauga, ON (407)

11:00 Herbicide Resistance in Argentina: Perspectives on an Emerging Problem. C. G. Rubione*; Claudio Rubione R&D, 9 de Julio, Argentina (408)

11:15 Research on Herbicide Resistant Kochia in the Western US and Canada. P. Westra*, T. A. Gaines, F. E. Dayan; Colorado State University, Fort Collins, CO (409)

11:30 Does the Rapid Necrosis Response in Glyphosate-Resistant Giant Ragweed Reduce Efficacy of Glyphosate Tank-Mixtures? N. T. Harre*, W. G. Johnson, B. G. Young; Purdue University, West Lafayette, IN (410)

11:45 At-Harvest Survey of Herbicide Resistant Weeds in Georgia. W. Vencill*; University of Georgia, Athens, GA (411)

12:00 Break

1:00 PPO-Resistant Pigweed in Arkansas and It's Impact on Soybean Weed Control Recommendations. R. C. Scott*, L. T. Barber, J. K. Norsworthy, N. Burgos; University of Arkansas, Fayetteville, AR (412)

1:15 The Survivability of Weed Seed When Exposed to Various Heat Intensities. J. K. Green*, J. K. Norsworthy, C. J. Meyer, M. R. Miller, Z. D. Lan-

caster; University of Arkansas, Fayetteville, AR (413)

1:30 Time of Day Effects on Horseweed Efficacy with Various Burndown Herbicides. J. T. Ducar*[1], L. Steckel[2], G. Montgomery[2], G. S. Stapleton[3]; [1]Auburn University, Crossville, AL, [2]University of Tennessee, Jackson, TN, [3]BASF Corp, Dyersburg, TN (414)

1:45 Preemergent Control of Rescuegrass andLittle Barley in Winter Wheat. L. Roberts*, V. R. Bodnar, A. R. Post; Oklahoma State University, Stillwater, OK (415)

2:00 Quelex Efficacy for Control of Winter Annuals in Winter Wheat. V. R. Bodnar*, A. R. Post, H. Bell; Oklahoma State University, Stillwater, OK (416)

2:15 Safening of Pyroxsulam in Wheat with Cloquintocet Acid. R. E. Gast*[1], G. J. de Boer[1], D. G. Ouse[1], J. P. Yenish[2]; [1]Dow AgroSciences, Indianapolis, IN, [2]Dow AgroSciences, Billings, MT (417)

2:30 A Novel Herbicide for Control of Kochia and Other Broadleaf Weeds. R. J. Edwards*[1], G. K. Dahl[1], J. A. Gillilan[2], R. L. Pigati[3], E. P. Spandl[3], D. A. VanDam[4], J. V. Gednalske[1]; [1]Winfield Solutions, LLC, River Falls, WI, [2]Winfield Solutions, LLC, Springfield, TN, [3]Winfield Solutions, LLC, Shoreview, MN, [4]WinField Solutions, Shoreview, MN (418)

2:45 Volunteer Canola Control in Wheat and Soybean. K. McCauley*[1], A. R. Post[1], C. Effertz[2]; [1]Oklahoma State University, Stillwater, OK, [2]Arysta LifeScience, Velva, ND (419)

3:00 Break

3:15 Acuron Flexi: A New Herbicide for Corn. R. D. Lins*[1], M. Saini[2], G. D. Vail[2]; [1]Syngenta, Byron, MN, [2]Syngenta Crop Protection, Greensboro, NC (420)

3:30 Armezon Pro Herbicide: Postemergence Weed Control and Crop Safety in Corn. G. S. Stapleton*[1], D. E. Waldstein[2], A. Rhodes[3], J. Schultz[4], K. L. Liberator[5], A. C. Hixson[6]; [1]BASF Corp, Dyersburg, TN, [2]BASF Corporation, RTP, NC, [3]BASF Corporation, Madison, MS, [4]BASF Corpo-

ration, North Little Rock, AR, [5]BASF Corporation, Raleigh, NC, [6]BASF Corporation, Lubbock, TX (421)

3:45 Dose Response of Glyphosate-Resistant Horseweed (*Conyza canadensis*) to Acuron® applied PRE and POST. D. Sarangi*[1], A. S. Franssen[2], A. Jhala[1]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]Syngenta Crop Protection, Seward, NE (422)

4:00 Performance of Acuron Herbicide in Texas Corn. M. E. Matocha*[1], P. Baumann[1], P. Eure[2]; [1]Texas A&M AgriLife Extension, College Station, TX, [2]Syngenta, Rosenberg, TX (423)

4:15 Weed Control Efficacy in Corn on Common Annual Weeds in the United States. D. J. Tonks*; ISK Biosciences, Kearney, MO (424)

WEDNESDAY MORNING FEBRUARY 10
Section 11. Physiology

LOCATION: San Felipe
TIME: 9:15 AM - 5:00 PM
CHAIR: Darci Giacomini
Colorado State University
Fort Collins, CO
CO-CHAIR: Theodore Webster
USDA-ARS
Tifton, GA
MODERATOR: Darci Giacomini

***SPEAKER† STUDENT CONTEST**

9:15 Ecological Fitness of Herbicide Resistance Traits in Waterhemp as Determined by a Multi-generational Greenhouse Study. C. Wu*[1], P. J. Tranel[2], A. Davis[3]; [1]University of Illinois at Champaign-Urbana, Urbana, IL, [2]University of Illinois, Urbana, IL, [3]USDA-ARS Global Change and Photosynthesis Research Unit, University of Illinois, Champaign-Urbana, IL (425)

9:30 Characterization of Resistance to Saflufenacil Applied Postemergence in *Amaranthus tuberculatus* . D. E. Riechers*, S. R. O'Brien, R. Ma, A. V. Lygin; University of Illinois, Urbana, IL (426)

9:45 Confirmation, Control, and Molecular Basis for Resistance of *Amazon Sprangletop* to Aryloxyphenoxypropionic Acid Herbicides in Rice. P.

Tehranchian*[1], J. K. Norsworthy[1], N. E. Korres[1], J. S. McElroy[2], R. C. Scott[1]; [1]University of Arkansas, Fayetteville, AR, [2]Auburn University, Auburn, AL (427)

10:00 Molecular Mechanisms and Cross-resistance to ACCase Inhibiting Herbicides in *Cynosurus echinatus*. P. T. Fernandez[1], R. Alcantara-de la Cruz[1], H. E. Cruz-Hipolito[2], I. M. Calha[3], R. Smeda[4], D. Rafael*[1]; [1]University of Cordoba, Cordoba, Spain, [2]Bayer CropScience, Mexico City, Mexico, [3]National Institute of Biological Resources (INIAV I.P.), Lisbon, Portugal, [4]University of Missouri, Columbia, MO (428)

10:15 Resistance to Acetolactate-synthase (ALS) Inhibitor in Annual Bluegrass (*Poa annua*): Mechanisms and Rapid Detection Techniques. E. E. Wilson*, T. Tseng, B. Jones, E. Santos; Mississippi State University, Starkville, MS (429)

