Joint 2014 Meeting
Weed Science Society of America
And
Canadian Weed Science Society/Société canadienne de malherbologie

Location of Special Committees and Activities February 2014

WSSA Photo Contest Judging ..... Constable
Registration (Including Guests) ..... Regency Foyer
WSSA Board Meeting (Sat/Sun/Thurs)..... Stanley
CWSS/SCM BOD Meeting (Mon/Thurs)..... Cypress

Local Arrangements Committee 2014-Vancouver, British Columbia

Chair.....Victoria Brookes
Posters ..... Hugh Beckie
CWSS/SCM Industry Reception .....Don Hare
CWSS/SCM Photo Contest.....Christine Bruneau
Local Sponsorship.....David Ralph, Grant McMillan
Audio Visual .....Tim Miller
Media and Publicity ..... David Clements
Commercial Displays.....Lisa Lunn
Graduate Student Session .....Mahesh Upadhyaya
Registration/CWSS-SCM Ex. Asst. ..... Anita Drabyk
PUFF Run ..... Rod Lym

THE 2014 WSSA/CWSS-SCM PROGRAM

Welcome to the 2014 joint meeting of the Weed Science Society of America (WSSA) and the Canadian Weed Science Society/Société canadienne de malherbologie (CWSS/SCM) at the Hyatt Regency Vancouver. We have a very full venue with a broad diversity of topics.

The General Session and Awards Ceremony will begin at 4:00 pm in Regency D/E/F. Our keynote speaker is Dr. Sam Chan, an Assistant Professor at Oregon State University. Dr. Chan is Oregon Sea Grant's expert in aquatic invasive species and aquatic ecosystem health and will give a fascinating talk on the movement of invasive marine species to the west coast of the US on debris deposited in the ocean from the Japan tsunami a couple of years ago. The Awards Ceremony will include the presentation of the WSSA Awards, as well as the CWSS/SCM Fellow awards. We hope you will attend this session to honor these deserving awardees from both Societies. Following the Awards Ceremony, WSSA will host an Awards Reception beginning at 6:00 pm. All registered attendees from both societies 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.

This year there are 393 presentations of which 125 are posters. There will be two poster sessions: Tuesday and Wednesday, 8 – 10 am. This year we will provide coffee at the poster session, based on several comments from the survey that we took careful note of. 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. Oral presentations will begin at 10 am on Tuesday and Wednesday morning and at 8 am on Thursday morning. Oral presentations will also continue from 1 – 5 pm on Tuesday and Wednesday afternoon, but on Thursday the conference will adjourn at noon.

The third annual Presidents Uniform Fitness Forum (PUFF) will take place at 7:30 am on Tuesday. The PUFF is an all-inclusive run/walk to start the day with your fellow weed scientists.

The CWSS/SCM Graduate Student Paper Contest will take place on Tuesday. These papers will be in a separate concurrent session. A total of 20 graduate students have

signed up for the contest. Anyone may attend this session to listen to and ask questions about some of the interesting and varied research the CWSS/SCM graduate students and their advisors are conducting. The award winners for the oral presentations will be announced at the CWSS/SCM Awards Luncheon on Wednesday from noon – 1:30 pm.

There are four very interesting symposia and two excellent workshops at this meeting. The first workshop "Use of linear and nonlinear regression in physical, chemical and biological weed control" will be all day and is scheduled for Sunday, February 2. There is a symposium scheduled for each day of the conference. The first symposium is "Turf wars and the emergence of pesticide bans in Canada and the US" that will be on Tuesday afternoon. This symposium was organized by Jenny Kao-Kniffin. The goal of the symposium is to link Canadian and American turf scientists together to discuss the development of alternative weed management techniques that utilize non-chemical or organic methods for turf establishment and maintenance. On Wednesday afternoon, there will be two symposia. The first, "Vulnerability of the Pacific Northwest to plant invasions", is organized by David Clements, the current President of CWSS/SCM. The symposium will review the general vulnerability of the Pacific Northwest region to invasion, highlight cases involving invasive plants, and evaluate the response by researchers and managers. Concurrently, a second symposium, "Bioherbicides: Current status and the future prospects", has been organized by Steve Duke and Franck Dayan. This symposium brings together innovators in the area of bioherbicide development and discusses some of the potential products and their utility. Finally, on Thursday morning there is a symposium on "Addressing global herbicide resistance issues – industry perspective and initiatives." The symposium is organized by Mark Peterson, John Soteres and Harry Strek and will focus on the role of industry in addressing herbicide resistance and the initiatives they are taking to prevent and manage resistance.

The graduate student luncheon will be on Tuesday, and on Wednesday morning, there will be a graduate student professional development workshop. The guest speaker will be Dr. Michael Dunphy who has a background in biochemistry. He is known to be a very dynamic speaker and will give a presentation entitled, "Optimizing performance as a professional and professional work-life harmony tactics."

The WSSA Business Meeting will be held Tuesday from 5 - 6 pm where Jim Kells will give an overview of the society activities in the past year. The CWSS/SCM Business Meeting will be held on Thursday morning from 6:30 – 8 am.

Special thanks to our Local Arrangements Chair Victoria Brookes, who did the bulk of the organizing for the two tours (winery and botanical garden) and other activities. Thanks should also be given to the many section chairs for their efforts to help organize the meeting. This includes Prashant Jha, Todd Gaines, Peter Dittmar, Ramon Leon, Darrin Dodds, Greta Gramig, Mahesh Upadhyaya, Rakesh Chandran, Greg Dahl, Kyle Keller, Andrew Skibo, Craig Ramsey, Bill Bruckart, Chris Benedict, Andrew Ezell, and Michael Bowers. Also, let Joyce Lancaster of Allen Press know how much you appreciate the work she does, not only on the annual meeting, but all of the Society's business. She really is the workhorse and the engine for the society.

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.

Joe DiTomaso, 2014 WSSA Program Chair
Hugh Beckie, 2014 CWSS/SCM Program Chair

2014 Program Committee

General Program Chairs..... Joe DiTomaso, Hugh Beckie
Vice Chair ..... Dallas Peterson
Agronomic Crops..... Prashant Jha
Horticultural Crops .....Peter Dittmar
Turf and Ornamentals .....Ramon Leon
Pastures, Rangelands, Forests, & Rights-of-Way..... Andy Ezell
Wildland and Aquatic Invasives..... Andrew Skibo
Regulatory Aspects .....Craig Ramsey
Teaching and Extension ..... Darrin Dodds
Formulation, Adjuvant, & Application Technology ....Greg Dahl
Weed Biology and Ecology..... Greta Gramig
Biocontrol of Weeds..... Bill Bruckart
Physiology..... Todd Gaines
Soil and Environmental Aspects .....Kyle Keller
Integrated Weed Management..... Chris Benedict
Sustaining Member Exhibits Session.....Jim Steffel
Poster Sessions.....Rakesh Chandran

General Information

Hotel

A classic, reborn. Hyatt Regency Vancouver, renowned for its exemplary service and attentive staff, now welcomes guests with a fresh new look in its prime location. This gracious hotel in downtown Vancouver boasts well-appointed newly renovated guestrooms with contemporary styling, unmatched meeting and convention facilities and tantalizing dining options. Surrounded by the bustling business center, moments from shops and entertainment, our luxurious downtown Vancouver hotel is the ideal starting point to explore everything this dynamic city offers. Whether attending a conference or enjoying a vacation, discover why we are the unsurpassed choice among hotels in Vancouver, British Columbia.

Help green the planet with a stay at Hyatt to be awarded the highest rating of Five Keys by the HAC Green Key Program, our Vancouver Hyatt uses the services of Bullfrog Power (100% green electricity from wind power) for all its meeting rooms.

All Accommodations Offer:

- Hyatt Grand Bed™
- High-speed wired & wireless internet

- 42” high definition LED Television with remote control, cable, pay movies
- Video checkout, video account review
- Voicemail, telephone with message light, two-line data port phones
- Individual climate control
- Electronic door lock
- In-room laptop-sized safe
- Turndown service available upon request
- Full bath amenities; hair dryer; bathrobes
- Coffeemaker
- In-room refrigerator
- Iron / ironing board
- iHome® stereo with MP3 docking station
- Currency exchange at front desk

Let the luxurious Hyatt Regency Vancouver be your ideal starting point to explore everything this dynamic city offers. Freshly updated to reflect the excitement and vibrancy of Vancouver, our hotel is surrounded by the bustling business centre and within close proximity of the unique shops of Robson Street, the greenery of Stanley Park, the Vancouver Convention Centre, and Rogers Arena, home of the National Hockey League’s Vancouver Canucks. For business travel or vacation, reward yourself with a stay at the favored choice of hotels in Vancouver, British Columbia.

The Hyatt Regency is making available 20 student rooms each night at the reduced rate of CAD $99.00 single occupancy/$129.00 double occupancy. This is first-come, first-served so you need to reserve these early. Student reservations will be cross-checked with the registrant list to ensure that only those who qualify for the rooms obtain them. Valid student ID’s will need to be presented upon check-in.

Reservations

One of the reasons we have been able to retain relatively low meeting registration costs is that we receive free meeting space from the hotel if we achieve our contracted guest room minimum. However, we are charged attrition fees & meeting space rental fees if we do not meet this threshold. Thus, your reservation at the Hyatt Regency Vancouver, rather than another location, ensures the success of the meeting for the Societies and enables us to keep registration rate increases to a minimum in the future.

As part of our contract, we've negotiated in complimentary guestroom internet for all attendees staying at the hotel—typically a cost of CAD $9.95/day, along with complimentary access to the Fitness Centre. Additionally, our discounted room rates will be available three days pre- and post-conference (with hotel availability) should you wish to extend your stay in Vancouver.

To make reservations online, visit: https://resweb.passkey.com/go/wssa2014annualmtg. If you'd prefer to reserve your room via phone, please call: 1-888-421-1442 (North America) or 1-402-592-6464 (International)—be sure to mention "WSSA" in order to get the discounted rate.

Our discounted block is available through **Monday, January 6, 2014**. Reservation requests received after the cut-off date will be based on availability & may be subject to the hotel's prevailing rates.

Check-in time at the Hyatt Regency is 4 p.m. with check-out at noon. While the hotel does not require a deposit, a credit card will need to be provided as a guarantee. Should you need to cancel your reservation, please do so by 4 p.m. (Pacific time), 24 hours prior to the date of arrival to avoid a penalty charge of one night room and tax.

Transportation

Taxi service from the Vancouver International Airport generally runs about $35 CAD. Most taxis accept credit cards.

A low fare option for transportation to/from the airport is the SkyTrain Light Rail. Vancouver's SkyTrain is the oldest and one of the longest automated driverless light rapid transit systems in the world. The Expo and millennium SkyTrain Lines connect downtown Vancouver with the cities of Burnaby, New Westminster and Surrey. The Canada Line connects downtown Vancouver to the Vancouver International Airport (YVR) and the city of Richmond. It's roughly a 30 minute trip between the airport & Hyatt Regency and costs $9 CAD (passes can be purchased at the SkyTrain station); the return trip is $ 4 CAD – you will need to know that you are passing through two zones. The airport's website has information regarding where the train can be accessed; from there you get on the train at the YVR-Airport Station Eastbound to the Waterfront and get off at the City Center station, taking Georgia Street to Burrard Street, where the Hyatt Regency is located.

Driving Directions:

From Vancouver International Airport (YVR) 10 miles/16 kilometres):

Take Grant McConnachie Way over the Arthur Lang Bridge. Exit Granville Street and proceed north (about 10 km). Turn left at 16th Avenue. Go down two blocks and turn right on Burrard Street. Proceed on Burrard and over Burrard Street Bridge to Georgia Street (10 blocks). Hyatt Regency Vancouver is on your left.

From Seattle (approx 140 miles/225 kilometres):

Proceed on I-5 through Peace Arch border crossing. Continue on Highway 99 on Canadian side and follow it for approximately 20 miles/35 kilometres through the municipalities of Surrey and then Richmond. Highway will turn into Oak Street Bridge and then Oak Street. Follow it to 49th Avenue and turn left. Go right on Granville Street and then follow instructions as above.

From Eastern Suburbs:

Exit Highway 1 at 1st Avenue. Hotel is approximately 6 miles/10 km from exit. Follow 1st Avenue which at Clark Drive turns into Terminal Avenue. Follow Terminal Avenue and turn right on to Main Street. Stay on Main Street for 3 blocks and follow signs to downtown Vancouver. Exit left on to Dunsmuir Viaduct. Follow Dunsmuir past Rogers Arena, stay on Dunsmuir for approximately 10 blocks, and then turn left on Burrard Street. Hyatt Regency Vancouver is one block up on the right.

Program Booklet and Abstracts

All those registering for the annual meeting will receive a program booklet. The program will be mailed to those US attendees registering before January 10, 2014. Canadian, International, and on-site 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. For those of you receiving programs in the mail, please bring these with you to the meeting as we only print enough to accommodate any additional on-site registrants.

CWSS/SCM MEETINGS

MONDAY, February 3

8:30 a.m. – 3:00 p.m.
CWSS/SCM Board of Directors Meeting..... Cypress

6:00 p.m. – 6:30 p.m.
CWSS/SCM Board of Directors and Graduate Student Meet and Greet..... Georgia A

TUESDAY, February 4

10:00 a.m. – noon
CWSS/SCM Graduate Student Presentation Contest
.....Plaza B

12:00 noon – 1:00 p.m.
CWSS-SCM/WSSA Grad Student Luncheon
..... Balmoral

1:00 p.m. – 5:00 p.m.
CWSS/SCM Grad Student Presentation Contest
.....Plaza B

WEDNESDAY, February 5

7:00 a.m. – 8:00 a.m.
CWSS/SCM Local Arrangements Breakfast
..... Constable

10:00 a.m. – noon
CWSS-SCM/WSSA Graduate Student Workshop
..... Regency D

10:00 a.m. – noon
PMRA, CFIA Regulatory Issues & Provincial Weed Reports ……...Regency E

12:00 noon – 1:30 p.m.
CWSS/SCM Awards Luncheon ..... Grouse

7:00 p.m. – 9:00 p.m.
CWSS/SCM Industry Reception ..... Georgia AB & Foyer

THURSDAY, February 6

6:30 a.m. – 8:00 a.m.
CWSS/SCM Business Meeting Breakfast ..... Georgia AB

12:00 noon – 3:00 p.m.
CWSS/SCM Board of Directors ..... Cypress

WSSA Committee Meetings

SATURDAY, February 1

7:30 a.m. - 5:00 p.m.
Board of Directors..... Stanley

SUNDAY, February 2

7:30 a.m. – 12:00 noon
Board of Directors..... Stanley

1:00 p.m. – 5:00 p.m.
WERA 60..... Georgia A

MONDAY, February 3

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

8:00 a.m. – 9:00 a.m.
Invasive Plant Science & Management Editorial Board (P4)
.....Plaza BC

8:00 a.m. – 10:00 a.m.
Herbicide Handbook (P6)..... Kensington

8:00 a.m. – 10:00 a.m.
Environmental Aspects of Weed Management (E8)
..... Cavendish

8:00 a.m. – 10:00 a.m.
Extension (W11) ..... Brighton

8:00 a.m. – 10:00 a.m.
Herbicide Resistance Education (S71)..... Plaza A

8:00 a.m. – 12:00 noon
WERA-60 ..... Georgia A

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

10:00 a.m. – 11:00 a.m.
Weed Science Editorial Board (P2) .....Plaza BC

10:00 a.m. – 12:00 noon
Science Policy (E2)..... Plaza A

10:00 a.m. – 12:00 noon
Research & Competitive Grants (E6) ..... Windsor

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

12:00 noon – 1:00 p.m.
Photo Contest (W3j) .....Constable

1:00 p.m. – 2:00 p.m.
Biological Control of Weeds (W16).....Lord Byron

1:00 p.m. – 3:00 p.m.
Website (E14).....Windsor

1:00 p.m. – 3:00 p.m.
WERA 60 and Herbicide Resistant Plants (E12)
.....Georgia A

1:30 p.m. – 2:30 p.m.
Public Awareness (E13) .....Cavendish

WEDNESDAY, February 5

6:00 a.m. – 8:00 a.m.
National and Regional Presidents Breakfast
.....Seymour

7:00 a.m. – 9:00 a.m.
Finance Committee (F1) ..... Cavendish

THURSDAY, February 6

12:00 noon – 1:30 p.m.
Board of Directors..... Stanley

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.