10:30 Characterization of Glyphosate-resistant *Echinochloa colona* Populations from California. S. Morran*, M. Moretti, A. Fischer, B. D. Hanson; University of California, Davis, Davis, CA (430)

10:45 Relationship Between EPSPS Copy Number and Glyphosate Resistance Level in *Kochia scoparia*Collected from Sugarbeet Fields. A. R. Kniss*[1], T. A. Gaines[2], A. L. Barker[2], E. L. Patterson[2], R. G. Wilson[3]; [1]University of Wyoming, Laramie, WY, [2]Colorado State University, Fort Collins, CO, [3]University of Nebraska, Scottsbluff, NE (431)

11:00 Mechanism of GlyphosateResistance in Common Ragweed from Nebraska. Z. A. Ganie*[1], M. Jugulam[2], V. K. Varanasi[2], A. Jhala[1]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]Kansas State University, Manhattan, KS (432)

11:15 Using Transcriptomics to Investigate Glyphosate Resistance and the Rapid Necrosis Response in Giant Ragweed. C. R. Van Horn*, P. Westra; Colorado State University, Fort Collins, CO (433)

11:30 Subcellular Effects of Glyphosate in Glyphosate Resistant Giant Ragweed. M. Lespérance*[1], M. Costea[2], P. H. Sikkema[3], F. J. Tardif[1]; [1]University of Guelph, Guelph, ON, [2]Wilfrid Laurier Universi-

ty, Waterloo, ON, [3]University of Guelph, Ridgetown, ON (434)

11:45 Distribution of *EPSPS* copies in Glyphosate-Resistant Italian Ryegrass (*Lolium perenne* ssp. *multiflorum*). K. Putta[1], D. Koo[1], N. R. Burgos[2], M. Jasieniuk[3], B. Friebe[1], B. S. Gill[1], M. Jugulam*[1]; [1]Kansas State University, Manhattan, KS, [2]University of Arkansas, Fayetteville, AR, [3]University of California, Davis, KS (435)

12:00 Break

1:00 Physical Mapping of *EPSPS* Copies in Glyphosate-Resistant Palmer Amaranth (*Amaranthus palmeri*). M. Jugulam*, D. Koo, D. E. Peterson, B. Friebe, B. S. Gill; Kansas State University, Manhattan, KS (436)

1:15 The *Amaranthus palmeri* EPSPS amplicon:ÂA Multi-gene Complex? W. Molin*[1], A. A. Wright[2], C. Saski[3]; [1]USDA-ARS, Stoneville, MS, [2]Mississippi State University, Stoneville, MS, [3]Clemson University Genomics Institute, Clemson, SC (437)

1:30 A De Novo Draft Assembly of Palmer Amaranth using Illumina Long Read Technology. D. A. Giacomini*[1], N. Tao[2], M. Dimmic[2], R. Kerstetter[2], P. Latreille[2], M. Sudkemp[2], S. Yang[2], X. Zhou[2], S. Ward[1], P. Westra[1], P. Tranel[3], D. Sammons[2]; [1]Colorado State University, Fort Collins, CO, [2]Monsanto, Chesterfield, MO, [3]University of Illinois, Urbana, IL (438)

1:45 Genome Sequencing of Glyphosate-Resistant Common Waterhemp (*Amaranthus rudis*) to Decipher *EPSPS* Gene Copy Number Variation. M. Jugulam*, S. Liu, V. K. Varanasi, D. E. Peterson; Kansas State University, Manhattan, KS (439)

2:00 Developing Genomics Resources for *Kochia scoparia*. T. A. Gaines*[1], E. L. Patterson[1], K. Ravet[1], P. J. Tranel[2], P. Westra[1]; [1]Colorado State University, Fort Collins, CO, [2]University of Illinois, Urbana, IL (440)

2:15 Detoxification of Herbicides in Rye-grass. On the Way to Characterize Key Molecular Elements. S. Iwakami[1], S. Gonzalez[2], T. A. Gaines[3], Q. Yu[4], H. Han[4], V. Brabetz[2], S. Powles[4], R. S. Beffa*[2]; [1]University of Tsukuba, Tsukuba, Ibaraki,

Japan, [2]Bayer CropScience, Frankfurt, Germany, [3]Colorado State University, Fort Collins, CO, [4]University of Western Australia, Perth, Australia (441)

2:30 Expression of Genes Associated with Enhanced Herbicide Detoxification in Barnyardgrass (Echinochloa crus-galli L.). G. Dalazen[1], C. Markus[1], P. Gusberti[1], M. Dupont[1], A. Merotto Junior*[2]; [1]Federal University of Rio Grande so Sul - UFRGS, Porto Alegre, RS, Brazil, [2]Federal University of Rio Grande do Sul - UFRGS, Porto Alegre, RS, Brazil (442)

2:45 Profiling of Transcripts Regulated by Oxylipin Treatment in Etiolated Sorghum Coleoptile Sections. R. Ma*, L. V. Goodrich, A. V. Lygin, S. P. Moose, K. N. Lambert, D. E. Riechers; University of Illinois, Urbana, IL (443)

3:00 Break

3:15 Resistance to Glufosinate is Proportional to Phosphinothricin Acetyltransferase Expression and Activity in LibertyLink® and WideStrike® Cotton. F. E. Dayan*[1], C. A. Carbonari[2], G. L. Gomes[2], D. K. Owens[3], Z. Pan[4], E. Velini[2]; [1]Colorado State University, Fort Collins, CO, [2]São Paulo State University, Botucatu, Brazil, [3]USDA-ARS, Oxford, MS, [4]USDA-ARS, University, MS (444)

3:30 Differential Gene Expression in Teosinte Under Weed Stress. S. A. Bruggeman*[1], S. A. Clay[1], D. P. Horvath[2], J. Miller[3], D. E. Clay[3], S. Flint-Garcia[4], B. Scheffler[5]; [1]South Dakota State University, Brookings, SD, [2]USDA-ARS, Fargo, ND, [3]SDSU, Brookings, SD, [4]USDA-ARS, Columbia, MO, [5]USDA-ARS, Stoneville, MS (445)

3:45 Singlet Oxygen Plays a Central Signalling Role During Soybean-weed Competition. A. G. McKenzie-Gopsill*, S. Amirsadeghi, H. Earl, L. Lukens, E. Lee, C. J. Swanton; University of Guelph, Guelph, ON (446)

4:00 Glyphosate-Resistant and Conventional Canola (*Brassica napus* L.) Responses to Glyphosate and AMPA Treatment. D. K. Owens*[1], F. E. Dayan[2], A. M. Rimando[3], E. A. Correa[4], S. O. Duke[1]; [1]USDA-ARS, Oxford, MS, [2]Colorado State

University, Fort Collins, CO, [3]USDA-ARS, University, MS, [4]University of Sao Paulo, Registro, Brazil (447)

4:15 Glyphosate Causes Dose-dependent DNA Methylation Changes in Arabidopsis thaliana. C. Clarke, G. Kim, H. Larose, H. Tran, L. Zhang, S. Askew, J. Barney, J. Westwood*; Virginia Tech, Blacksburg, VA (448)

4:30 †Characterizing the Transcriptome and Proteome of Multiple Herbicide Resistant *Avena fatua* L. E. E. Burns*[1], E. A. Lehnhoff[2], B. K. Keith[1], F. D. Menalled[1], W. E. Dyer[1]; [1]Montana State University, Bozeman, MT, [2]New Mexico State University, Las Cruces, NM (449)

4:45 Section Business Meeting

WEDNESDAY MORNING FEBRUARY 10
Section 13. Integrated Weed Management

LOCATION: San Juan 2&3
TIME: 10:15 AM - 4:45 PM
CHAIR: Amit Jhala
University of Florida
Lake Alfred, FL
MODERATOR: Amit Jhala

***SPEAKER**

10:15 Increasing theEfficacy of Harvest Weed Seed Control with Crop Competition. M. Walsh*, S. Randell, S. Powles; University of Western Australia, Perth, Australia (450)

10:30 Integrated Weed Management Strategies in the Northern Region of Australia. B. S. Chauhan*; The University of Queensland, Toowoomba, Australia (451)

10:45 Weed Supression of a Sorghum-sudangrass Summer Cover Crop. C. Zamorano Montanez*[1], K. Gibson[2]; [1]Universidad de Caldas, Manizales, Colombia, [2]Purdue University, West Lafayette, IN (452)

11:00 Weed Competition Potential of Peanut Cultivars Differing in Canopy Architecture. R. G. Leon*[1], B. Tillman[2]; [1]University of Florida, Jay, FL, [2]University of Florida, Marianna, FL (453)

11:15 An Integrated Weed Management Approach to Addressing the Multiple Herbicide-resistant Weed Epidemic in Three Major U.S. Field Crop Production Regions. S. B. Mirsky*[1], A. Davis[2], J. K. Norsworthy[3], M. V. Bagavathiannan[4], J. A. Bond[5], K. W. Bradley[6], W. S. Curran[7], D. Ervin[8], W. J. Everman[9], M. L. Flessner[10], G. Frisvold[11], A. G. Hager[12], B. Hartzler[13], N. Jordan[14], J. L. Lindquist[15], B. Schulz[16], L. Steckel[17], M. VanGessel[18]; [1]USDA-ARS, Beltsville, MD, [2]USDA-ARS Global Change and Photosynthesis Research Unit, University of Illinois, Champaign-Urbana, IL, [3]University of Arkansas, Fayetteville, AR, [4]Texas A&M University, College Station, TX, [5]Mississippi State University, Stoneville, MS, [6]University of Missouri, Columbia, MO, [7]Pennsylvania State University, University Park, PA, [8]Portland University, Portland, OR, [9]North Carolina State University, Raleigh, NC, [10]Virginia Tech, Blacksburg, VA, [11]University of Arizona, Tucson, AZ, [12]University of Illinois, Urbana, IL, [13]Iowa State University, Ames, IA, [14]University of Minnesota, St. Paul, MN, [15]University of Nebraska-Lincoln, Lincoln, NE, [16]University of Maryland, University Park, MD, [17]University of Tennessee, Jackson, TN, [18]University of Delaware, Georgetown, DE (454)

11:30 Weed Suppression by Cover Crops Mixtures Using Intra- and inter-specific Diversity. E. Reiss*, L. E. Drinkwater, M. R. Ryan; Cornell University, Ithaca, NY (455)

11:45 Soybean Response to Winter Cover Removal Time as Affected by Planting Date. M. L. Bernards*, B. S. Heaton; Western Illinois University, Macomb, IL (456)

12:00 Break

1:00 Seasonal Effects on Weed Biomass of Agronomic Factors in Cassava Production Systems of Nigeria. S. Hauser*, F. Ekeleme, A. Dixon; International Institute of Tropical Agriculture, Ibadan, Nigeria (457)

1:15 Exploiting Weaknesses in Weeds Life Cycles in Order to Optimise Herbicide Resistance Prevention Strategies. T. Valente*[1], M. Cowbrough[2], F. J. Tardif[1]; [1]University of Guelph, Guelph, ON,

[2]Ontario Ministry of Agriculture, Food and Rural Affairs, Guelph, ON (458)

1:30 Cover Crop Mixture Proportion and Starter Fertilizer Effects on Weed Competition and Grain Yield in Organic Rotational No-till Maize Production. R. A. Atwell*[1], S. B. Mirsky[2], H. Poffenbarger[3], S. C. Reberg-Horton[1]; [1]North Carolina State University, Raleigh, NC, [2]USDA-ARS, Beltsville, MD, [3]Iowa State University, Ames, IA (459)

1:45 Glyphosate Resistance in *Sonchus oleraceus:*- Determining the SpatialExtent ofResistancein Australia'sNorthern Cropping Region. A. W. van der Meulen*[1], T. Cook[2], M. Widderick[1], B. Davidson[2], R. Miller[2], B. S. Chauhan[3]; [1]Department of Agriculture and Fisheries, Toowoomba, Australia, [2]NSW Department of Primary Industries, Tamworth, Australia, [3]The University of Queensland, Toowoomba, Australia (460)

2:00 Optimization of Inter-Row Spacing and Nitrogen Rate for the Application of Vision Guided Inter-Row Weeding in Organic Spring Cereals. B. Melander*[1], O. Green[2], L. Znova[2]; [1]Aarhus University, Research Center Flakkebjerg, Slagelse, Denmark, [2]Agro Intelligence, Aarhus, Denmark (461)

2:15 Combining Pre-emergent Herbicides and Crop Competition to Control Herbicide Resistant Weeds in Australia. C. Preston*[1], S. G. Kleemann[2], G. S. Gill[2]; [1]University of Adelaide, Glen Osmond, Australia, [2]University of Adelaide, Adelaide, Australia (462)

2:30 Integrated Weed Management inWinter Wheatand Row Crops-An Updateon RecentResearch Activities in Denmark. P. Kudsk*[1], B. Melander[2], S. K. Mathiassen[1], N. Holst[1]; [1]Aarhus University, Slagelse, Denmark, [2]Aarhus University, Research Center Flakkebjerg, Slagelse, Denmark (463)

2:45 Integrated Management of *Bromus tectorum* (Cheatgrass) with Sheep and Herbicide. E. A. Lehnhoff*[1], L. Rew[2], T. Seipel[2], J. Mangold[2], D. Ragen[2]; [1]New Mexico State University, Las Cruces, NM, [2]Montana State University, Bozeman, MT (464)

3:00 Break

3:15 Coordinating Weed Management Decisions Across Landscapes: Impacts on the Spread of Herbicide Resistance Traits. J. A. Evans*[1], A. Davis[2], P. Tranel[3], A. G. Hager[3]; [1]USDA-ARS, Urbana, IL, [2]USDA-ARS Global Change and Photosynthesis Research Unit, University of Illinois, Champaign-Urbana, IL, [3]University of Illinois, Urbana, IL (465)