Contact Joyce Lancaster, Executive Secretary, at jlancaster@allenpress.com to arrange space for committee meetings or room assignments not scheduled in this program.

SUMMARY OF 2014 PROGRAM

SATURDAY MORNING, February 1

7:30 a.m. – 5:00 p.m.
WSSA Board of Directors ..... Stanley

SUNDAY MORNING, February 2

7:30 a.m. – 12:00 noon
WSSA Board of Directors ..... Stanley

8:00 a.m. – 5:00 p.m.
Linear/Nonlinear Regression Workshop ..... Georgia B

12:30 p.m. – 5:30 p.m.
Tours (Wine Tour and UBC Botanical Gardens Tour)
.....Tour participants meet in Hotel Lobby

1:00 p.m. – 5:00 p.m.
WERA 60 Committee ..... Georgia A

MONDAY MORNING, February 3

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

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

12:00 noon – 1:00 p.m
WSSA Photo Contest Judging ..... Constable

MONDAY AFTERNOON, February 3

1:00 p.m. – 3:00 p.m.
Registration ..... Regency Foyer

4:00 p.m. – 6:00 p.m.
General Session and WSSA Awards/CWSS-SCM Fellow Award Presentations.....Regency DEF

6:00 p.m. – 8:00 p.m.
WSSA/CWSS-SCM Opening Reception
..... Balmoral/Regency Foyer
(Open to all registrants)

6:00 p.m. – 6:30 p.m.
CWSS/SCM BOD/Graduate Student Meet & Greet
..... Georgia A

TUESDAY MORNING, February 4

7:30 a.m.
Annual PUFF Event ..... Meet in Hotel Lobby

7:00 a.m. – 12:30 p.m.
Registration ..... Regency Foyer

7:45 a.m. – 8:00 a.m.
Poster Session Business Meeting..... Regency ABC

8:00 a.m. – 10:00 a.m.
Poster Session ..... Regency ABC
Authors of even-numbered posters will be present.

8:00 a.m. – 5:00 p.m.
Exhibits ..... Regency ABC

10:00 a.m. – 5:00 p.m.
Posters on display without authors …..... Regency ABC

10:00 a.m. – 12:00 noon
CWSS/SCM Graduate Student Presentation Contest
.....Plaza B

10:00 a.m. – 12:00 noon
NIFA Supported Research .....Plaza A

10:00 a.m. – 11:45 a.m.
3. Turf & Ornamentals..... Georgia B

10:00 a.m. – 11:15 a.m.
6. Regulatory Aspects.....Plaza C

10:00 a.m. – 12:00 noon
9. Weed Biology & Ecology .....Regency E

10:00 a.m. – 12:00 noon
11. Physiology ..... Georgia A

TUESDAY AFTERNOON, February 4

12:00 noon – 1:00 p.m.
Graduate Student Luncheon (WSSA/CWSS-SCM students)
..... Balmoral

1:30 – 4:00 p.m.
Registration ..... Regency Foyer

1:00 p.m. – 5:00 p.m.
Symposium: Turf Wars & the Emergence of Pesticide Bans in Canada & the US..... Regency D

1:00 p.m. – 4:15 p.m.
CWSS/SCM Graduate Student Presentation Contest ....Plaza B

1:00 p.m. – 2:45 p.m.
NIFA Supported Research .....Plaza A

1:00 p.m. – 5:00 p.m.
1. Agronomic Crops .....Regency F

1:00 p.m. – 3:30 p.m.
4. Pasture, Rangeland, Forests & Rights of Way .... Plaza C

1:00 p.m. – 5:00 p.m
9. Weed Biology & Ecology .....Regency E

1:00 p.m. – 5:00 p.m.
13. Integrated Weed Management ..... Georgia B

5:00 p.m. – 6:00 p.m.
WSSA Business Meeting..... Georgia A

WEDNESDAY MORNING, February 5

6:00 a.m. – 8:00 a.m.
WSSA Regional Presidents Breakfast .....Seymour

7:00 a.m. – 8:00 a.m.
CWSS/SCM Local Arrangements ..... Constable

7:30 a.m. – 12:00 noon
Registration ..... Regency Foyer

8:00 a.m. – 10:00 a.m.
Poster Session ..... Regency ABC
Authors of odd-numbered posters will be present

8:00 a.m. – 5:00 p.m.
Sustaining Members Exhibits ..... Regency ABC

10:00 a.m. – 5:00 p.m.
Posters on display without authors..... Regency ABC

10:00 a.m. – 12:00 noon
Graduate Student Workshop..... Regency D
(All WSSA/CWSS-SCM students welcome)

10:00 a.m. – 12:00 noon
PMRA, CFIA Regulatory Issues and Provincial Weed Reports ..... Regency E

10:00 a.m. – 12:00 noon
1. Agronomic Crops ..... Regency F

10:00 a.m. – 11:30 a.m.
3. Turf & Ornamentals..... Georgia B

10:00 a.m. – 12:00 noon
8. Formulation, Adjuvant & Application Technology ..... Plaza A

10:00 a.m.- 11:15 a.m.
10. Biocontrol of Weeds ..... Plaza B

10:00 a.m. – 11:00 a.m.
12. Soil & Environmental Aspects ..... Plaza C

WEDNESDAY AFTERNOON, February 5

12:00 noon – 1:30 p.m.
CWSS/SCM Awards Luncheon..... Grouse

1:00 p.m. – 3:00 p.m.
Registration ..... Regency Foyer

1:45 p.m. – 5:00 p.m.
Symposium: Vulnerability of the Pacific Northwest to Plant Invasions..... Regency D

1:00 p.m. – 5:00 p.m.
Symposium: Bioherbicides: Current Status and the Future Prospects..... Plaza B

1:00 p.m. – 5:00 p.m.
1. Agronomic Crops ..... Regency F

1:00 p.m. – 4:00 p.m.
2. Horticultural Crops..... Plaza A

1:00 p.m. – 4:15 p.m.
9. Weed Biology & Ecology ..... Regency E

1:00 p.m. – 5:00 p.m.
13. Integrated Weed Management ..... Plaza C

7:00 p.m. – 9:00 p.m.
CWSS/SCM Industry Reception (CWSS/SCM Attendees and Ticketed Guests) ..... Georgia AB & Foyer

THURSDAY MORNING, February 6

6:30 a.m. – 8:00 a.m.
CWSS/SCM Business Meeting Breakfast ..... Georgia AB

7:00 a.m. – 10:00 a.m.
Registration ..... Regency Foyer

8:00 a.m. – 12:00 noon
Poster Session: Posters without authors available for viewing ..... Regency ABC

8:00 a.m. – 12:00 noon
Sustaining Members Exhibits ..... Regency ABC

8:00 a.m. – 12:00 noon
Symposium: **Addressing Global Herbicide Resistance Issues** ..... Regency D

8:00 a.m. – 11:00 a.m.
1. Agronomic Crops ..... Regency F

8:00 a.m. – 10:45 a.m.
5. Wildland & Aquatic Invasives ..... Plaza B

8:00 a.m. – 11:15 a.m.
7. Education & Extension..... Plaza C

8:00 a.m. – 12:00 noon
11. Physiology ..... Regency E

12:00 noon – 2:00 p.m.
Dismantle Posters and Exhibits

THURSDAY AFTERNOON, February 6

12:00 noon – 1:30 p.m.
WSSA Board of Directors ..... Stanley

12:00 noon – 3:00 p.m.
CWSS/SCM Board of Directors ..... Cypress

COMPLETE PROGRAM

MONDAY PM, February 3
GENERAL SESSION

Location: Regency DEF
Chairs: Joe DiTomaso and Hugh Beckie

4:00 p.m.
Introduction and Announcements, Joe DiTomaso, President-Elect, WSSA, Hugh Beckie, President-Elect, CWSS/SCM

4:10 p.m.
Welcome: The Honorable Judith Guichon, OBC

4:25 p.m.
Keynote Address: Dr. Samuel Chan, Oregon State University, "Emerging Concerns for a Natural Disaster Driven Invasive Species Pathway in the Modern Era: Hitchhiking Organisms on Japanese Tsunami Debris".

4:50 p.m.
Presentation of WSSA Awards, Dwight Lingenfelter, Chair, Awards Committee, WSSA

5:20 p.m.
Presentation of WSSA Fellow Awards, Jodie Holt, Chair, Fellows and Honorary Member Subcommittee, WSSA

5:40 p.m.
Presentation of CWSS/SCM Fellow Awards, Chris Willenborg, Chair, Awards Committee, CWSS/SCM

6:00 p.m. - 8:00 p.m.
WSSA/CWSS-SCM Joint Reception
Balmoral & Regency Foyer

MONDAY PM to THURSDAY
February 3 to 6

WSSA SUSTAINING MEMBERS
EXHIBITS SESSION

Location: Regency ABC
Chair: Steve Gylling, Gylling Data Management, Inc.

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
8:00 a.m. - 5:00 p.m. Wednesday
8:00 - 12:00 noon Thursday
Please remove exhibits by 2:00 p.m. on Thursday

Sustaining Member Exhibitor and Representative

DuPont Crop Protection.....Craig Alford
Greenleaf Technologies..... Will Smart
Gylling Data Management.....Steve & Fran Gylling
LABServices.....James Steffel

TUESDAY AM, February 4
Poster Session

Location: Regency ABC
Chair: Rakesh Chandran

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 2:00 pm on Thursday afternoon.

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

8:00 a.m. – 10:00 a.m.
Authors of even-numbered posters will be present.

10:00 a.m. – 5:00 p.m.
Posters open for viewing without authors

TUESDAY MORNING FEBRUARY 4
Section 1. Agronomic Crops

***PRESENTER**

Evaluating Leaf Hyperspectral Reflectance Data to Discriminate Four Soybean Varieties from Three Weed Species. R. S. Fletcher*, S. J. Thomson, K. N. Reddy; USDA-ARS, Stoneville, MS (1)

Relating Early Season Ground Cover to Yield Loss in Soybean Using Image Analysis. P. Gregoire*, R. H. Gulden; University of Manitoba, Winnipeg, MB (2)

Pollen-mediated Gene Flow between Glyphosate-resistant *Brassica napus* Canola and *B. juncea* and *B. carinata* Mustard Crops under Large-scale Field Conditions. G.

Seguin-Swartz[1], H. J. Beckie*[1], S. I. Warwick[2], V. Roslinsky[1], J. A. Nettleton[1], E. N. Johnson[3], K. C. Falk[1]; [1]Agriculture and Agri-Food Canada, Saskatoon, SK, [2]Agriculture and Agri-Food Canada, Ottawa, ON, [3]Agriculture and Agri-Food Canada, Scott, SK (3)

Soybean Genes Affected by Early Season Weed Interference. S. A. Clay*[1], S. A. Hansen[1], D. Horvath[2]; [1]South Dakota State University, Brookings, SD, [2]USDA-ARS, Fargo, ND (4)

Balance GT Soybean Performance in Kentucky. S. Lawson*[1], C. Slack[1], M. Waddington[2]; [1]University of Kentucky, Lexington, KY, [2]Bayer CropScience, Owensboro, KY (5)

Summary of Results Related to Weed Management in FG72 Soybean in Missouri. E. B. Riley*, J. Schultz, K. W. Bradley; University of Missouri, Columbia, MO (6)

Late-season Weed Management with In-crop and Postharvest Herbicides in Twin-row Glyphosate-resistant Soybean. K. N. Reddy*, C. T. Bryson; USDA-ARS, Stoneville, MS (7)

Development of Imidazolinone Tolerance in Faba Bean. D. Mao*[1], J. Paull[2], K. Oldach[3], C. Preston[4], P. Davies[3], L. Mcmurray[1]; [1]South Australian Research and Development Institute, Clare, Australia, [2]University of Adelaide, Adelaide, Australia, [3]South Australian Research and Development Institute, Adelaide, Australia, [4]University of Adelaide, Glen Osmond, Australia (8)

Glufosinate Metabolism in Transgenic Wheat. A. M. Rojano[1], F. Priego-Capote[1], M. Luque De Castro[1], F. Barro[2], R. De Prado*[1]; [1]Universidad de Cordoba, Cordoba, Spain, [2]CSIC, Cordoba, Spain (9)

Herbicide Resistant Weeds in Europe. I. M. Heap*; WeedSmart, Corvallis, OR (10)

Current Status of Glyphosate Resistant Weeds in Europe. F. Gonzalez-Torralva*[1], J. A. Dominguez-Valenzuela[2], J. Costa[3], I. Brants[4], R. De Prado[1]; [1]Universidad de Cordoba, Cordoba, Spain, [2]Chapingo Autonomous University, Texcoco, Mexico, [3]Monsanto, Madrid, Spain, [4]Monsanto, Brussels, Belgium (11)

Multiple-Resistant Palmer Amaranth Management Strategies in Corn. J. R. Kohrt*, C. L. Sprague; Michigan State University, East Lansing, MI (12)

Management of Glyphosate-Resistant Palmer Amaranth in Cotton Using Cover Crops and Herbicides. M. S. Wiggins*, R. M. Hayes, L. Steckel; University of Tennessee, Jackson, TN (13)

Palmer Amaranth and Texas Millet Control in Bollgard II XtendFlex™ Cotton. P. A. Dotray*[1], J. W. Keeling[2], T. S. Morris[2], R. M. Merchant[3], M. R. Manuchehri[3], J. D. Everitt[4]; [1]Texas Tech Univ., Texas A&M AgriLife Research and Extension, Lubbock, TX, [2]Texas A&M AgriLife Research, Lubbock, TX, [3]Texas Tech Univ, Lubbock, TX, [4]Monsanto, Lubbock, TX (14)

Cotton Response and Palmer Amaranth Control Following Pyrasulfotole Plus Bromoxynil Applied Postemergence-directed. T. S. Morris*[1], P. A. Dotray[2], J. W. Keeling[1], W. R. Perkins[3]; [1]Texas A&M AgriLife Research, Lubbock, TX, [2]Texas Tech University, Lubbock, TX, [3]Bayer CropScience, Idalou, TX (15)

Palmer Amaranth Control with Saflufenacil at Burndown in NW Argentina. S. Sabate*[1], H. F. Vinciguerra[2], I. L. Olea[2]; [1]Estacion Experimental Agroindustrial Obispo Colombres, Tucuman, Argentina, [2]Estacion Experimental Agroindustrial Obispo Colombres, Las Talitas, Argentina (16)

Chemical Alternatives to Provide Effective Control of Glyphosate Resistant Sourgrass. R. S. Oliveira*, A. Gemelli, J. Constantin; Universidade Estadual de Maringa, Maringa, Brazil (17)

Glyphosate-resistant Canada Fleabane Control in Enlist Corn. N. Soltani*, L. Ford, P. H. Sikkema; University of Guelph, Ridgetown, ON (18)

Simulating the Evolution of ALS Resistance in Shattercane. R. Werle*[1], M. Renton[2], A. Jhala[1], J. L. Lindquist[1]; [1]University of Nebraska, Lincoln, NE, [2]The University of Western Australia, Crawley, Australia (19)

Assessment of Double-Crop and Relay-Intercropping Systems of Peanut with Clearfield Wheat and Residual

Herbicides. J. W. Moss*[1], R. S. Tubbs[2], N. B. Smith[2], T. L. Grey[2], J. W. Johnson[3]; [1]Auburn University, Auburn, AL, [2]University of Georgia, Tifton, GA, [3]University of Georgia, Griffin, GA (20)

Wheat Response to Tank Mixing Fungicides with Pyroxsulam Formulations and 2,4-D. J. P. Yenish*[1], P. Prasifka[2]; [1]Dow AgroSciences, Billings, MT, [2]Dow AgroSciences, West Fargo, ND (21)

Non-Target Mechanisms to Imazamox in Wheat. A. M. Rojano[1], A. I. Jurado[1], F. Jiménez[2], R. De Prado*[1]; [1]Universidad de Cordoba, Cordoba, Spain, [2]INIAF, Bonao, Dominican Republic (22)

Kochia Management with Herbicides Applied Postharvest in Wheat Stubble. V. Kumar*, P. Jha, A. V. Varanasi, S. Leland; Montana State University, Huntley, MT (23)

Winter Barley Tolerance to Flufenacet and Pyroxasulfone. J. Campbell*[1], D. Morishita[2], T. Rauch[1], D. Thill[1]; [1]University of Idaho, Moscow, ID, [2]University of Idaho, Kimberly, ID (24)

Effects of Growth Regulator Rate and Application Timing on Sorghum Growth and Yield. T. E. Besancon*, W. J. Everman, R. Riar; North Carolina State University, Raleigh, NC (25)

Safeners for Clomazone in Canola. W. K. Vencill*[1], T. L. Grey[2], E. P. Prostko[2]; [1]University of Georgia, Athens, GA, [2]University of Georgia, Tifton, GA (26)

Pod-drop and Pod-shatter are not Related in *Brassica napus*. A. Cavalieri*, D. W. Lewis, R. H. Gulden; University of Manitoba, Winnipeg, MB (27)

Early and Late Postemergence Weed Control in Sugarcane. D. Odero[1], G. Montes[2], N. Havranek*[1]; [1]University of Florida, Belle Glade, FL, [2]Florida Crystal Corporation, South Bay, FL (28)

Persistence of Summer Applied Soil Residual Herbicides to Autumn-planted Energy Beet. T. L. Grey*[1], T. M. Webster[2], B. Scully[2]; [1]University of Georgia, Tifton, GA, [2]USDA-ARS, Tifton, GA (29)

Desiccation and Yield of Three Black Bean Varieties. A. M. Goffnett*, C. L. Sprague; Michigan State University, East Lansing, MI (30)

Sensitivity of Cranberry and Kidneybeans to Linuron. N. Soltani*, C. Shropshire, P. H. Sikkema; University of Guelph, Ridgetown, ON (31)

Peanut Cultivar Response to Pyroxasulfone Applied Preemergence. P. M. Eure*, E. P. Prostko; University of Georgia, Tifton, GA (32)

Investigating Glyphosate Efficacy for Control of Pokeweed in Pennsylvania Field Crops. K. M. Patches*, W. Curran; Penn State University, University Park, PA (33)

Effect of Spray Tip and Herbicide Program on Efficacy, Droplet Size, and Coverage. D. M. Dodds*[1], D. Z. Reynolds[1], C. Samples[1], T. Dixon[1], G. Kruger[2], J. Mills[3]; [1]Mississippi State University, Mississippi State, MS, [2]University of Nebraska, North Platte, NE, [3]Monsanto, Collierville, TN (34)

Section 2. Horticultural Crops

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Evaluation of an Organic Reduced Tillage System in the Pacific Northwest and the Influence on Weed Populations. C. A. Benedict*[1], S. Wayman[2], D. Collins[3], C. Cogger[2], A. Bary[2], A. Corbin[4]; [1]Washington State University, Bellingham, WA, [2]Washington State University, Puyallup, WA, [3]Washington State University Extension, Puyallup, WA, [4]Washington State University, Everett, WA (35)

Cost Analysis of Alternative Treatments for Managing Glyphosate- resistant *Conyza* spp. in Orchards and Vineyards of California. S. Konduru[1], M. Jasieniuk[2], B. D. Hanson[2], K. Hembree[3], S. D. Wright[4], A. Shrestha*[1]; [1]California State University, Fresno, CA, [2]University of California, Davis, CA, [3]University of California Cooperative Extension, Fresno, CA, [4]University of California Cooperative Extension, Tulare, CA (36)

Environmental Impact of Different Weed Control Systems in Organic Vineyards in the San Joaquin Valley. S. Konduru, K. Kurtural, A. Shrestha*; California State University, Fresno, CA (37)

Rye Cover Crop as an Economic Weed Management Option in Sweet Corn and Spaghetti Squash Production. C. Bouladier Laprade[1], D. L. Benoit*[2], G. Leroux[1]; [1]Universite Laval, Quebec, QC, [2]Agriculture and Agri-Food Canada, Saint-Jean-sur-Richelieu, QC (38)

Heavy Rye Cover Crop Residue Influences Weed Control and Melon Production. S. Culpepper, P. M. Eure*; The University of Georgia, Tifton, GA (39)

Cover Crops for Organic Strawberry Cropping Systems. J. N. Dagua[1], C. A. Chase*[2], J. Lopez[2]; [1]EARTH University, Guácimo, Costa Rica, [2]University of Florida, Gainesville, FL (40)

Evaluation of New Natural Weed Control Products. J. O'Sullivan*[1], R. C. Van Acker[2], R. D. Grohs[1]; [1]University of Guelph, Simcoe, ON, [2]University of Guelph, Guelph, ON (41)

Identification of a New Glucosinolate Breakdown Product and its Phytotoxicity Against Seed Emergence and Growth. S. Intanon*, A. G. Hulting, J. F. Stevens, R. L. Reed, C. Mallory-Smith; Oregon State University, Corvallis, OR (42)

Screening Herbicides for Oklahoma Sweet Potato Crops. L. Brandenberger*, D. Williams; Oklahoma State University, Stillwater, OK (43)

Variable Clomazone Tolerance Among Broccoli Cultivars. H. F. Harrison*[1], M. W. Farnham[2]; [1]USDA-ARS, Charleston, SC, [2]U.S. Vegetable Laboratory, Charleston, SC (44)

The IR-4 Project: Update on Weed Control Projects (Food Uses). M. Arsenovic*[1], D. Kunkel[2], J. Baron[2]; [1]IR-4 Project, Princeton, NJ, [2]IR-4, Rutgers University, Princeton, NJ (45)

Section 3. Turf and Ornamental Crops

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Liquid Carbon Dioxide for Selective Weed Control in Established Turfgrass Systems . D. J. Mahoney*, M. Jeffries, T. Gannon; North Carolina State University, Raleigh, NC (46)

Screening for Tolerance to Asulam in St. Augustinegrass and to Fluazifop-P-butyl in Zoysiagrass Germplasm. R. G. Leon*[1], B. Unruh[1], K. E. Kenworthy[2]; [1]University of Florida, Jay, FL, [2]University of Florida, Gainesville, FL (47)

Flumioxazin Tank-Mixtures with Postemergence Herbicides for Annual Bluegrass Control in Bermudagrass. T. Reed, J. Yu*, P. McCullough; University of Georgia, Griffin, GA (48)

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Prioritizing Suitable Habitat for *Mimosa pigra* Growth as a Tool in a Weed Control Plan. W. Robles*[1], R. Gonzalez[2]; [1]University of Puerto Rico, Mayaguez, Dorado, PR, [2]US Fish and Wildlife Service, Cabo Rojo, PR (49)

Efficacy of Three Herbicides for the Control of *Mimosa pigra* in Puerto Rico. M. L. Lugo*[1], W. Robles[2], Y. Quijano[3], R. Couto[1]; [1]University of Puerto Rico, Gurabo, PR, [2]University of Puerto Rico, Corozal, PR, [3]University of Puerto Rico, Mayaquez, PR (50)

Clover, Soybean, and Tobacco Response to Synthetic Auxin Herbicides Following Application to an Orchardgrass Pasture. J. Green*, W. Witt, J. Omielan; University of Kentucky, Lexington, KY (51)

Switchgrass *(Panicum virgatum)* Growth Stage and Atrazine Tolerance. W. M. Churchman*, M. Barrett, D. W. Williams; University of Kentucky, Lexington, KY (52)

Section 5. Wildland and Aquatic Invasive Plants

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Inferring the Complex Origins of Horticultural Invasives: French Broom in California. M. Jasieniuk*[1], A. Kleist[1], A. Herrera-Reddy[2], R. Sforza[3]; [1]University of California, Davis, CA, [2]USDA-ARS, Albany, CA, [3]USDA-ARS, St. Gely du Fesc, France (53)

Late Season vs Early Season Selective Control of Winter Creeper (*Euonymus fortunei*). J. Omielan*, W. Witt; University of Kentucky, Lexington, KY (54)

Response of Invasive Swallow-worts (*Vincetoxicum* spp.) to Repeated Artificial Defoliation or Clipping. L. R. Milbrath[1], A. DiTommaso*[2], J. Biazzo[1], S. H. Morris[2]; [1]USDA-ARS, Ithaca, NY, [2]Cornell University, Ithaca, NY (55)

Climate Drives *Bromus tectorum* Positive Feedback with Fire. K. Taylor[1], T. Brummer[2], L. J. Rew[1], M. Lavin[1], B. D. Maxwell*[1]; [1]Montana State University, Bozeman, MT, [2]Lincoln University, Lincoln, New Zealand (56)

Section 6. Regulatory Aspects

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Section 7. Education and Extension

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Herbicide Trends Over the Past 15 Years in the Northeastern United States. D. Lingenfelter*, W. Curran; Penn State University, University Park, PA (57)

Manual for Propane-Fueled Flame Weeding in Corn, Soybean, and Sunflower. S. Z. Knezevic*[1], A. Datta[2], C. Bruening[3], G. Gogos[3], J. E. Scott[4]; [1]University of Nebraska, Concord, NE, [2]Asian Institute of Technology, Bangkok, Thailand, [3]University of Nebraska - Lincoln, Lincoln, NE, [4]University of Nebraska - Lincoln, Concord, NE (58)

Section 8. Formulation, Adjuvant and Application Technology

***PRESENTER**

Effect of Various Organic Emulsifiers on Crop Growth and Weed Control. S. Jang*[1], K. Kim[1], Y. Yun[1], K. Hyun[1], D. Kim[2], C. A. Mallory-Smith[3], A. G. Hulting[3], Y. Kuk[1]; [1]Sunchon National University, Suncheon, South Korea, [2]Jeonnam Agricultural Research and Extension Service, Naju, South Korea, [3]Oregon State University, Corvallis, OR (59)

Application Timming, Surfactants and Rates of GF-2819 Herbicide to Wild Buckwheat (*Polygonum convolvulus*) Control in Greenhouses. E. Lopez*[1], A. Bolaños[2], I. Cruz[2]; [1]Crop Protection R&D, Guadalajara, Mexico, [2]Universidad Autonoma Chapingo, Texcoco, Mexico (60)

The Impact of Sprayer Cleanout Procedure on Dicamba Injury to Soybean. G. Cundiff*[1], D. B. Reynolds[2], J. B. Guice[2], W. E. Thomas[3]; [1]BASF, Raleigh, NC, [2]Mississippi State University, Mississippi State, MS, [3]BASF Corporation, Research Triangle Park, NC (61)

Section 9. Weed Biology and Ecology

***PRESENTER**

Weed Seed Survival in Corn Silage. M. Simard[1], C. Lambert-Beaudet[1], R. E. Blackshaw*[2]; [1]Agriculture and Agri-Food Canada, Quebec, QC, [2]Agriculture and Agri-Food Canada, Lethbridge, AB (62)

Impact of Cereal Rye and Red Clover on Weed Seed Decay. E. C. Hill*, K. A. Renner, C. L. Sprague; Michigan State University, East Lansing, MI (63)

Comparing Physical, Chemical and Cold Stratification Methods for Alleviating Seed Dormancy in Giant Ragweed (*Ambrosia trifida*). E. R. Page, R. E. Nurse*; Agriculture and Agri-Food Canada, Harrow, ON (64)

Mechanics of the Palmer Amaranth Integrated Management Model (PAM). M. V. Bagavathiannan*[1], J. K. Norsworthy[1], M. Lacoste[2], S. Powles[3]; [1]University of Arkansas, Fayetteville, AR, [2]University of Western Australia, Perth, Australia, [3]University of Western Australia, Crawley, Australia (65)

Comparison of Seed Mortality of Palmer Amaranth and Powell Amaranth in Michigan. D. K. Powell*, C. L. Sprague, K. A. Renner; Michigan State University, East Lansing, MI (66)

The Effects of Delaying Irrigation on Disturbed Soil Seedbanks of Palmer Amaranth (*Amaranthus palmeri*), Yellow Foxtail (*Setaria pumila*) and Junglerice (*Echinochloa colona*). B. J. Schutte*, N. Klypina, V.

Zamora, A. Cunningham, J. Ashigh; New Mexico State University, Las Cruces, NM (67)

Effect of Light Intensity on Growth, Morphology, and Size Hierarchy of Redroot Pigweed (*Amaranthus retroflexus*). R. Gaire*, M. K. Upadhyaya; University of British Columbia, Vancouver, BC (68)

Influence of Plant Density on Size Hierarchy of Common Lambsquarters (*Chenopodium album*) in Absence of Resource Competition. L. Ma*, M. K. Upadhyaya; University of British Columbia, Vancouver, BC (69)

Comparative Growth of Henbit (*Lamium amplexicaule*) Based on Emergence Date. B. C. Woolam*, D. O. Stephenson, IV, R. L. Landry; Louisiana State University AgCenter, Alexandria, LA (70)

Greenhouse Evaluation of Allelopathic Potential of *Conyza canadensis* on Corn and Soybean Seedlings. P. B. Trewatha*, B. Marshall; Missouri State University, Springfield, MO (71)

Dynamics of Weed Emergence in Alternative Rice Irrigation Systems in California. W. B. Brim-DeForest*[1], R. M. Pedroso[1], L. G. Boddy[2], B. A. Linquist[1], A. J. Fischer[1]; [1]University of California, Davis, CA, [2]Marrone Bio Innovations, Davis, CA (72)

Optimizing *Sorghum halepense* Management Through the Use of a Spatial-Temporal Model. J. Barroso[1], T. Brummer[2], B. D. Maxwell*[1]; [1]Montana State University, Bozeman, MT, [2]Lincoln University, Lincoln, New Zealand (73)

Quantifying the Relative Invasive Potential of Genetically Modified Crops using Demographic Analysis. D. Clements[1], H. J. Beckie[2], L. Hall[3], R. E. Nurse[4], M. Simard[5], L. Raatz[3], B. C. Alexander*[3]; [1]Trinity Western University, Langley, BC, [2]Agriculture and Agri-Food Canada, Saskatoon, SK, [3]University of Alberta, Edmonton, AB, [4]Agriculture and Agri-Food Canada, Harrow, ON, [5]Agriculture and Agri-Food Canada, Quebec, QC (74)

Preliminary Analysis of the EPSPS Amplicon using 454 Sequence Data. D. Giacomini*, P. Westra, S. Ward; Colorado State University, Fort Collins, CO (75)

Myxocarpy in Weedy Species of *Artemisia*. S. J. Darbyshire*[1], G. O. Kegode[2]; [1]Agriculture and Agri-Food Canada, Ottawa, ON, [2]Northwest Missouri State University, Maryville, MO (76)

Confirmation of Molecular Basis for Metribuzin and Terbacil Resistance in Redroot Pigweed (*Amaranthus retroflexus*) and Common Lambsquarters (*Chenopodium album*) Populations from Washington, USA. J. F. Spring*[1], R. A. Boydston[2], L. Riu[3], I. C. Burke[1]; [1]Washington State University, Pullman, WA, [2]USDA-ARS, Prosser, WA, [3]Nanjing Agricultural University, Nanjing, Peoples Republic (77)

Evolution and Spread of Glyphosate Resistance in *Conyza canadensis* and *C. bonariensis* in California Orchards and Vineyards. M. Jasieniuk*[1], M. Okada[1], B. D. Hanson[1], K. Hembree[2], Y. Peng[3], A. Shrestha[4], N. Stewart[3], S. D. Wright[5]; [1]University of California, Davis, CA, [2]University of California Cooperative Extension, Fresno, CA, [3]University of Tennessee, Knoxville, TN, [4]California State University, Fresno, CA, [5]University of California Cooperative Extension, Tulare, CA (78)

Glyphosate and Pyrithiobac Resistant Palmer Amaranth in Arizona. W. B. McCloskey*; University of Arizona, Tucson, AZ (79)

Niche Management with Polycultures of Summer Annual Forage Crops. K. Bybee-Finley[1], M. Ryan*[1], S. Mirsky[2]; [1]Cornell University, Ithaca, NY, [2]USDA-ARS, Beltsville, MD (80)

Variation in *Bromus tectorum* Development Across the Small Grain Production Region of the PNW. N. C. Lawrence*[1], D. A. Ball[2], I. C. Burke[1]; [1]Washington State University, Pullman, WA, [2]Oregon State University, Pendleton, OR (81)

Throwing the Baby out with the Bath Water: The Effect of Noxious Weed Control on Plant Diversity in the Sagebrush Steppe. T. Seipel*, E. A. Lehnhoff, L. J. Rew, M. Lavin, B. D. Maxwell; Montana State University, Bozeman, MT (82)

Emergence Characterization of Kochia (*Kochia scoparia*) Accessions from Northern and Central Great Plains. A.