3:30 Goss's Wilt Incidence in Sweet Corn is Independent of Transgenic Traits and Glyphosate. M. M. Williams II*[1], C. A. Bradley[2], S. O. Duke[3], J. Maul[4], K. N. Reddy[3]; [1]USDA-ARS, Urbana, IL, [2]University of Kentucky, Princeton, KY, [3]USDA-ARS, Stoneville, MS, [4]USDA-ARS, Beltsville, MD (466)

3:45 Integrated Weed Management Without Linuron in Carrots. J. Colquhoun*, D. Heider, R. Rittmeyer; University of Wisconsin, Madison, WI (467)

4:00 Changes in the Resistence Profile of *Alopecurus myosuroides*in a Small Landscape Over Time. H. J. Strek*; BayerCropscience, Frankfurt, Germany (468)

4:15 Mechanisms and Inheritance of Glyphosate Resistance in *Echinochloa colona* from Australia. M. Krishnan*[1], H. Nguyen[1], J. Malone[1], S. Morran[2], P. Boutsalis[1], C. Preston[1]; [1]University of Adelaide, Glen Osmond, Australia, [2]University of California, Davis, Davis, CA (469)

4:30 Section Business Meeting

WEDNESDAY MORNING FEBRUARY 10
Section 6. Regulatory Aspects

LOCATION: Bahia 1 & 2
TIME: 10:15 AM - 12 Noon
CHAIR: Jerry Wells
Syngenta
Greensboro, NC
MODERATOR: Jerry Wells

***SPEAKER**

10:15 Milkweed, Monarchs and Minutiae. C. Savinelli*; Syngenta Crop Protection, LLC, Greensboro, NC (470)

10:30 Update on Regulation of Pesticides Under the Endangered Species Act. D. Campbell*; Syngenta Crop Protection, LLC, Greensboro, NC (471)

10:45 Herbicide Resistance Stewardship in an Evolving Regulatory Environment. M. A. Peterson*; Dow AgroSciences, West Lafayette, IN (472)

11:00 The U.S. EPAs Perspective on Herbicide Resistance Management. B. Chism*[1], A. Jones[2], J. Becker[2], L. Yourman[2], C. Myers[2], N. Mallampalli[2]; [1]US Environmental Protection Agency, Point of Rocks, MD, [2]US Environmental Protection Agency, Crystal City, VA (473)

11:15 Update on the USDA Federal Noxious Weed Program. J. Jones*; USDA-APHIS, Riverdale, MD (474)

11:30 Reduced Risk Pesticides - An Update. J. W. Wells*; Syngenta, Greensboro, NC (475)

11:45 Section Business Meeting

WEDNESDAY AFTERNOON FEBRUARY 10

The Intersection of Agricultural Lands and Wild Areas - Management of Non-Crop Vegetation as Habitat for Pollinator, Beneficial and Iconic Species

LOCATION: San Juan 1
TIME: 1:00 PM - 5:00 PM
ORGANIZER: Michael Horak
Monsanto
St. Louis, MO

***SPEAKER**

1:00 Symposium Introduction and Overview. A. Davis*; USDA-ARS Global Change and Photosynthesis Research Unit, University of Illinois, Champaign-Urbana, IL (476)

1:15 Designing Agricultural Landscapes Based on a Framework of Multi-functionality and Input from Stakeholders. S. T. Lovell*; University of Illinois, Urbana, IL (477)

1:40 Discussion

1:45 Establishing Habitat for Monarch Butterflies: Goals and Research Priorities of the Iowa Monarch Consortium. R. Hellmich*; USDA-ARS, Ames, IA (478)

2:05 Discussion

2:10 Managing Wild Areas for Ecosystem Services: A European Perspective. J. Storkey*; Rothamsted Research, Rothamsted, England (479)

2:30 Discussion

2:35 Managing Non-crop Vegetation in Agricultural Landscapes for Multiple Benefits - An Agency Perspective. D. Shaw*; Minnesota Board of Water and Soil Resources, St. Paul, MN (480)

2:55 Discussion

3:10 Break

3:25 Perspectives and Approaches to Conservation: An Industry View. M. J. Horak*; Monsanto, St. Louis, MO (481)

3:45 Discussion

3:50 How Wildlife and Pollinator Habitat Needs can fit Within Agricultural Land Business Models. P. Berthelsen*; Pheasants Forever and Quail Forever, Elba, NE (482)

4:10 Discussion

4:15 Managing the Intersection of Agricultural and Wild Areas: Can Transdisciplinary Research Help? N. Jordan*; University of Minnesota, St. Paul, MN (483)

4:35 Discussion

4:55 Final Comments

WEDNESDAY AFTERNOON FEBRUARY 10
Section 10. Biocontrol of Weeds

LOCATION: Bahia 1&2
TIME: 1:00 PM - 2:30 PM
CHAIR: Joseph Neal
North Carolina State University
Raleigh, NC
MODERATOR: Joseph Neal

***SPEAKER**

1:00 InvasivePhenological Traits of*Dioscorea bulbifera* and Its Biological Control in Florida. M. B. Rayamajhi*[1], E. Rohrig[2]; [1]Invasive Plant Research Laboratory, Fort Lauderdale, FL, [2]Division of Plant Industry, Gainesville, FL (484)

1:15 Utilizing Domesticated Swine to Control Nutsedge (Cyperus spp.). G. MacDonald*[1], D. L. Colvin[2], J. A. Ferrell[1]; [1]University of Florida, Gainesville, FL, [2]University of Florida, Citra, FL (485)

1:30 Weed Seed Predation Across a Crop Density Gradient. C. Z. Youngerman*[1], W. S. Curran[2], S. Wayman[1], M. R. Ryan[1]; [1]Cornell University, Ithaca, NY, [2]Pennsylvania State University, University Park, PA (486)

1:45 Soil Properties, but not Weed Deleterious Bacteria, Influence the Suppressive Effect of Mustard Seed Meal on Velvetleaf. R. Zdor*, S. Shin; Andrews University, Berrien Springs, MI (487)

2:00 Root Exudate Production and Sorgoleone Content of 45 *Sorghum* spp. Accessions. T. E. Besancon*, W. J. Everman, R. W. Heiniger; North Carolina State University, Raleigh, NC (488)

2:15 Section Business Meeting

WEDNESDAY AFTERNOON FEBRUARY 10
Section 7. Education and Extension

LOCATION: Laguna 1&2
TIME: 2:15 PM - 5:00 PM
CHAIR: Angela Post
Oklahoma State University
Stillwater, OK
CO-CHAIR: Te-Ming Paul Tseng
Mississippi State University
Starkville, MS
MODERATOR: Angela Post

***SPEAKER**

2:15 Multi-Species Herbicide Screens: A Framework for Teaching Herbicide Mode of Action Principles and Identification of Herbicides for Use in Minor Crops. A. G. Hulting*, D. W. Curtis, K. C.