V. Varanasi*, P. Jha, V. Kumar, S. Leland; Montana State University, Huntley, MT (83)

Heavy Metal Accumulation Along Roadsides Influence the Early Establishment of Groundcovers and *Ambrosia artemisiifolia*. J. Bae[1], D. L. Benoit*[2], A. Watson[2]; [1]McGill University, Ste. Anne de Bellevue, QC, [2]Agriculture and Agri-Food Canada, Saint-Jean-sur-Richelieu, QC (84)

A Presently-undetermined *Meloidogyne* species was Found to Parasitize Yellow and Purple Nutsedge: Should we be Concerned? J. Schroeder*[1], S. Thomas[1], J. Beacham[1], L. Holland[2], L. Murray[3], N. Schmidt[1], S. Hanson[1], E. Morris[1]; [1]New Mexico State University, Las Cruces, NM, [2]Washington State University, Pullman, WA, [3]Kansas State University, Manhattan, KS (85)

Section 10. Biocontrol of Weeds

***PRESENTER**

Using Genotyping by Sequencing to Genetically Characterize Global Accessions of the Noxious Weed, *Imperata cylindrica*. M. Burrell*, P. E. Klein; Texas A&M University, College Station, TX (86)

***Fusarium oxysporum* as a Biological Control Agent of *Sorghum halepense* Rhizome Biomass.** G. Lampugnani[1], A. Cecilia[1], C. Monaco[1], H. A. Acciaresi*[2]; [1]CISaV, La Plata, Argentina, [2]Facultad Ciencias Agrarias y Forestales-CISaV, La Plata, Argentina (87)

***Phakopsora* sp. as Possible Biocontrol Agent of *Commelina erecta*.** S. Zuluaga[1], M. Stocco[1], C. Rollan[2], C. Monaco[1], H. A. Acciaresi*[3]; [1]CISaV, La Plata, Argentina, [2]Fitopatologia, La Plata, Argentina, [3]Facultad Ciencias Agrarias y Forestales-CISaV, La Plata, Argentina (88)

Section 11. Physiology

***PRESENTER**

EPSPS Gene Transfer from Glyphosate-resistant Palmer Amaranth (*Amaranthus palmeri*) to Spiny Amaranth (*Amaranthus spinosus*). V. K. Nandula*[1], A. A. Wright[2], W. Molin[1], J. D. Ray[1], J. Bond[2], T. Eubank[2]; [1]USDA-ARS, Stoneville, MS, [2]Mississippi State University, Stoneville, MS (89)

Mechanism of Mesotrione Resistance in Palmer Amaranth. S. Betha, A. S. Godar*, M. Jugulam; Kansas State University, Manhattan, KS (90)

The Amplicon of EPSP Synthase, an Update. W. Molin*[1], A. A. Wright[2]; [1]USDA-ARS, Stoneville, MS, [2]Mississippi State University, Stoneville, MS (91)

Determination of Glyphosate Sequestration as the Basis of Resistance in Glyphosate-resistant Plants Using an *in vivo* Shikimate Accumulation Assay. J. Ashigh*[1], M. Mohseni-Moghadam[2], B. J. Schutte[1], A. Shrestha[3]; [1]New Mexico State University, Las Cruces, NM, [2]The Ohio State University, Wooster, OH, [3]California State University, Fresno, CA (92)

Accumulation of Shikimic Acid in three *Eucalyptus* Clonal Hybrids in Response to Glyphosate. G. L. Gomes*, C. A. Carbonari, E. D. Velini, D. O. Latorre, P. S. Simões; UNESP - Univ. Estadual Paulista, Botucatu, Brazil (93)

Effects of Glyphosate on Shikimic Acid and Aromatic Amino Acids in Sugar Cane. C. A. Carbonari*, G. L. Gomes, E. D. Velini, G. J. Picoli Jr, A. K. Matos; UNESP - Univ. Estadual Paulista, Botucatu, Brazil (94)

Chemical Specificity Associated with Herbicide Tolerance in AFB5-Deficient *Arabidopsis*. C. L. McCauley*[1], J. L. Bell[2], P. R. Schmitzer[2]; [1]Cornell University, Ithaca, NY, [2]Dow AgroSciences LLC, Indianapolis, IN (95)

Varying Tolerance to Glyphosate in Palmer Amaranth Plants with Low EPSPS Gene Copy Number. R. E. Hoagland*[1], N. D. Teaster[2]; [1]USDA-ARS, CPSRU, Stoneville, MS, [2]USDA-ARS, Stoneville, MS (96)

Gene Amplification is Not Involved in the Glyphosate Resistant Mechanism of Horseweed from Spain. F. Gonzalez-Torralva*[1], M. J. Giménez[2], F. Barro[2], R. De Prado[1]; [1]Universidad de Cordoba, Cordoba, Spain, [2]Institute for Sustainable Agriculture (CSIC), Cordoba, Spain (97)

Segregation Analysis of Glyphosate-resistant Trait(s) in F2 Populations of Mutagenized Spring Wheat Cultivars. A. Aramrak*[1], I. C. Burke[1], C. M. Steber[2], A. H. Carter[1], K.

K. Kidwell[1]; [1]Washington State University, Pullman, WA, [2]USDA-ARS, Pullman, WA (98)

Genetic Basis of Glyphosate Resistance in Kochia (*Kochia scoparia*). K. Niehues*, M. Jugulam; Kansas State University, Manhattan, KS (99)

Screening for Glyphosate-Resistance in Palmer Amaranth (*Amaranthus palmeri*) Populations of California's San Joaquin Valley. S. I. Rios*[1], S. D. Wright[2], A. Shrestha[1]; [1]California State University, Fresno, CA, [2]University of California Cooperative Extension, Tulare, CA (100)

Investigation of Multiple Herbicide Resistant *Echinochloa crus-galli* in Mississippi. A. A. Wright*[1], V. K. Nandula[2], D. Shaw[3], J. Bond[1]; [1]Mississippi State University, Stoneville, MS, [2]USDA-ARS, Stoneville, MS, [3]Mississippi State University, Starkville, MS (101)

Mechanism of Multiple-Herbicide Resistance in Kochia (*Kochia scoparia*). A. S. Godar*, V. Varanasi, M. Jugulam; Kansas State University, Manhattan, KS (102)

Differences in Leaf Surface Characteristics as Source of Oxyfluorfen Resistance in a Glyphosate-resistant *Lolium multiflorum* Biotype. J. Menendez*[1], F. Gonzalez-Torralva[2], P. Fernandez[2], R. De Prado[2]; [1]Universidad de Huelva, Huelva, Spain, [2]Universidad de Cordoba, Cordoba, Spain (103)

Glyphosate Resistance in Giant Ragweed from Mississippi. V. K. Nandula*[1], A. A. Wright[2], W. Molin[1], K. N. Reddy[1]; [1]USDA-ARS, Stoneville, MS, [2]Mississippi State University, Stoneville, MS (104)

Roundup Ready Wheat: What We Have Learned. C. Mallory-Smith*, B. Martins, R. Zemetra, C. Roseborough; Oregon State University, Corvallis, OR (105)

Mode of Action Studies on Dicamba Resistance. D. Sammons*[1], D. Wang[1], E. L. Ostrander[2], J. Silva[1], J. Haines[1], P. Westra[3]; [1]Monsanto, St. Louis, MO, [2]Washington University, St. Louis, MO, [3]Colorado State University, Ft. Collins, CO (106)

Cross-resistance of Broadleaf Weeds to 2,4-D and Dicamba. M. Jugulam*, A. S. Godar; Kansas State University, Manhattan, KS (107)

Antioxidant Response of *Lolium multiflorum* Susceptible and Resistant to Iodosulfuron-methyl Sodium Herbicide. F. Mariani*[1], L. Vargas[2], S. A. Senseman[3], C. P. Tarouco[1], A. C. Langaro[1], D. Agostinetto[1]; [1]Universidade Federal de Pelotas, Pelotas, Brazil, [2]Embrapa Trigo/Universidade Federal de Pelotas, Passo Fundo, Brazil, [3]University of Tennessee, Knoxville, TN (108)

Fate of Foliar Applied Aminocyclopyrachlor in Aspen. Y. Duan*, N. C. Lawrence, A. J. Raeder, I. C. Burke; Washington State University, Pullman, WA (109)

The Interactions Between Pyroxasulfone and Sulfentrazone on Sunflower. D. L. Shaner*[1], E. Westra[2]; [1]USDA-ARS, Fort Collins, CO, [2]Colorado State University, Fort Collins, CO (110)

Section 12. Soil and Environmental Aspects

***PRESENTER**

Impact of Weed Management Systems on Greenhouse Gas Emissions. A. M. Knight*, W. J. Everman, S. Reberg-Horton, S. Hu; North Carolina State University, Raleigh, NC (111)

Degradation, Mineralization, Sorption and Desorption of Tebuthiuron on the Basis of Two Attributes of Soil Types. A. R. Dias*[1], M. L. Viti[1], V. L. Tornisielo[2]; [1]Center of Nuclear Energy in Agriculture - CENA/USP, Piracicaba, Brazil, [2]University of São Paulo, Piracicaba, Brazil (112)

Responses of Cotton Growth to Fomesafen and Quantitative Analysis of Fomesafen Field Dissipation in Three Locations of Georgia. X. Li*[1], T. L. Grey[2], B. H. Blanchett[2], W. K. Vencill[1]; [1]University of Georgia, Athens, GA, [2]University of Georgia, Tifton, GA (113)

Effect of Aging on Aminocyclopyrachlor Sorption in Soil. R. S. Oliveira*[1], W. C. Koskinen[2], J. Constantin[1]; [1]Universidade Estadual de Maringa, Maringa, Brazil, [2]USDA-ARS - University of Minnesota, St. Paul, MN (114)

Remobilization of Bound Residues of Herbicides in Soils Cultivated with Sugar Cane with Vinasse Application, Straw and Filter Cake. M. L. Viti*, R. F. Pimpinato, A.

R. Dias, V. L. Tornisielo; Center of Nuclear Energy in Agriculture - CENA/USP, Piracicaba, Brazil (115)

Effect of Different Water Types in the Spraying Tank on the Efficacy of Post Emergence Applied Herbicides. G. Dvorkin*[1], M. Sibony[2], B. Chetetz[2], B. Rubin[2]; [1]The Faculty of Agriculture, Food and Environment, the Hebrew University of Jerusalem, Rehovot, Israel, [2]The Robert H. Smith Faculty of Agriculture, Food and Environment, the Hebrew University of Jerusalem, Rehovot, Israel (116)

Section 13. Integrated Weed Management

***PRESENTER**

Waterhemp Resistance to Post Emergent Application of HPPD Herbicides. S. Z. Knezevic*[1], J. E. Scott[2], A. S. Franssen[3], V. K. Shivrain[4]; [1]University of Nebraska, Concord, NE, [2]University of Nebraska - Lincoln, Concord, NE, [3]Syngenta Crop Protection, Seward, NE, [4]Syngenta Crop Protection, Vero Beach, FL (117)

Giant Ragweed Resistance to Glyphosate in Nebraska. S. Z. Knezevic*[1], J. E. Scott[1], A. Datta[2]; [1]University of Nebraska, Concord, NE, [2]Asian Institute of Technology, Bangkok, Thailand (118)

Efficacy of Amitrol on Glyphosate-resistant and-susceptible *Conyza bonariensis* Biotypes. F. Gonzalez-Torralva*[1], R. De Prado[1], A. Salamero[2]; [1]Universidad de Cordoba, Cordoba, Spain, [2]Nufarm España S.A., Cordoba, Spain (119)

What Causes Large On-farm Harvest Losses in Canola? R. H. Gulden*[1], S. Shirtliffe[2], T. Haile[2], L. M. Hall[3], C. Willenborg[2], K. N. Harker[4]; [1]University of Manitoba, Winnipeg, MB, [2]University of Saskatchewan, Saskatoon, SK, [3]University of Alberta, Edmonton, AB, [4]Agriculture and Agri-Food Canada, Lacombe, AB (120)

Brown vs. Green: Effects of Animal and Green Manures on Crop Competitiveness and Yield in Dryland Organic Systems. N. E. Tautges*, I. C. Burke, E. Fuerst, K. Borrelli, D. Pittmann, R. T. Koenig; Washington State University, Pullman, WA (121)

Preemergence Control of Invasive Weed Species in Environmental High Risk Caribbean UNESCO-protected Areas. J. Menendez*[1], D. Camacho[1], R. Alvarez[2]; [1]Universidad de Huelva, Huelva, Spain, [2]Universidad de Sancti Spiritus, Trinidad, Cuba (122)

Management Strategies of Potential Herbicide Resistant Weeds in Cotton in the San Joaquin Valley of California. G. Banuelos*[1], A. Shrestha[1], S. D. Wright[2], S. I. Rios[1]; [1]California State University, Fresno, CA, [2]University of California Cooperative Extension, Tulare, CA (123)

Resource Effective Control of *Elymus repens*. B. Ringselle*, L. Andersson, G. Bergkvist, H. Aronsson; Swedish University of Agricultural Sciences, Uppsala, Sweden (124)

Evaluation of Basal Bark Application with a Ready-To-Use Triclopyr Product as a Control Method for *Rhamnus cathartica* in Alberta. D. Laubhann*, M. A. Pelletier, D. F. Slobinyk; City of Edmonton, Edmonton, AB (125)