Roerig, C. Mallory-Smith; Oregon State University, Corvallis, OR (489)

2:30 Is a Traditional Drawing Exercise for Plant and Seed Identification Still Effective for Millennial Students? M. M. Hay*, K. J. Donnelly; Kansas State University, Manhattan, KS (490)

2:45 Break

3:00 Insights into Publishing in Weed Science. W. Vencill*; University of Georgia, Athens, GA (491)

3:15 Palmer amaranth Management Model (PAM):A User-friendly Bio-economic Tool for Guiding Informed Management Decisions. M. V. Bagavathiannan*[1], K. Lindsay[2], M. Lacoste[3], M. Popp[2], S. Powles[3]; [1]Texas A&M University, College Station, TX, [2]University of Arkansas, Fayetteville, AR, [3]University of Western Australia, Perth, Australia (492)

3:30 Hairs, Prickles and Spines: New Weed Macro Photography Possibilities. R. F. Norris*; University of California, Davis, CA (493)

3:45 The Slippery Slope: Drawing Equivalency from Significance Test. R. K. Godara*, R. Mohanty, B. Zeng; Monsanto Company, Saint Louis, MO (494)

4:00 Developing a Longitudinal Survey of Weed Management Practices: An Example from West Texas. R. M. Merchant*[1], P. A. Dotray[1], W. Keeling[2], M. R. Manuchehri[1], S. L. Taylor[1]; [1]Texas Tech University, Lubbock, TX, [2]Texas A&M, Lubbock, TX (495)

4:15 Developing a Framework for Creating a Practitioner's Guide to Local Weed Flora. E. B. Duell*, A. Harris, A. R. Post; Oklahoma State University, Stillwater, OK (496)

4:30 The University of Florida/IFAS Aquatic Weed Control Short Course: A Statewide Training Program. F. M. Fishel*[1], L. Gettys[2], W. T. Haller[1]; [1]University of Florida, Gainesville, FL, [2]University of Florida, Fort Lauderdale, FL (497)

4:45 Section Business Meeting

THURSDAY MORNING FEBRUARY 11
Use of Endemic Plant Diseases and Insect Pests for Biological Control of Invasive Weeds

LOCATION: San Juan 1
TIME: 8:00 AM - 12:00 PM
ORGANIZER: William Bruckart
USDA, ARS, FDWSRU
Ft. Detrick, MD

***SPEAKER**

8:00 Considerations about Plant Pathogen Deployment for Biological Control of Weeds. W. L. Bruckart*; USDA, ARS, FDWSRU, Ft. Detrick, MD (498)

8:30 What Makes a Good/bad Mycoherbicide? c. d. boyette*[1], R. E. Hoagland[2], M. A. Weaver[1], K. C. Stetina[1]; [1]USDA-ARS, Stoneville, MS, [2]USDA-ARS, CPSRU, Stoneville, MS (499)

9:00 Discovery and Development of Plant Pathogens as Bioherbicide Agents: Lessons Learned from Successful Examples. R. Charudattan*; University of Florida, Gainesville, FL (500)

9:30 Challenges to Bioherbicide Registration and Development. M. P. Braverman*, D. Kunkel, J. Baron; IR-4, Rutgers University, Princeton, NJ (501)

10:00 Break

10:15 EPA's Role in RegulatingMicrobial Biological Control Agents. G. Tomimatsu*; US EPA, Washington, DC (502)

10:45 Deployment of Biopesticides: An Example from Aflatoxin Management. P. J. Cotty*; USDA, ARS, Tucson, AZ (503)

11:15 Discussion

THURSDAY MORNING FEBRUARY 11
Section 1. Agronomic Crops

LOCATION: Miramar 4
TIME: 8:00 AM - 12:00 PM
CHAIR: Alejandro Perez-Jones
Monsanto
St Louis, MO

CO-CHAIR: Pete Eure
Syngenta
Rosenberg, TX
MODERATOR: Alejandro Perez-Jones

***SPEAKER**

8:00 A Three Year Summary of Bollgard II®Xtend-Flex™Cotton in TX. L. M. Etheredge, Jr*[1], J. D. Everitt[2], P. Baumann[3], J. A. McGinty[4], J. W. Keeling[5], P. A. Dotray[6]; [1]Monsanto, St. Louis, MO, [2]Monsanto Company, Shallowater, TX, [3]Texas A&M AgriLife Extension, College Station, TX, [4]Texas A&M AgriLife Extension, Corpus Christi, TX, [5]Texas A&M AgriLife Research, Lubbock, TX, [6]Texas Tech University, Lubbock, TX (504)

8:15 Dicamba-Glufosinate Interactions and Weed Control in Desert Cotton. W. B. McCloskey*; University of Arizona, Tucson, AZ (505)

8:30 Engenia Herbicide:A Systems Approach to Weed Management Stewardship in Cotton. A. R. Rhodes*[1], K. R. Caffrey[2], A. C. Hixson[3], K. L. Liberator[4], S. H. Newell[5], J. Schultz[6], G. S. Stapleton[7], C. L. Brommer[8]; [1]BASF Corporation, Madison, MS, [2]BASF Corporation, Ridgeland, MS, [3]BASF Corporation, Lubbock, TX, [4]BASF Corporation, Raleigh, NC, [5]BASF Corporation, Statesboro, GA, [6]BASF Corporation, North Little Rock, AR, [7]BASF Corp, Dyersburg, TN, [8]BASF Corporation, Research Triangle Park, NC (506)

8:45 Engenia: Optimizing Performance and Product Stewardship in Dicamba Tolerant Crops. J. Zawierucha*, J. Frihauf, C. L. Brommer, S. J. Bowe; BASF Corporation, Research Triangle Park, NC (507)

9:00 Engenia Herbicide:A Systems Approach to Weed Management Stewardship in Soybeans. C. L. Brommer*[1], G. L. Schmitz[2], G. S. Stapleton[3], M. A. Storr[4], D. E. Westberg[5]; [1]BASF Corporation, Research Triangle Park, NC, [2]BASF Corporation, Mahomet, IL, [3]BASF Corp, Dyersburg, TN, [4]BASF Corporation, Nevada, IA, [5]BASF Corporation, Cary, NC (508)

9:15 Understanding Dicamba Off-target Symptom Development and Yield Impact in Soybean. D. E. Westberg*[1], G. L. Schmitz[2], C. L. Brommer[3], S. J. Bowe[3]; [1]BASF Corporation, Cary, NC, [2]BASF Corporation, Mahomet, IL, [3]BASF Corporation, Research Triangle Park, NC (509)

9:30 Tank Cleanout Efficiency of Dicamba From a Commercial Sprayer With Various Tank Cleaners. Z. A. Carpenter*[1], D. B. Reynolds[2], J. Frihauf[3]; [1]Mississippi State University, Mississippi State, MS, [2]Mississippi State University, Starkville, MS, [3]BASF Corporation, Research Triangle Park, NC (510)

9:45 Response of Glyphosate-resistant Soybean to Dicamba and 2,4-D Spray Tank Contamination During Vegetative and Reproductive Growth Stages. P. H. Sikkema*[1], R. E. Nurse[2], N. Soltani[1]; [1]University of Guelph, Ridgetown, ON, [2]Agriculture Canada, Harrow, ON (511)

10:00 Break

10:15 Does the Addition of Glyphosate to Dicamba Increase the Risk of Drift Induced Injury to Non-glyphosate and Non-dicamba Soybean? M. T. Bararpour*, J. K. Norsworthy, G. T. Jones; University of Arkansas, Fayetteville, AR (512)

10:30 Evaluation of Cotton Response to 2,4-D Drift from Across the Cotton Belt. S. A. Byrd*[1], G. D. Collins[2], A. S. Culpepper[3], K. L. Edmisten[2], D. M. Dodds[4], D. L. Wright[5], G. D. Morgan[6], P. Baumann[7], P. A. Dotray[8], A. S. Jones[9], M. R. Manuchehri[8], T. L. Grey[3], T. M. Webster[10], J. W. Davis[11], J. R. Whitaker[12], J. L. Snider[3], P. M. Roberts[3], W. M. Porter[3], R. L. Nichols[13]; [1]Texas A&M University, Lubbock, TX, [2]North Carolina State University, Raleigh, NC, [3]University of Georgia, Tifton, GA, [4]Mississippi State University, Mississippi State, MS, [5]University of Florida, Quincy, FL, [6]Texas A&M University, College Station, TX, [7]Texas A&M AgriLife Extension, College Station, TX, [8]Texas Tech University, Lubbock, TX, [9]University of Missouri, Portageville, MO, [10]USDA-ARS, Tifton, GA, [11]University of Georgia, Griffin, GA, [12]University of Georgia, Statesboro, GA, [13]Cotton Incorporated, Cary, NC (513)

10:45 Identification of Antagonistic Tank-mixtures in Enlist and Roundup Ready XTend Systems. C. J. Meyer*, J. K. Norsworthy, M. R. Miller, J. K. Green, M. L. Young, N. R. Steppig; University of Arkansas, Fayetteville, AR (514)

11:00 Interaction Between Xtendimax™and Group 1 Herbicides for Volunteer Corn Control in Soybean. M. Underwood*; University of Guelph, Ridgetown, ON (515)

11:15 Herbicide Programs for Marestail Control in Dicamba-Tolerant Soybeans. D. Johnson*[1], J. Bugg[2], J. Krumm[3], K. Diedrick[4], K. Backscheider[5], K. Hahn[6]; [1]DuPont Crop Protection, Des Moines, IA, [2]DuPont Crop Protection, Delaware, OH, [3]DuPont Crop Protection, Hastings, NE, [4]DuPont Crop Protection, Rio, WI, [5]DuPont Crop Protection, Shelbyville, IN, [6]DuPont Crop Protection, Bloomington, IL (516)

11:30 Differential Response of Horseweed (*Conyza canadensis*) to Auxin Herbicides. C. L. McCauley*, B. G. Young; Purdue University, West Lafayette, IN (517)

11:45 Comparison of XTendFlexWeed Control Programswith a Glytol/Liberty Link Programâ€‹. L. M. Schwartz*[1], J. K. Norsworthy[1], M. Bararpour[1], A. Cotie[2], C. Starkey[3]; [1]University of Arkansas, Fayetteville, AR, [2]Bayer CropScience, Research Triangle Park, NC, [3]Bayer CropScience, DeWitt, AR (518)

THURSDAY MORNING FEBRUARY 11
Section 2. Horticultural Crops

LOCATION: Miramar 1
TIME: 8:00 AM - 12:00 PM
CHAIR: Martin Williams II
USDA-ARS
Urbana, IL
CO-CHAIR: Roger Batts
NCSU IR-4 Field Research Center
Raleigh, NC
MODERATOR: Martin Williams II

***SPEAKER**

8:00 Testing Herbicides for Young Blueberry Plantings in the Pacific Northwest. T. W. Miller*, C.

R. Libbey; Washington State University, Mount Vernon, WA (519)

8:15 Performance of Indaziflam and Rimsulfuron Tankmix Combinations in California Tree Nut Orchards. B. D. Hanson*, S. Watkins; University of California, Davis, Davis, CA (520)

8:30 Olive Response to Indaziflam in Georgia. T. L. Grey*[1], K. S. Rucker[2], T. M. Webster[3], X. Luo[1]; [1]University of Georgia, Tifton, GA, [2]Bayer Crop Science, Tifton, GA, [3]USDA-ARS, Tifton, GA (521)

8:45 Vegetable Weed Control with Bicyclopyrone. B. H. Zandstra*, C. J. Phillippo, M. A. Goll; Michigan State University, East Lansing, MI (522)

9:00 Pyroxasulfone for Weed Control in Carrot, Celery, and Onion on High Organic Soil. C. J. Phillippo*, B. H. Zandstra, M. A. Goll; Michigan State University, East Lansing, MI (523)

9:15 Application of Dimethenamid-p Through the Irrigation Drip to Control Yellow Nutsedge in Direct-Seeded Dry Bulb Onion. J. Felix*, J. Ishida; Oregon State University, Ontario, OR (524)

9:30 Potato Tolerance and Weed Control of Metribuzin Applied at a Reduced Preharvest Interval. P. J. Dittmar*; University of Florida, Gainesville, FL (525)

9:45 Breaking Bindweed: Managing *Convolvulus arvensis* in California Processing Tomatoes. L. M. Sosnoskie*, B. D. Hanson; University of California, Davis, Davis, CA (526)

10:00 Break

10:15 Simulated Dicamba Drift Impacts Snap Bean, Lima Bean, and CowpeaDevelopment with Residue Detection Levels Analyzed inLeaves and Fruit of Snap Bean. A. S. Culpepper*[1], J. Flowers[2], N. Leifheit[2], M. Curry[2], R. Beverly[2], T. Gray[3]; [1]University of Georgia, Tifton, GA, [2]Georgia Department of Agriculture, Tifton, GA, [3]Georgia Department of Agriculture, Atlanta, GA (527)

10:30 Automated Lettuce Thinners: Can They Also Contribute to Weed Control? E. Mosqueda*[1], R. F. Smith[2], A. Shrestha[1]; [1]California State Universi-

ty, Fresno, CA, [2]University of California Cooperative Extension, Salinas, CA (528)

10:45 Fumigant Placement for Improve Weed Control in Horticultural Crops. N. S. Boyd*[1], G. Vallad[1], J. Noling[2]; [1]University of Florida, Wimauma, FL, [2]University of Florida, Lake Alfred, FL (529)

11:00 Solarization Treatments as Alternatives to Soil Fumigation in Annual Strawberry Plasticulture Production. J. B. Samtani*, C. S. Johnson, J. F. Derr, L. A. Darnell, M. A. Conway, R. D. Flanagan III; Virginia Tech, Virginia Beach, VA (530)