TUESDAY MORNING FEBRUARY 4
CWSS-SCM Graduate Student Oral Presentation Contest

LOCATION: Plaza B
TIME: 10:00 AM - 12:00 PM
CHAIR: Mahesh Upadhyaya
University of British Columbia
Vancouver, BC

***SPEAKER**

10:00 Early Physiological Mechanisms of Soybean Roots and Nodules in Response to the Presence of Above Ground Weeds. J. L. Gal*, C. J. Swanton, M. Afifi, L. Lukens, E. Lee; University of Guelph, Guelph, ON (126)

10:15 Corn and Soybean Responses to Weeds: A Common Toolbox. A. G. McKenzie-Gopsill*, M. Afifi, S. Amirsadeghi, L. Lukens, E. Lee, C. J. Swanton; University of Guelph, Guelph, ON (127)

10:30 Does Crop-weed Competition Differ Between Conventional and Organic Systems? D. Benaragama*, S. Shirtliffe; University of Saskatchewan, Saskatoon, SK (128)

10:45 Yield Loss Model for Volunteer Canola in Narrow and Wide Row Soybean. P. Gregoire*, R. H. Gulden; University of Manitoba, Winnipeg, MB (129)

11:00 Evaluating the Competitive Ability of Semi-leafless Field Pea (*Pisum sativum*) Cultivars. C. E. Jacob*[1], C. Willenborg[1], S. Shirtliffe[1], T. Warkentin[1], M. Dyck[2]; [1]University of Saskatchewan, Saskatoon, SK, [2]University of Alberta, Edmonton, AB (130)

11:15 Demographic and Fitness Consequences of Climate Stress on an Invasive Hybridizing Weed. Z. Teitel*, L. Campbell; Ryerson University, Toronto, ON (131)

11:30 Effect of Heavy Metal Stress on the Successful Establishment of Common Ragweed (*Ambrosia artemisiifolia*) Along Roadside Edges. J. Bae*[1], D. L. Benoit[2], A. Watson[1]; [1]McGill University, Ste. Anne de Bellevue, QC, [2]Agriculture and Agri-Food Canada, Saint-Jean-sur-Richelieu, QC (132)

11:45 The Effect of Early Stresses on Ear Development and Mid Season Reproductive Performance in Corn. V. H. Gonzalez*, E. Lee, L. Lukens, C. J. Swanton; University of Guelph, Guelph, ON (133)

TUESDAY MORNING FEBRUARY 4
NIFA Supported Research on Controlling Weedy and Invasive Plants

LOCATION: Plaza A
TIME: 10:00 AM - 12:00 PM
CHAIR: Michael Bowers
National Institute of Food and Agriculture
Washington, DC

***SPEAKER**

10:00 Characterizing the Parasitism Process is the Parasitic Weed *Cuscuta*. N. Sinha*; University of California, Davis, CA (134)

10:15 Dissecting the Drivers of Local Plant Invasions: Disturbance, Environment and Propagule Pressure. L. J. Rew*[1], M. Bridges[1], T. Brummer[2], E. A. Lehnhoff[1], F.

W. Pollnac[1], B. D. Maxwell[1], T. Skurski[1]; [1]Montana State University, Bozeman, MT, [2]Lincoln University, Lincoln, New Zealand (135)

10:30 Fueling an Inferno: On the Potential of Plant Invasions to Feedback to Climate Change. N. Tharayil*, M. Tamura; Clemson University, Clemson, SC (136)

10:45 Strawberry Guava Biocontrol in Hawaii. M. Johnson*[1], F. Hughes[2], G. Asner[3], R. Vargas[4]; [1]USDA Forest Service, Volcano, HI, [2]USDA Forest Service, Hilo, HI, [3]Stanford University, Palo Alto, CA, [4]USDA-ARS, Hilo, HI (137)

11:00 Toward a Cohesive Understanding of Resistance Evolution: The Impact of Gene Flow on the Evolution of Glyphosate Resistance in *Ipomoea purpurea*. R. S. Baucom*, A. Kuester; University of Michigan, Ann Arbor, MI (138)

11:15 Effects of Soil-conditioning Nurse Plants on the Relative Performance of Native and Exotic Grassland Perennials . N. R. Jordan*[1], S. Vink[1], S. Huerd[1], L. Kinkel[1], C. Sheaffer[1], L. Aldrich-Wolfe[2]; [1]University of Minnesota, St. Paul, MN, [2]Concordia College, Moorhead, MN (139)

11:30 Uncovering the Belowground Drivers of Weed-crop Competition for Improved Weed Management. R. G. Smith*[1], E. A. Hobbie[1], M. Ryan[2], L. E. Drinkwater[2]; [1]University of New Hampshire, Durham, NH, [2]Cornell University, Ithaca, NY (140)

11:45 Molecular, Physiological, and Ecological Characterization of Multiple Herbicide Resistance in *Avena fatua*. W. E. Dyer*, B. Keith, E. Lehnhoff, F. Menalled, B. Maxwell; Montana State University, Bozeman, MT (141)

TUESDAY MORNING FEBRUARY 4
Section 3. Turf and Ornamental Crops

LOCATION: Georgia B
TIME: 10:00 AM - 11:45 AM
CHAIR: Ramon Leon
University of Florida
Jay, FL

***SPEAKER**

10:00 Preemergence and Postemergence Control of *Arthraxon hispidus*. J. Derr*; Virginia Tech, Virginia Beach, VA (142)

10:15 Bermudagrass Control in Cool-Season Turf with Topramezone. S. S. Rana*, K. A. Venner, M. C. Cox, S. Askew; Virginia Polytechnic Institute and State University, Blacksburg, VA (143)

10:30 Differential Response of Goosegrass and Smooth Crabgrass to Low Rates of Topramezone. M. C. Cox*, S. Askew; Virginia Tech, Blacksburg, VA (144)

10:45 Evaluation of Glyphosate Rates on Fine Fescue Cultivars. K. A. Venner*, S. Askew, M. Goatley, W. Askew; Virginia Tech, Blacksburg, VA (145)

11:00 Pinoxaden and Herbicide Safener Combinations on Creeping Bentgrass (*Agrostis stolonifera*) and Grassy Weeds. M. Elmore*, J. Brosnan, J. J. Vargas, G. K. Breeden; University of Tennessee, Knoxville, TN (146)

11:15 Fate of Arsenic in a Managed Turfgrass System Following MSMA Applications. D. J. Mahoney*, M. Jeffries, M. Polizzotto, T. Gannon; North Carolina State University, Raleigh, NC (147)

11:30 WSSA Lesson Modules for Herbicide Resistance Management in Turfgrass. R. G. Leon*[1], D. Shaw[2], J. Brosnan[3], S. McElroy[4], S. Askew[5]; [1]University of Florida, Jay, FL, [2]Mississippi State University, Starkville, MS, [3]University of Tennessee, Knoxville, TN, [4]Auburn University, Auburn, AL, [5]Virginia Tech, Blacksburg, VA (148)

TUESDAY MORNING FEBRUARY 4
Section 6. Regulatory Aspects

LOCATION: Plaza C
TIME: 10:00 AM - 11:15 AM
CHAIR: Craig Ramsey
USDA APHIS
Ft. Collins, CO
MODERATOR: Al Tasker
USDA APHIS
Riverdale, MD

***SPEAKER**

10:00 The Evolution (or Revolution?) of Weed Regulations in Canada. C. Lindgren*; Canadian Food Inspection Agency, Winnipeg, MB (149)

10:15 APHIS Regulatory Decision-Making Process: How will it Fit with the Recent EPA Rule on Invasive Biofuel Crops. A. V. Tasker*[1], J. M. Jones[2]; [1]USDA, APHIS, Plant Protection & Quarantine, Riverdale, MD, [2]APHIS PPQ, Frederick, MD (150)

10:30 Value Assessment of Pesticides at the Pest Management Regulatory Agency. M. Downs*; Pest Management Regulatory Agency, Ottawa, ON (151)

10:45 The Value Assessment Toolkit: Guidance for Registrants and Applicants. M. Downs*; Pest Management Regulatory Agency, Ottawa, ON (152)

11:00 Business Meeting

TUESDAY MORNING FEBRUARY 4
Section 9. Weed Biology and Ecology

LOCATION: Regency E
TIME: 10:00 AM - 12:00 PM
CHAIR: Greta Gramig
North Dakota State University
Fargo, ND

***SPEAKER**

10:00 Can Overproduction of EPSPS Enhance Fitness in Certain Glyphosate-Resistant Weeds?: Avenues for Research. A. A. Snow*, M. M. Loux, B. A. Ackley, D. Mackey, Z. T. Beres; The Ohio State University, Columbus, OH (153)

10:15 The Influence of Experimental Methods on R:S Ratio in Herbicide Resistance Studies. C. W. Coburn*, A. Kniss; University of Wyoming, Laramie, WY (154)

10:30 Absorption and Translocation of 14C-glyphosate in a Silvery Threadmoss Colony. A. R. Post*[1], S. Askew[2]; [1]Oklahoma State University, Stillwater, OK, [2]Virginia Tech, Blacksburg, VA (155)

10:45 Evolutionary Dynamics of Glyphosate Resistant and Sensitive Populations in the Southeastern US. A. L. Lawton-Rauh[1], K. E. Beard[1], J. D. Burton*[2], R. L. Nichols[3], K. Lay[1], D. Jordan[2], A. C. York[2]; [1]Clemson University, Clemson, SC, [2]North Carolina State University, Raleigh, NC, [3]Cotton Incorporated, Cary, NC (156)

11:00 Reproductive Fitness of Glyphosate-resistant and Susceptible Giant Ragweed (*Ambrosia trifida*) Biotypes under Varying Climate Change Scenarios. J. Thompson[1], H. Henry[1], R. E. Nurse*[2]; [1]University of Western Ontario, London, ON, [2]Agriculture and Agri-Food Canada, Harrow, ON (157)

11:15 Transcriptome Analysis of Glyphosate Resistance in Giant Ragweed (*Ambrosia trifida*). K. Padmanabhan*, N. B. Best, S. C. Weller, B. Schulz; Purdue University, West Lafayette, IN (158)

11:30 Survey of Glyphosate Resistant Kochia in Western Canada. H. J. Beckie[1], L. M. Hall*[2], R. H. Low[2], R. E. Blackshaw[3], N. Kimmel[4], S. Shirriff[1]; [1]Agriculture and Agri-Food Canada, Saskatoon, SK, [2]University of Alberta, Edmonton, AB, [3]Agriculture and Agri-Food Canada, Lethbridge, AB, [4]Alberta Agriculture and Renewable Resources, Edmonton, AB (159)

11:45 Population Structure of ALS-resistant Weedy Rice. N. R. Burgos*[1], T. Tseng[2], N. Young[3], V. Singh[1], H. Black[4], D. Gealy[4], A. Caicedo[3]; [1]University of Arkansas, Fayetteville, AR, [2]Purdue University, West Lafayette, IN, [3]University of Massachusetts, Amherst, MA, [4]USDA-ARS DBNRRC, Stuttgart, AR (160)

TUESDAY MORNING FEBRUARY 4
Section 11. Physiology

LOCATION: Georgia A
TIME: 10:00 AM - 12:00 PM
CHAIR: Todd Gaines
University of Western Australia
Crawley, WA, Australia

***SPEAKER**

10:00 Detoxification of 2,4-D in Resistant Wild Radish (*Raphanus raphanistrum*). D. Goggin, S. Powles*; University of Western Australia, Crawley, Australia (161)

10:15 Sequence Analysis of Safener-Regulated Transcriptomes from Grain Sorghum Coleoptiles. D. E. Riechers*, A. V. Lygin; University of Illinois, Urbana, IL (162)

10:30 Elevated Constitutive and Inducible Expression of a Cytochrome P450 mRNA in Multiple Herbicide Resistant Wild Oat (*Avena fatua*). W. E. Dyer*, B. Keith, E. Burns, E. Lehnhoff, F. Menalled; Montana State University, Bozeman, MT (163)

10:45 Metabolism-based Herbicide Resistance in *Lolium rigidum*: Using RNA-Seq Transcriptome Analysis to Identify Resistance-endowing Genes. T. A. Gaines*[1], L. Lorentz[2], A. Figge[2], J. Herrmann[3], F. Maiwald[4], M. Ott[4], H. Han[5], R. Busi[5], Q. Yu[5], S. Powles[5], R. Beffa[2]; [1]University of Western Australia, Crawley, WA, Australia, [2]Bayer CropScience, Frankfurt am Main, Germany, [3]University of Braunschweig, Braunschweig, Germany, [4]Bayer CropScience, Monheim, Germany, [5]University of Western Australia, Crawley, Australia (164)

11:00 Visualizing Herbicide Resistance from a Metabolomics Perspective. A. Maroli, N. Tharayil*; Clemson University, Clemson, SC (165)

11:15 Mechanism of Propanil Resistance in *Cyperus difformis*. R. M. Pedroso*, A. J. Fischer; University of California, Davis, CA (166)

11:30 Molecular Aspects of EPSPS Gene Amplification in Palmer Amaranth. T. Ulmasov*[1], D. Sammons[1], L. Fan[1], Z. Du[1], D. A. Giacomini[2], N. Tao[1], R. A. Kerstetter[1], M. Dimmic[1]; [1]Monsanto, St. Louis, MO, [2]Colorado State University, Fort Collins, CO (167)

11:45 Business Meeting

TUESDAY AFTERNOON FEBRUARY 4
Graduate Student Luncheon

LOCATION: Balmoral
TIME: 12:00 PM - 1:00 PM
CHAIR: Alexandra Knight
North Carolina State University
Raleigh, NC

TUESDAY AFTERNOON FEBRUARY 4
Turf Wars and the Emergence of Pesticide Bans in Canada and the US

LOCATION: Regency D
TIME: 1:00 PM - 5:00 PM
CHAIR: Jenny Kao-Kniffin
Cornell University
Ithaca, NY

***SPEAKER**

1:00 Introduction

1:10 The Social Politics of Law(n)s in Canada: Understanding Municipal Pesticide Policy Change and Residents' Preferred Pesticide Management Approaches. R. Hirsch*[1], J. Baxter[2], C. Brown[3]; [1]Trent University, Peterborough, ON, [2]University of Western Ontario, London, ON, [3]Health Canada, Ottawa, ON (168)

1:40 An Overview of the Cosmetic Pesticide Ban in Ontario, Adoption of Herbicide Alternatives and Current Weed Control Problems without Solutions. P. M. Charbonneau*; Ontario Ministry of Agriculture and Food, Guelph, ON (169)

2:05 Exploring Alternative Weed Management in Turfgrass Systems in Ontario. K. S. Jordan*, F. J. Tardif, E. M. Lyons; University of Guelph, Guelph, ON (170)

2:30 The Challenges of Turf Weed Management Under the New York Child Safe Playing Field Law. A. F. Senesac*[1], J. T. Kao-Kniffin[2]; [1]Cornell Cooperative Extension, Riverhead, NY, [2]Cornell University, Ithaca, NY (171)

2:50 Organic Weed Control Options in Turfgrass . A. R. Kowalewski*; Oregon State University, Corvallis, OR (172)

3:10 Break

3:25 History and Progress Toward Developing Biological Control Strategies for Turfgrass Systems. J. Neal*; North Carolina State University, Raleigh, NC (173)

3:45 Preventing Weeds with More Competitive Turfgrass Choices. R. N. Brown*; University of Rhode Island, Kingston, RI (174)

4:05 Panel and Presenters Discussion

TUESDAY AFTERNOON FEBRUARY 4
CWSS-SCM Graduate Student Oral Presentation Contest

LOCATION: Plaza B
TIME: 1:00 PM - 4:15 PM
CHAIR: Mahesh Upadhyaya
University of British Columbia
Vancouver, BC

***SPEAKER**

1:00 Does Kin Recognition Exist in Annual Weeds? M. E. Lawless*, C. Willenborg, S. Shirtliffe, E. G. Lamb, B. Coulman; University of Saskatchewan, Saskatoon, SK (175)

1:15 Phenological Study and Management of Red Fescue (*Festuca rubra*) in Wild Blueberry. S. K. Sikoriya*; Dalhousie Agricultural Campus, Truro, NS (176)

1:30 The Effect of Carbon Soil Amendments on the Root Growth of Native and Invasive Prairie Species. D. M. Houghton*, Purdue University, West Lafayette, IN (177)

1:45 Integrated Management of Volunteer Canola for Soybean Production. C. M. Geddes*, R. H. Gulden; University of Manitoba, Winnipeg, MB (178)

2:00 Flax Performance in an Organic Rotational No-till System Compared to Two Organic Cropping Systems with Tillage in Southern Manitoba. C. Halde*[1], R. Gulden[1], A. M. Hammermeister[2], K. H. Ominski[1], M. Tenuta[1], M. Entz[1]; [1]University of Manitoba, Winnipeg, MB, [2]Dalhousie University, Truro, NS (179)

2:15 Evaluation of Potential Harvest Aids and Application Timing for Lentil Dry Down. T. Zhang*[1], C. Willenborg[1], E. N. Johnson[2], S. Banniza[1]; [1]University of Saskatchewan, Saskatoon, SK, [2]Agriculture and Agri-Food Canada, Scott, SK (180)

2:30 Effect of Herbicide Carryover in Cover Crop Capacity to Affect Soil Structure and Nutrient

Availability. M. Rojas*, D. Robinson, L. L. Van Eerd, I. O'Halloran; University of Guelph, Ridgetown, ON (181)

2:45 Effect of Imazethapyr, Mesotrione and Saflufenacil Residues on Four Spring-seeded Cover Crops. L. Yu*, P. H. Sikkema, D. Robinson; University of Guelph, Ridgetown, ON (182)

3:00 Control of Glyphosate Resistant Canada Fleabane (*Conyza canadensis*) with Glyphosate DMA/2,4-D choline (Enlist Duo ©) in Corn (*Zea mays*). L. R. Ford*[1], N. Soltani[1], D. Robinson[1], A. McFadden[2], R. E. Nurse[3], P. H. Sikkema[1]; [1]University of Guelph, Ridgetown, ON, [2]Dow AgroSciences Canada Inc, Guelph, ON, [3]Agriculture and Agri-Food Canada, Harrow, ON (183)

3:15 Break

3:30 The Use of Herbicides in the Prevention and Control of Glyphosate-resistant Kochia on the Canadian Prairies. R. H. Low*, L. Hall; University of Alberta, Edmonton, AB (184)

3:45 Can Tillage and Agronomy be Integrated with Herbicide Application to Control Resistant Weeds? C. N. Redlick*, S. Shirtliffe, C. Willenborg; University of Saskatchewan, Saskatoon, SK (185)

4:00 Control of Cleavers and Wild Oat by Pyroxasulfone and Sulfentrazone in Field Pea is Affected by Edaphic Factors. B. Laturnus Tidemann*; University of Alberta, Edmonton, AB (186)

TUESDAY AFTERNOON FEBRUARY 4
NIFA Supported Research on Controlling Weedy and Invasive Plants

LOCATION: Plaza A
TIME: 1:00 PM - 2:45 PM
CHAIR: Michael Bowers
National Institute of Food and Agriculture
Washington, DC

***SPEAKER**

1:00 Activation of Biochemical Defenses by a Seed Decay Pathogen in Dormant Wild Oat Seeds and

Caryopses. E. Fuerst*[1], A. C. Kennedy[2], P. A. Okubara[2], J. V. Anderson[3], R. S. Gallagher[4]; [1]Washington State Univ., Pullman, WA, [2]USDA-ARS, Pullman, WA, [3]USDA-ARS, Fargo, ND, [4]Presbyterian College, Clinton, SC (187)

1:15 Genetic Characterization of *Imperata cylindrica* using a Genotyping by Sequencing Approach: Identifying International Regions for Potential Biological Control Exploration and Development. P. E. Klein*[1], M. Burrell[1], J. A. Goolsby[2], W. A. Overholt[3], A. E. Racelis[4]; [1]Texas A&M University, College Station, TX, [2]USDA-ARS, Edinburg, TX, [3]University of Florida, Fort Pierce, FL, [4]The University of Texas-Pan American, Edinburg, TX (188)

1:30 The Role of Hybridization in Biological Control of Weeds. M. Szucs*, R. A. Hufbauer; Colorado State University, Fort Collins, CO (189)

1:45 Scotch Broom Alters Douglas-fir Community Structure and Soil Ecology: Prevention and Mitigation through Alternative Management Practices. T. B. Harrington*[1], R. A. Slesak[2], A. W. D'Amato[2]; [1]USDA Forest Service, Olympia, WA, [2]University of Minnesota, Minneapolis, MN (190)

2:00 Understanding the Evolution and Spread of Herbicide Resistance in *Amaranthus tuberculatus*. P. J. Tranel*[1], C. S. Wu[1], J. A. Evans[2], A. S. Davis[2]; [1]University of Illinois, Urbana, IL, [2]USDA-ARS, Urbana, IL (191)

2:15 Defining an Effective Forest Management Strategy that Deters Invasion by Exotic Plants: Invasive Plant Response to Five Forest Management Regimes. C. Huebner*[1], G. Matlack[2], R. Minocha[3], D. McGill[4], M. Dickinson[5], G. Miller[1]; [1]Northern Research Station, USDA Forest Service, Morgantown, WV, [2]Ohio University, Athens, OH, [3]Northern Research Station, USDA Forest Service, Durham, NH, [4]West Virginia University, Morgantown, WV, [5]Northern Research Station, USDA Forest Service, Delaware, OH (192)

2:30 Efficacy and Economics of Cultural and Mechanical Weed Control Practices for Herbicide-Resistant Weed Management. A. Kniss*[1], P. Jha[2], R. Wilson[3], J. P. Ritten[1]; [1]University of Wyoming, Laramie, WY, [2]Montana State University, Huntley, MT, [3]University of Nebraska, Scottsbluff, NE (193)

TUESDAY AFTERNOON FEBRUARY 4
Section 1. Agronomic Crops

LOCATION: Regency F
TIME: 1:00 PM - 5:00 PM
CHAIR: Prashant Jha
Montana State University
Huntley, MT

***SPEAKER**

1:00 Pixxaro (Halauxifen-methyl + Fluroxypyr): a New Auxinic Herbicide for Broadleaf Weed Control in Canadian Cereal Crops. R. Degenhardt*[1], D. D. Hare[2], L. T. Juras[3], A. W. MacRae[4]; [1]Dow AgroSciences, Edmonton, AB, [2]Dow AgroSciences Canada, Edmonton, AB, [3]Dow AgroSciences Canada Inc., Saskatoon, SK, [4]Dow AgroSciences Canada, Winnipeg, MB (194)

1:15 Paradigm (Halauxifen-methyl + Florasulam) Herbicide for Multi-Mode of Action Broadleaf Weed Control in Western Canadian Cereal Crops. L. T. Juras*[1], R. Degenhardt[2], D. D. Hare[3], A. W. MacRae[4]; [1]Dow AgroSciences Canada Inc., Saskatoon, SK, [2]Dow AgroSciences, Edmonton, AB, [3]Dow AgroSciences Canada, Edmonton, AB, [4]Dow AgroSciences Canada, Winnipeg, MB (195)

1:30 Pyroxasulfone for Managing *Bromus, Avena,* and *Galium* spp. in Winter Wheat. E. N. Johnson*[1], K. N. Harker[2], B. L. Beres[3], R. M. Mohr[4], W. M. Hamman[5], K. Coles[6], M. Gretzinger[6]; [1]Agriculture and Agri-Food Canada, Scott, SK, [2]Agriculture and Agri-Food Canada, Lacombe, AB, [3]Agriculture and Agri-Food Canada, Lethbridge, AB, [4]Agriculture and Agri-Food Canada, Brandon, MB, [5]Hamman Ag Research, Lethbridge, AB, [6]Farming Smarter, Lethbridge, AB (196)

1:45 Assessing Efficacy of Herbicide Mixtures and Adjuvants with Logarithmic Sprayers. J. Duus, J. C. Streibig*; University of Copenhagen, Taastrup, Denmark (197)

2:00 Provisia™: A New Vision in Red Rice Control. J. Harden[1], B. Luzzi[2], D. Carlson*[2], D. More[1], H. Hong[2], J. Stevenson-Paulik[2], L. Mankin[1]; [1]BASF Corporation, Research Triangle Park, NC, [2]BASF Plant Science, Research Triangle Park, NC (198)

2:15 Bicyclopyrone, a New Herbicide for Improved Weed Control in Corn. R. D. Lins*[1], T. H. Beckett[2], S. E. Cully[3], J. P. Foresman[2], G. D. Vail[2]; [1]Syngenta Crop Protection, Byron, MN, [2]Syngenta Crop Protection, Greensboro, NC, [3]Syngenta Crop Protection, Marion, IL (199)

2:30 Stewardship of DuPont™ Inzen™ Herbicide Tolerance Trait for Sorghum. D. Saunders*, W. J. Schumacher; DuPont Crop Protection, Johnston, IA (200)

2:45 Enhanced Weed Management Solutions with MGI Herbicide-Tolerant Soybeans. R. Jain*[1], D. E. Bruns[2], J. C. Holloway[2], T. H. Beckett[2], B. L. Wilkinson[2], B. Erdahl[2]; [1]Syngenta Crop Protection, Vero Beach, FL, [2]Syngenta Crop Protection, Greensboro, NC (201)

3:00 Two Pass Weed Control Programs in Soybean. P. H. Sikkema*, N. Soltani; University of Guelph, Ridgetown, ON (202)

3:15 Break

3:30 Glufosinate Rate and Application Timing for Control of Johnsongrass (*Sorghum halepense*) in Glufosinate-resistant Soybean (*Glycine max*). R. L. Landry*, D. O. Stephenson, IV, B. C. Woolam; Louisiana State University AgCenter, Alexandria, LA (203)

3:45 Weed Control and Crop Response with Sequential Application of Encapsulated Acetochlor in Soybean. A. J. Jhala*[1], M. S. Malik[2]; [1]University of Nebraska, Lincoln, NE, [2]Monsanto, Lincoln, NE (204)

4:00 Metribuzin Weed Control in the Roundup Ready Soybean System. A. Perez-Jones*[1], J. J. Gilsinger[2], B. J. La Vallee[1], P. C. Feng[1]; [1]Monsanto, Saint Louis, MO, [2]Monsanto, Mount Olive, NC (205)

4:15 Effect of Pyroxasulfone Application Rate and Timing on Soybean (*Glycine max*) Growth and Yield. D. O. Stephenson, IV*[1], J. L. Griffin[2], B. C. Woolam[1], R. L. Landry[1], M. Hardwick[2]; [1]Louisiana State University AgCenter, Alexandria, LA, [2]LSU AgCenter, Baton Rouge, LA (206)

4:30 Efficacy and Persistence of Imazethapyr Applied Alone and as Tank Mix in Clusterbean. S. Singh*, S. S.

Punia; CCS Haryana Agricultural University, Hisar, India (207)

4:45 Cotton Tolerance and Weed Control by Acetochlor/ S-Metolachlor and Pyrithiobac Tank Mixes. C. W. Cahoon*, A. C. York, D. Jordan, W. J. Everman; North Carolina State University, Raleigh, NC (208)

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

LOCATION: Plaza C
TIME: 1:00 PM - 3:30 PM
CHAIR: Andrew Ezell
Mississippi State University
Starkville, MS

***SPEAKER**

1:00 Controlling Natural Pines with Mixtures of Aminocyclopyrachlor and Fosamine. A. W. Ezell*[1], J. L. Yeiser[2]; [1]Mississippi State University, Mississippi State, MS, [2]University of Arkansas, Monticello, AR (209)

1:15 ClearView Brush Herbicide (Aminopyralid +Metsulfuron-methyl+Triclopyr BEE) for Foliar Application Control of Black Spruce *(Picea mariana)* (PIEMA) on Rights-of-Way, Industrial Areas, and Non-Crop Areas. D. D. Hare*[1], R. Degenhardt[2], L. T. Juras[3], A. W. MacRae[4]; [1]Dow AgroSciences Canada, Edmonton, AB, [2]Dow AgroSciences, Edmonton, AB, [3]Dow AgroSciences Canada Inc., Saskatoon, SK, [4]Dow AgroSciences Canada, Winnipeg, MB (210)

1:30 MAT28 Blends with Krenite for Brownout of Oak and Elm in SE Oklahoma. J. L. Yeiser*[1], A. W. Ezell[2], J. Grogan[3]; [1]University of Arkansas, Monticello, AR, [2]Mississippi State University, Mississippi State, MS, [3]Stephen F Austin State University, Nacogdoches, TX (211)

1:45 Control of Hardwoods Two Years After Directed Spray Application of Treatments containing MAT-28, Metsulfuron, and Imazapyr. A. W. Ezell*[1], J. L. Yeiser[2]; [1]Mississippi State University, Mississippi State, MS, [2]University of Arkansas, Monticello, AR (212)

2:00 Control of Oak and Yaupon with Individual Plant Treatments of MAT28 Mixtures. J. L. Yeiser*[1], A. W. Ezell[2], J. Grogan[3]; [1]University of Arkansas, Monticello, AR, [2]Mississippi State University, Mississippi State, MS, [3]Stephen F Austin State University, Nacogdoches, TX (213)

2:15 Chinese Tallowtree Ecology and Control in Pastures. S. F. Enloe*; Auburn University, Auburn, AL (214)

2:30 Controlling Trumpet Creeper, Greenbriar, and Honeysuckle on Fences with MAT28 in Texas. J. L. Yeiser*[1], A. W. Ezell[2], J. Grogan[3]; [1]University of Arkansas, Monticello, AR, [2]Mississippi State University, Mississippi State, MS, [3]Stephen F Austin State University, Nacogdoches, TX (215)

2:45 Behavior of 2,4-D in Sensitive and Tolerant Red Clover (*Trifolium pratense*) Lines. T. L. Burke*, J. Roberts, N. Taylor, M. Barrett; University of Kentucky, Lexington, KY (216)

3:00 Smutgrass Management: From Biology to Control. N. Rana*[1], B. A. Sellers[2], J. A. Ferrell[3]; [1]Monsanto, Chesterfield, MO, [2]University of Florida, Ona, FL, [3]University of Florida, Gainesville, FL (217)

3:15 Business Meeting

TUESDAY AFTERNOON FEBRUARY 4
Section 9. Weed Biology and Ecology

LOCATION: Regency E
TIME: 1:00 PM - 5:00 PM
CHAIR: Greta Gramig
North Dakota State University
Fargo, ND

***SPEAKER**

1:00 What's a Weed Worth?: Integrating Full Costs and Benefits into Control Decision-making for Common Milkweed (*Asclepias syriaca*). A. DiTommaso*, J. E. Losey; Cornell University, Ithaca, NY (218)

1:15 InvDER: A Landscape Scale Spatial Model to Estimate Invasion Risk. J. N. Barney*, E. S. Dollete, D. R. Tekiela, M. Ho; Virginia Tech, Blacksburg, VA (219)

1:30 PAM: A Decision Support Tool for Guiding Integrated Management of Palmer Amaranth. M. V. Bagavathiannan*[1], J. K. Norsworthy[1], M. Lacoste[2], S. Powles[3]; [1]University of Arkansas, Fayetteville, AR, [2]University of Western Australia, Perth, Australia, [3]University of Western Australia, Crawley, Australia (220)