11:15 Bicyclopyrone Performance in Minor/Specialty Crops. C. L. Dunne*[1], E. K. Rawls[1], G. D. Vail[2], M. Saini[2]; [1]Syngenta Crop Protection, Vero Beach, FL, [2]Syngenta Crop Protection, Greensboro, NC (531)

11:30 IR-4 Update and Herbicicde Registration Progress. D. Kunkel*[1], M. Arsenovic[2], R. B. Batts[3], M. Braverman[4], J. Baron[1]; [1]IR-4, Rutgers University, Princeton, NJ, [2]Rutgers University, Princetion NJ, NJ, [3]NCSU IR-4 Field Research Center, Raleigh, NC, [4]Rutgers University, Princeton, NJ (532)

11:45 Section Business Meeting

THURSDAY MORNING FEBRUARY 11
Section 4. Pasture, Rangeland, Forest, and Rights of Way

LOCATION: Laguna 1 & 2
TIME: 8:15 AM - 11:45 AM
CHAIR: Stephen Enloe
University of Florida
Gainesville, FL
CO-CHAIR: Andrew Skibo
SePRO Corporation
Fort Collins, CO
MODERATOR: Andrew Skibo

***SPEAKER**

8:15 New Selective Herbicides for Pre- and post-emergence Weed Control in *Eucalyptus* Plantations. P. J. Minogue*; University of Florida, Tallahassee, FL (533)

8:30 Use of Indaziflam for Herbaceous Weed Control in Longleaf Pine Plantings. A. W. Ezell*; Mississippi State University, Starkville, MS (534)

8:45 Addition of Saflufenacil to Site Preparation Mixtures for Natural Pine Control. A. W. Ezell*[1], A. B. Self[2]; [1]Mississippi State University, Starkville, MS, [2]Mississipiip State University, Grenada, MS (535)

9:00 Alternatives to Mefluidide for Plant Growth Regulation of Roadside Turf. J. Johnson*, D. A. Despot, J. C. Sellmer; Penn State, University Park, PA (536)

9:15 Long Term Competitive Grasses for Creeping Lantana Control: What Works Best After 15 Years. C. C. O'Donnell*[1], S. W. Adkins[2]; [1]The University of Queensland, Brisbane, Australia, [2]University of Queensland, Gatton, Australia (537)

9:30 Foxtail Problem in Pasture:Occurrence, Progress, Past and Current Research. S. Li*; Auburn University, Auburn, AL (538)

9:45 Winter Annual Grass Control and Remnant Plant Community Response to Indaziflam and Imazapic. D. J. Sebastian*, S. J. Nissen; Colorado State University, Fort Collins, CO (539)

10:00 Break

10:15 Smutgrass Management in Florida. B. A. Sellers*[1], J. C. Dias[1], N. Rana[2], J. A. Ferrell[3]; [1]University of Florida, Ona, FL, [2]Monsanto, St. Louis, MO, [3]University of Florida, Gainesville, FL (540)

10:30 Establishing the Relationship Between Weeds and Pastures with Milk Production in Selected Dairy Farms of Puerto Rico. W. Robles*[1], G. Ortiz[2], E. Jimenez[2], M. Torres[2], J. Curbelo[2], S. Prieto[2]; [1]University of Puerto Rico, Mayaguez, Dorado, PR, [2]University of Puerto Rico, Mayaguez, Mayaguez, PR (541)

10:45 Controlling Unwanted Mississippi and Arkansas Hardwoods With a Cut Stump Treatment of MAT28-year Two Results. J. L. Yeiser*[1], A. W. Ezell[2]; [1]University of Arkansas at Monticello, Monticello, AR, [2]Mississippi State University, Starkville, MS (542)

11:00 Basal Bark Control of Mississippi and Arkansas Unwanted Hardwoods with MAT28-year Two Results. J. L. Yeiser*[1], A. W. Ezell[2]; [1]University of Arkansas at Monticello, Monticello, AR, [2]Mississippi State University, Starkville, MS (543)

11:15 A Hack Researcher Takes a Hack at Hack and Squirt Research. S. F. Enloe*; University of Florida, Gainesville, FL (544)

11:30 Section Business Meeting

THURSDAY MORNING FEBRUARY 11
Section 5. Wildland and Aquatic Invasive Plants

LOCATION: San Juan 2&3
TIME: 8:15 AM - 11:00 AM
CHAIR: Mark Heilman
SePRO Corporation
Carmel, IN
MODERATOR: Mark Heilman

***SPEAKER**

8:15 A Comparison of Cogongrass Growth and Response to Glyphosate From Populations Across the Southeastern US. A. Banu*[1], S. F. Enloe[1], N. Loewenstein[2], R. D. Lucardi[3]; [1]University of Florida, Gainesville, FL, [2]Auburn University, Auburn, AL, [3]USDA Forest Service, Athens, GA (545)

8:30 Creeping Waterprimrose:A Growing Threat to Aquatic Ecosystems. S. F. Enloe*; University of Florida, Gainesville, FL (546)

8:45 Introduction to Procellacor™ - a Novel Herbicide for Selective Control of Hydrilla, Eurasian Watermilfoil, and Several Other Major Invasive Aquatic Weeds. M. A. Heilman*, T. J. Koschnick, B. Willis; SePRO Corporation, Carmel, IN (547)

9:00 Evaluating the Sensitivity of Representative Aquatic Plants to Procellacor(TM) Herbicide. M. D. Netherland[1], R. J. Richardson*[2], E. Haug[2], M. A. Heilman[3]; [1]US Army ERDC, Gainesville, FL, [2]North Carolina State University, Raleigh, NC, [3]SePRO Corporation, Carmel, IN (548)

9:15 Evaluating the Sensitivity of Additional Aquatic Plants to Procellacor(TM) Herbicide. E. Haug*[1], R. J. Richardson[1], M. D. Netherland[2], M. A. Heilman[3]; [1]North Carolina State University, Raleigh, NC, [2]US Army ERDC, Gainesville, FL, [3]SePRO Corporation, Carmel, IN (549)

9:30 Monoecious*Hydrilla verticillata*Competition with Four Submersed Plants in Two Climates.