1:45 Selecting Optimum Predictive Models for Weed Emergence Using AIC Associated with Penalty Costs. R. Werle*, L. Sandell, J. L. Lindquist; University of Nebraska, Lincoln, NE (221)

2:00 The Effects of Sheep Grazing for Cover Crop Termination on Plant Community Structure, Weed Pressure and Crop Yields: Evaluating an Ecological-based Management Strategy for Agroecosystems. S. C. McKenzie*, H. B. Goosey, K. M. O'Neill, F. Menalled; Montana State University, Bozeman, MT (222)

2:15 Long-term Effects of Strip Tillage and Cover Crops on Weed Seedbank Dynamics and Profitability in Vegetables. D. C. Brainard*, E. Haramoto, D. C. Noyes; Michigan State University, East Lansing, MI (223)

2:30 Estimating Impacts of Grassy Weed Species on Risk of Cereal Viruses. Z. Miller*, F. Menalled, M. Burrows, N. Ranabhat, D. Delaney-Falcon; Montana State University, Bozeman, MT (224)

2:45 Can Fungal Pathogens, Nitrogen, and Moisture Explain Suppression of Weed Emergence in Strip tilled Cabbage with Cover Crops? E. Haramoto*, D. C. Brainard; Michigan State University, East Lansing, MI (225)

3:00 Crop Canopy Effects on Kochia Seed Characteristics in Kansas. A. Esser*, A. Dille; Kansas State University, Manhattan, KS (226)

3:15 Break

3:30 Maternal Environment Influences Propagule Pressure of an Agricultural Weed, *Raphanus raphanistrum* (Brassicaceae). R. J. Parker[1], G. Blakelock[2], L. G. Campbell*[1]; [1]Ryerson University, Toronto, ON, [2]Trent University, Peterborough, ON (227)

3:45 Germination and Growth of Three Weed Species in Response to the Addition of Vinasse and Biochar to the Soil. N. Soni[1], R. G. Leon*[1], J. E. Erickson[2], J. A. Ferrell[2], M. L. Silveira[3]; [1]University of Florida, Jay, FL, [2]University of Florida, Gainesville, FL, [3]University of Florida, Ona, FL (228)

4:00 Kochia Seedbank Dynamics in Central Great Plains of US. A. Dille*[1], P. Stahlman[2], P. Geier[2], R. Currie[3], R. Wilson[4], G. Sbatella[5], A. Kniss[6], P. Westra[7]; [1]Kansas State University, Manhattan, KS, [2]Kansas State University, Hays, KS, [3]Kansas State University, Garden City, KS, [4]University of Nebraska, Scottsbluff, NE, [5]Oregon State University, Madras, OR, [6]University of Wyoming, Laramie, WY, [7]Colorado State University, Fort Collins, CO (229)

4:15 A Stable Isotope Method for Measuring Weed Seedbank Longevity *in situ*. A. Kniss*[1], D. Odero[2], D. A. Claypool[1]; [1]University of Wyoming, Laramie, WY, [2]University of Florida, Belle Glade, FL (230)

4:30 Germination Ecology of Catchfly (*Silene conoidea*) Seeds of Different Colors. M. M. Javaid*[1], A. Tanveer[2]; [1]University of Sargodha, Sargodha, Pakistan, [2]University of Agriculture, Faisalabad, Pakistan (231)

4:45 Business Meeting

TUESDAY AFTERNOON FEBRUARY 4
Section 13. Integrated Weed Management

LOCATION: Georgia B
TIME: 1:00 PM - 5:00 PM
CHAIR: Chris Benedict
Washington State University
Bellingham, WA

***SPEAKER**

1:00 State of Integrated Weed Management and Pesticide Use in the Canadian Prairies. J. Y. Leeson, H. J. Beckie*; Agriculture and Agri-Food Canada, Saskatoon, SK (232)

1:15 Integrated Weed Management in Dry-seeded Rice Systems in Asia. B. S. Chauhan*; IRRI, Los Banos, Philippines (233)

1:30 Is There a Future for Predicting the Competitive Ability of Cultivars? A Case Study of Wheat in the UK. I. K. Andrew*; Rothamsted Research, Harpenden, England (234)

1:45 The Significance of Harvest Weed Seed Control in Herbicide Resistance Management. M. J. Walsh*[1], S. Powles[2]; [1]University of Western Australia, Perth, Australia, [2]University of Western Australia, Crawley, Australia (235)

2:00 Double Knock: Sequential Applications for Seed Set Control of Hard-to-Control and Glyphosate Resistant Weeds of Sub-tropical Australia. M. J. Widderick*[1], S. R. Walker[2]; [1]Department of Agriculture, Fisheries and Forestry Queensland (DAFFQ), Toowoomba, Australia, [2]The University of Queensland, Toowoomba, Australia (236)

2:15 Delaying Herbicide Resistance with Integrated Wild Oat (*Avena fatua*) Management. K. N. Harker*[1], J. T. O'Donovan[1], T. K. Turkington[1], V. Baron[1], R. E. Blackshaw[2], L. Hall[3], E. N. Johnson[4], C. Willenborg[5], S. Shirtliffe[5], R. Gulden[6], J. Kobler[7], D. Pageau[8]; [1]Agriculture and Agri-Food Canada, Lacombe, AB, [2]Agriculture and Agri-Food Canada, Lethbridge, AB, [3]University of Alberta, Edmonton, AB, [4]Agriculture and Agri-Food Canada, Scott, SK, [5]University of Saskatchewan, Saskatoon, SK, [6]University of Manitoba, Winnipeg, MB, [7]University of Guelph, New Liskeard, ON, [8]Agriculture and Agri-Food Canada, Normandin, QC (237)

2:30 Recurrent Applications of 2,4-D Amine Lead to the Rapid Evolution of 2,4-D and ALS Cross Resistance in a Susceptible Wild Radish (*Raphanus raphanistrum*) Population. M. B. Ashworth*[1], M. J. Walsh[1], K. C. Flower[2], S. Powles[2]; [1]University of Western Australia, Perth, Australia, [2]University of Western Australia, Crawley, Australia (238)

2:45 Pyroxasulfone Efficacy Against *Phalaris minor* in Wheat in India. S. Singh*; CCS Haryana Agricultural University, Hisar, India (239)

3:00 Oxyfluorfen for Fallow Bed Weed Control in Row Crops in the Mid-South USA – 2010 to 2013. L. C. Walton*[1], A. T. Ellis[2], B. B. Haygood[3], R. B. Lassiter[4], V. B. Langston[5], R. K. Mann[6]; [1]Dow AgroSciences, Tupelo, MS, [2]Dow AgroSciences, Arlington, TN, [3]Dow AgroSciences,

Collerville, TN, [4]Dow AgroSciences, Cary, NC, [5]Dow AgroSciences, The Woodlands, TX, [6]Dow AgroSciences, Indianapolis, IN (240)

3:15 Break

3:30 Weed Control in Tomato (*Lycopersicon esculentum*) Through Mulching and Herbicides. T. Bakht*; The University of Agriculture, Peshawar, Pakistan (241)

3:45 Recurrent Bi-directional Selection on Flowering Date Highlights the Genetic Diversity of Wild Radish (*Raphanus raphanistrum*) Populations. M. B. Ashworth[1], M. J. Walsh[1], K. C. Flower[2], S. Powles*[2]; [1]University of Western Australia, Perth, Australia, [2]University of Western Australia, Crawley, Australia (242)

4:00 Integrated Palmer Amaranth Management in Glufosinate-Resistant Cotton. A. J. Price*[1], J. Aulakh[2], S. Enloe[2]; [1]USDA-ARS, Auburn, AL, [2]Auburn University, Auburn, AL (243)

4:15 Controlling Downy Brome (*Bromus tectorum*) on Rangeland with Prescribed Burning and Herbicides. K. C. Kessler*, S. J. Nissen, G. K. Beck, J. Sebastian; Colorado State University, Ft. Collins, CO (244)

4:30 Combining Cultural Practices with Herbicides Reduces Wild Oat Seed in the Soil Seed Bank and Improves Barley Yield. J. T. O'Donovan*[1], K. N. Harker[1], T. K. Turkington[1], G. W. Clayton[2]; [1]Agriculture and Agri-Food Canada, Lacombe, AB, [2]Agriculture and Agri-Food Canada, Lethbridge, AB (245)

4:45 Business Meeting

TUESDAY AFTERNOON FEBRUARY 4
WSSA Business Meeting

LOCATION: Georgia A
TIME: 5:00 PM - 6:00 PM
CHAIR: James Kells
Michigan State University
East Lansing, MI

WEDNESDAY MORNING FEBRUARY 5
Graduate Student Professional Development Workshop

LOCATION: Regency D
TIME: 10:00 AM - 12:00 PM
CHAIR: Alexandra Knight
North Carolina State University
Raleigh, NC

WEDNESDAY MORNING FEBRUARY 5
PMRA, CFIA Regulatory Issues and Provincial Weed Reports

LOCATION: Regency E
TIME: 10:00 AM - 12:00 PM
CHAIR: Mike Cowbrough
Ontario Ministry of Agriculture and Food
Guelph, ON

WEDNESDAY MORNING FEBRUARY 5
Section 1. Agronomic Crops

LOCATION: Regency F
TIME: 10:00 AM - 12:00 PM
CHAIR: Prashant Jha
Montana State University
Huntley, MT

***SPEAKER**

10:00 Energy Beet: An Undiscovered Crop for the Southeast US. T. M. Webster*[1], T. L. Grey[2], B. Scully[1], T. B. Brenneman[2], R. F. Davis[1], B. Dutta[2], W. C. Johnson III[1]; [1]USDA-ARS, Tifton, GA, [2]University of Georgia, Tifton, GA (246)

10:15 Wheat: Roundup Ready or Not. C. Mallory-Smith*[1], D. Horneck[2]; [1]Oregon State University, Corvallis, OR, [2]Oregon State University, Hermiston, OR (247)

10:30 TruFlex Roundup Ready Canola. T. Herzog*; Monsanto Canada Inc., Yorkton, SK (248)

10:45 Characteristics of Herbicide-Resistant Weeds. I. M. Heap*; WeedSmart, Corvallis, OR (249)

11:00 Harvest Weed Seed Control: Testing Australian Seedbank Management Tactics in USA Soybean. J. K. Norsworthy*[1], M. J. Walsh[2], M. V. Bagavathiannan[1], K. W. Bradley[3], L. Steckel[4], G. Kruger[5], M. M. Loux[6], T. Eubank[7], V. Davis[8], W. Johnson[9], B. Young[10], S. Powles[11]; [1]University of Arkansas, Fayetteville, AR, [2]University of Western Australia, Perth, Australia, [3]University of Missouri, Columbia, MO, [4]University of Tennessee, Jackson, TN, [5]University of Nebraska, North Platte, NE, [6]The Ohio State University, Columbus, OH, [7]Mississippi State University, Stoneville, MS, [8]University of Wisconsin, Madison, WI, [9]Purdue University, West Layafette, IN, [10]University of Southern Illinois, Carbondale, IL, [11]University of Western Australia, Crawley, Australia (250)

11:15 Update on Herbicide Resistance in Kochia in the Central Great Plains. P. W. Stahlman*[1], A. S. Godar[2]; [1]Kansas State University, Hays, KS, [2]Kansas State University, Manhattan, KS (251)

11:30 Evolution of ACC-Inhibitor Resistance in Wild Oat (*Avena fatua*) in a Long-term Alternative Cropping Systems Study. H. J. Beckie*[1], E. N. Johnson[2]; [1]Agriculture and Agri-Food Canada, Saskatoon, SK, [2]Agriculture and Agri-Food Canada, Scott, SK (252)

11:45 Business Meeting

WEDNESDAY MORNING FEBRUARY 5
Section 3. Turf and Ornamental Crops

LOCATION: Georgia B
TIME: 10:00 AM - 11:30 AM
CHAIR: Ramon Leon
University of Florida
Jay, FL

***SPEAKER**

10:00 Flurprimidol Uptake and Metabolism of Six Grass Species. A. P. Williams*, M. Barrett, D. W. Williams; University of Kentucky, Lexington, KY (253)

10:15 Response of 110 Kentucky Bluegrass Varieties to Methiozolin. S. S. Rana*, S. Askew, K. A. Venner, A. N. Smith; Virginia Tech, Blacksburg, VA (254)

10:30 Investigating the Role of Tyrosine Aminotranferase Inhibition on *Poa annua* Response to Methiozolin. K. A. Venner*[1], E. Collakova[1], S. Koo[2], S. Askew[1]; [1]Virginia Tech, Blacksburg, VA, [2]Moghu Research Center, Daejeon, South Korea (255)

10:45 Remediation of Indaziflam-treated Turf Areas Prior to Overseeding Perennial Ryegrass. T. Gannon*[1], J. Brosnan[2], M. Jeffries[1]; [1]North Carolina State University, Raleigh, NC, [2]University of Tennessee, Knoxville, TN (256)

11:00 Sod Harvesting Intervals of Four Warm-Season Grasses for Halosulfuron and Sulfentrazone. C. Johnston*, P. McCullough; University of Georgia, Griffin, GA (257)

11:15 Business Meeting

WEDNESDAY MORNING FEBRUARY 5
Section 8. Formulation, Adjuvant and Application Technology

LOCATION: Plaza A
TIME: 10:00 AM - 12:00 PM
CHAIR: Gregory Dahl
Winfield Solutions LLC
St. Paul, MN

***SPEAKER**

10:00 Testing of a Novel 2,4-D Formulation with Glyphosate and Adjuvants for Drift Reduction Technology. G. K. Dahl*[1], L. C. Magidow[2], J. V. Gednalske[2], L. J. Hennemann[2], A. C. Clark[2], W. Stepanie[1]; [1]Winfield Solutions LLC, St. Paul, MN, [2]Winfield Solutions, River Falls, WI (258)

10:15 Use of Computer Vision in Precision Farming. A. Rana*, J. Derr; Virginia Tech, Virginia Beach, VA (259)

10:30 Variability in Categorization of Spray Nozzles Classified According to Droplet Distribution. S. Wedryk*[1], L. C. Magidow[2], G. K. Dahl[3], E. Spandl[3], J. V. Gednalske[2]; [1]Winfield Solutions LLC, Shoreview, MN, [2]Winfield Solutions, River Falls, WI, [3]Winfield Solutions LLC, St. Paul, MN (260)

10:45 Dicamba Formulation Advancements. J. Sandbrink, J. Travers, A. Macinnes*, J. Hemminghaus; Monsanto, St. Louis, MO (261)

11:00 Dicamba Drift as Affected by Best Management Practices with Engenia. D. B. Reynolds*[1], J. Cobb[1], J. B. Guice[1], W. E. Thomas[2]; [1]Mississippi State University, Mississippi State, MS, [2]BASF Corporation, Research Triangle Park, NC (262)

11:15 Vesicle Forming Surfactants as Novel Spray Drift Control Agents in Herbicide Applications. S. Sun*, L. Dempsey, Q. He; AkzoNobel Surface Chemistry, Brewster, NY (263)

11:30 Modified Cellulose Ethers as Drift Reduction Technology. L. Dempsey*, S. Sun, Q. He; AkzoNobel Surface Chemistry, Brewster, NY (264)

11:45 Business Meeting

WEDNESDAY MORNING FEBRUARY 5
Section 10. Biocontrol of Weeds

LOCATION: Plaza B
TIME: 10:00 AM - 11:15 AM
CHAIR: Bill Bruckhart
USDA ARS
Ft. Detrick, MD
MODERATOR: Joe Neal
North Carolina State Univ.
Raleigh, NC

***SPEAKER**

10:00 Efficacy of Downy Brome (*Bromus tectorum*) Biocontrol on Target and Non-target Species. K. A. Ehlert*, Z. Miller, J. M. Mangold, F. Menalled; Montana State University, Bozeman, MT (265)

10:15 The Potential for Biological Control of Silvery Threadmoss with Two Fungal Pathogens. S. Askew[1], A. R. Post*[2], D. S. McCall[1]; [1]Virginia Tech, Blacksburg, VA, [2]Oklahoma State University, Stillwater, OK (266)

10:30 Effect of Burial Depth on Seed Feeding Potential of Granivorous Carabid Beetles. S. S. Kulkarni*[1], C.