A. Henry*, R. J. Richardson, E. Haug; North Carolina State University, Raleigh, NC (550)

9:45 MonoeciousHydrilla Treatment with Fluridone in aLoticSystem: Target and Non-target Species Responses. S. Auell*, R. J. Richardson, S. Hoyle; North Carolina State University, Raleigh, NC (551)

10:00 Break

10:15 Correlation of Hydroacoustic Signature to Submersed Plant Biomass. A. Howell*, R. J. Richardson, J. Nawrocki; North Carolina State University, Raleigh, NC (552)

10:30 An Emerging Invasive Plant Species, Ventenata dubia, Impacts the Inland Pacific Northwest. Are We at the Beginning or the End of the Invasion Curve? T. Prather*; University of Idaho, Moscow, ID (553)

10:45 Section Business Meeting

THURSDAY MORNING FEBRUARY 11
Section 8. Formulation, Adjuvant and Application Technology

LOCATION: Miramar 2&3
TIME: 8:15 AM - 11:30 AM
CHAIR: Rakesh Jain
Syngenta Crop Protection
Vero Beach, FL
MODERATOR: Rakesh Jain

***SPEAKER**

8:15 Determining the Microwave Iradiation Level Needed for Weed Control Using a Stationary Versus a Mobile Microwave Applicator. A. Rana*, J. F. Derr; Virginia Tech, Virginia Beach, VA (554)

8:30 Efficacy of CHA-2745 for Pre-emergence Weed Control in Cotton. Z. E. Schaefer*[1], K. Smith[2], R. A. Garetson[1], M. V. Bagavathiannan[1]; [1]Texas A&M University, College Station, TX, [2]FMC/ Cheminova, Groveton, TX (555)

8:45 The Effect of Nozzle Type and Spray Timing on Postemergence Weed Control Efficacy. S. Li*; Auburn University, Auburn, AL (556)

9:00 Influence of Carrier Water Hardness and Ammonium Sulfate on Weed Control with POST Herbicides. P. Devkota*, W. G. Johnson; Purdue University, West Lafayette, IN (557)

9:15 Efficacy of Fomesafen +/- Dicamba Applied with Low-drift Nozzles in Simulated Commercial Applications. R. Wuerffel*[1], M. Saini[2], D. Porter[3]; [1]Syngenta Crop Protection, St. Louis, MO, [2]Syngenta Crop Protection, Greensboro, NC, [3]Syngenta Crop Protection, Raleigh, NC (558)

9:30 Performance of Certain Herbicides as Influenced by Novel Adjuvant Systems. R. J. Edwards[1], G. K. Dahl[1], J. A. Gillilan*[2], E. P. Spandl[3], J. V. Gednalske[1]; [1]Winfield Solutions, LLC, River Falls, WI, [2]Winfield Solutions, LLC, Springfield, TN, [3]Winfield Solutions, LLC, Shoreview, MN (559)

9:45 Visualization of the Deposition and Drift of Aerially Applied Spray Mixtures. G. K. Dahl*[1], E. P. Spandl[2], T. Goede[3], R. L. Pigati[2], K. Gehl[1], R. J. Edwards[1], J. V. Gednalske[1]; [1]Winfield Solutions, LLC, River Falls, WI, [2]Winfield Solutions, LLC, Shoreview, MN, [3]Winfield Solutions, LLC, Durand, IL (560)

10:00 Break

10:15 Balancing Coverage and Spray Drift Reduction are Not Mutually Exclusive – How Both Can be Achieved. J. Ferguson*[1], C. C. O'Donnell[1], R. G. Chechetto[2], S. W. Adkins[1], B. S. Chauhan[3], G. R. Kruger[4], A. J. Hewitt[5]; [1]University of Queensland, Gatton, Australia, [2]University of Queensland and UNESP - Botucatu, Gatton, Australia, [3]The University of Queensland, Toowoomba, Australia, [4]University of Nebraska-Lincoln, North Platte, NE, [5]University of Queensland and University of Nebraska-Lincoln, Gatton, Australia (561)

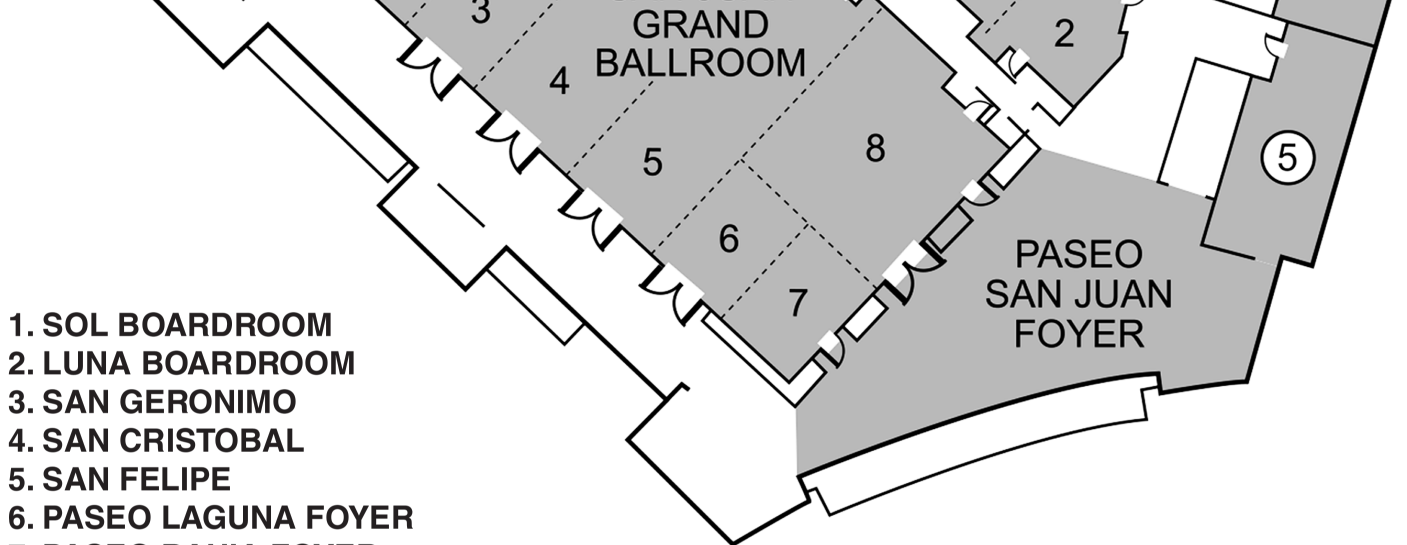
10:30 The Comparison of Off-Target Movement of Various Size Spray Droplets When Applied with an Open Boom versus a Shielded Boom. H. C. Foster*[1], D. B. Reynolds[1], G. R. Kruger[2], S. Claussen[3]; [1]Mississippi State University, Starkville, MS, [2]University of Nebraska-Lincoln, North Platte, NE, [3]Wilmar Fabrication, LLC (Redball), Wilmar, MN (562)

10:45 Influence of Tractor Speed and Boom Height on Spray Coverage. E. P. Prostko*[1], G. C. Rains[2], O. W. Carter[1]; [1]University of Georgia, Tifton, GA, [2]The University of Georgia, Tifton, GA (563)

11:00 Influence of Spray Droplet Size on Herbicide Performance. J. A. McGinty*[1], P. Baumann[2]; [1]Texas A&M AgriLife Extension, Corpus Christi, TX, [2]Texas A&M AgriLife Extension, College Station, TX (564)

11:15 Section Business Meeting

SECOND FLOOR



1. SOL BOARDROOM
2. LUNA BOARDROOM
3. SAN GERONIMO
4. SAN CRISTOBAL
5. SAN FELIPE
6. PASEO LAGUNA FOYER
7. PASEO BAHIA FOYER
8. PASEO MIRAMAR FOYER

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6:45			SWSS Reception	
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