Willenborg[2], L. M. Dosdall[1]; [1]University of Alberta, Edmonton, AB, [2]University of Saskatchewan, Saskatoon, SK (267)

10:45 Grit Application Controls Weeds in Organic Crop Production. M. Erazo-Barradas*[1], S. A. Clay[1], F. Forcella[2]; [1]South Dakota State University, Brookings, SD, [2]USDA, Morris, MN (268)

11:00 Business Meeting

WEDNESDAY MORNING FEBRUARY 5
Section 12. Soil and Environmental Aspects

LOCATION: Plaza C
TIME: 10:00 AM - 11:00 AM
CHAIR: Kyle Keller
BASF
Research Triangle Park, NC

***SPEAKER**

10:00 Evaluation of Cotton Tolerance and Yield Response to Various Rates of PRE Applied Fomesafen at Three Locations in Georgia. X. Li*[1], T. L. Grey[2], B. H. Blanchett[2], W. K. Vencill[1]; [1]University of Georgia, Athens, GA, [2]University of Georgia, Tifton, GA (269)

10:15 Effect of Long Term Irrigation with Treated Wastewater on the Efficacy and Fate of Trifloxysulfuron-sodium in Soil. G. Dvorkin*[1], M. Sibony[2], B. Chetetz[2], B. Rubin[2]; [1]The Faculty of Agriculture, Food and Environment, the Hebrew University of Jerusalem, Rehovot, Israel, [2]The Robert H. Smith Faculty of Agriculture, Food and Environment, the Hebrew University of Jerusalem, Rehovot, Israel (270)

10:30 Denitrification and Denitrifier Community Structure in Response to Previous Crop and Weed Management Intensity. R. H. Gulden*[1], M. Tenuta[1], S. Mitchell[2], T. J. Daniell[2]; [1]University of Manitoba, Winnipeg, MB, [2]James Hutton Institute, Dundee, Scotland (271)

10:45 Business Meeting

WEDNESDAY AFTERNOON FEBRUARY 5
CWSS-SCM Awards Luncheon

LOCATION: Grouse
TIME: 12:00 PM - 1:30 PM
CHAIR: David Clements
Trinity Western University
Langley, BC

WEDNESDAY AFTERNOON FEBRUARY 5
Vulnerability of the Pacific Northwest to Plant Invasions

LOCATION: Regency D
TIME: 1:45 PM - 5:00 PM
CHAIR: David Clements
Trinity Western University
Langley, BC

***SPEAKER**

1:45 Introduction

1:55 Complexity - Addressing This Invasive Plant Management Challenge in British Columbia. V. Miller*; BC Ministry of Forests, Lands and Natural Resource Operations, Nelson, BC (272)

2:15 Plant Invasions in Mountain Ecosystems of the Rockies. L. J. Rew*[1], B. J. Naylor[2], F. W. Pollnac[1], T. Seipel[1], K. Anderson[3], C. G. Parks[2]; [1]Montana State University, Bozeman, MT, [2]USDA Forest Service, La Grande, OR, [3]San Diego Zoo, San Diego, CA (273)

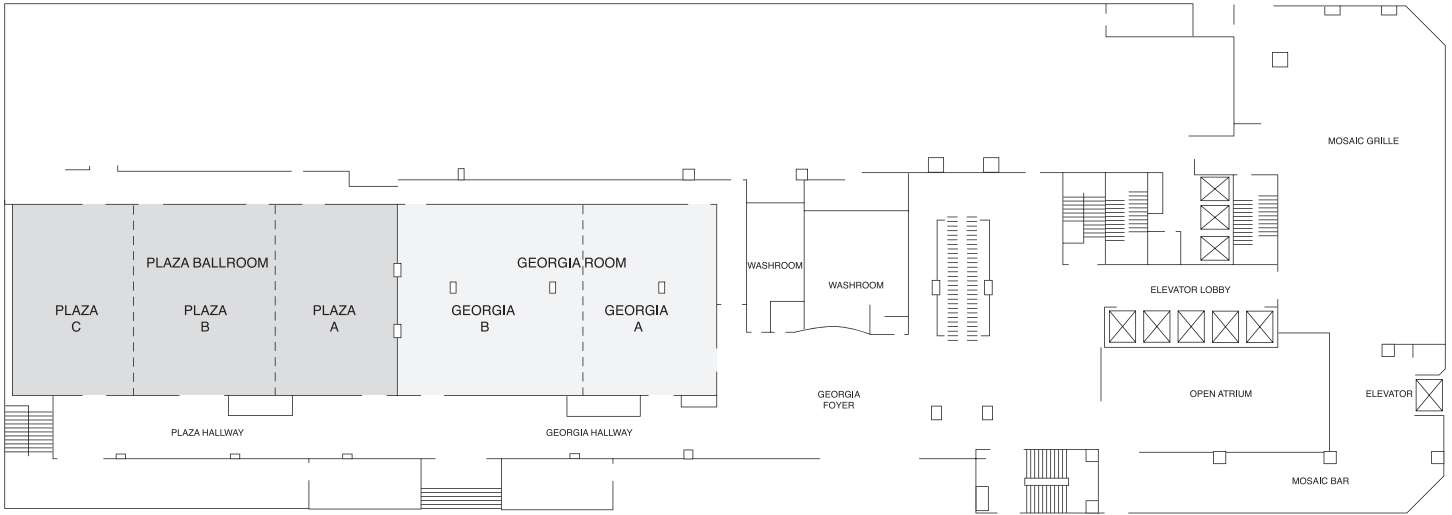
2:35 All the Pretty Plants: Horticultural Introductions and Propagule Pressure in the Pacific Northwest. S. Reichard*; University of Washington, Seattle, WA (274)

2:55 Invasive Japanese Knotweed in the Pacific Northwest: Are they all Clones? S. L. Gillies*, A. Janmaat, A. Reid, A. Sum; University of the Fraser Valley, Abbotsford, BC (275)

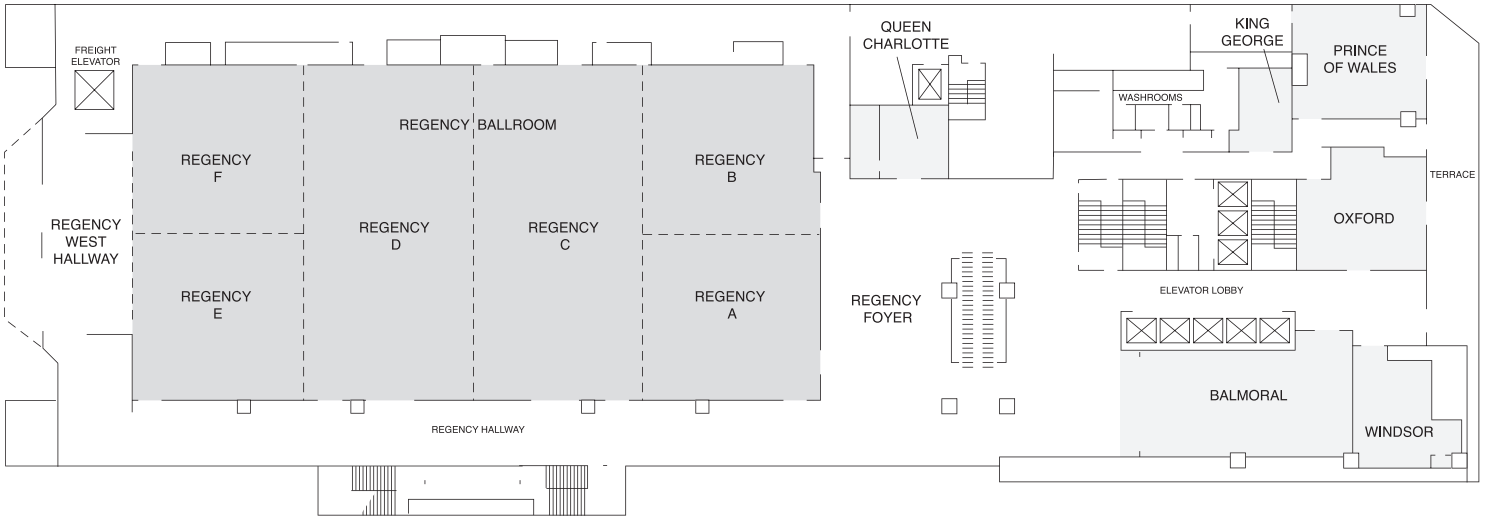
3:15 Break

3:30 Regional Differences in Japanese Knotweed Management Strategies across Canada. T. G. Larsen*; East Kootenay Invasive Plant Council, Kimberley, BC (276)

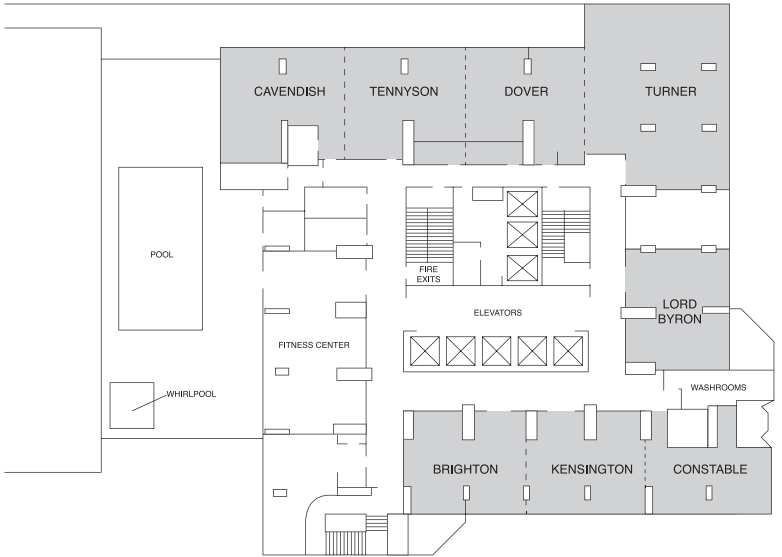
PLAZA LEVEL (SECOND FLOOR)



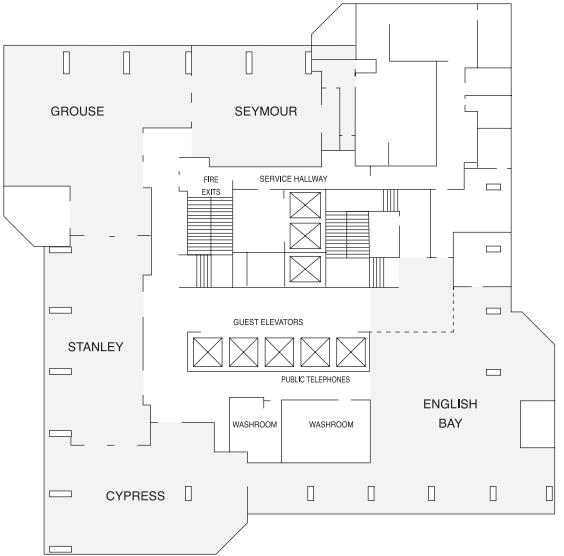
CONVENTION LEVEL (THIRD FLOOR)



FOURTH FLOOR



PERSPECTIVES LEVEL (34th FLOOR)



3:50 Integrated Control Strategies of Wild Chervil and other Perennial Weeds in the Pacific Northwest. T. W. Miller*; Washington State University, Mount Vernon, WA (277)

4:10 Aquatic Plant Invasions and Their Management in the Pacific Northwest. M. D. Sytsma*; Portland State University, Portland, OR (278)

4:30 Repulsing Plant Invasions in the Pacific Northwest – Successes, Failures and Everything Between. A. Janmaat*[1], J. H. Myers[2], L. Scott[3]; [1]University of the Fraser Valley, Abbotsford, BC, [2]University of British Columbia, Vancouver, BC, [3]Invasive Plant Program Coordinator for the Okanagan-Similkameen Regional District, Summerland, BC (279)

WEDNESDAY AFTERNOON FEBRUARY 5
Bioherbicides: Current Status and the Future Prospects

LOCATION: Plaza B
TIME: 1:00 PM - 5:00 PM
CO-CHAIR: Franck Dayan
USDA-ARS
University, MS
CO-CHAIR: Steve Duke
USDA-ARS
University, MS

***SPEAKER**

1:00 Overview of Biopesticides. S. O. Duke*; USDA-ARS, Oxford, MS (280)

1:15 Regulatory Update of the IR-4 Project Biopesticide and Organic Support Program. M. P. Braverman*, J. Baron, D. Kunkel, M. Arsenovic; IR-4, Rutgers University, Princeton, NJ (281)

1:45 Insights on Overcoming the Bioherbicide Lag. L. G. Boddy*, P. G. Marrone; Marrone Bio Innovations, Davis, CA (282)

2:15 Plant Essential Oils as Botanical Herbicides. M. B. Isman*; University of British Columbia, Vancouver, BC (283)

2:45 BioDirect(tm) and Managing Herbicide Resistant Amaranths. D. Sammons*[1], D. Wang[1], S. Reiser[1], S. Navarro[1], N. Rana[2], G. Griffith[1]; [1]Monsanto, St. Louis, MO, [2]Monsanto, Chesterfield, MO (284)

3:15 Break

3:30 Why the Limited Success with Mycoherbicides? A. Watson*; McGill University, Ste-Anne-de-Bellevue, QC (285)

4:00 Manuka Oil: Natural HPPD Inhibitors. F. E. Dayan*, D. K. Owens; USDA-ARS, University, MS (286)

4:30 The Development of the Fungus-derived Herbicide, Mevalocidin. C. Pearce*; Mycosynthetix, Inc., Hillsborough, NC (287)

WEDNESDAY AFTERNOON FEBRUARY 5
Section 1. Agronomic Crops

LOCATION: Regency F
TIME: 1:00 PM - 5:00 PM
CHAIR: Prashant Jha
Montana State University
Huntley, MT

***SPEAKER**

1:00 HPPD Inhibitor Resistance Stewardship. The Perspective of the HRAC Working Group. G. D. Vail*[1], W. E. Thomas[2], P. Porpiglia[3], W. J. Patzoldt[4], R. Beffa[5]; [1]Syngenta Crop Protection, Greensboro, NC, [2]BASF Corporation, Research Triangle Park, NC, [3]AMVAC Chemical Corporation, Newport Beach, CA, [4]DuPont Corp, Wilmington, DE, [5]Bayer CropScience, Frankfurt am Main, Germany (288)

1:15 Absorption, Translocation, and Metabolism of Glyphosate in Nicosulfuron and Glyphosate-resistant *Sorghum halepense*. A. N. Smith*, S. Askew, S. Hagood; Virginia Tech, Blacksburg, VA (289)

1:30 Distribution of Multiple Herbicide Resistance in Missouri Waterhemp Populations. J. Schultz*, E. B. Riley, J. D. Wait, K. W. Bradley; University of Missouri, Columbia, MO (290)

1:45 Soil-Residual Protoporphyrinogen Oxidase (PPO)-Inhibiting Herbicides and the Selection for PPO-Resistant Waterhemp (*Amaranthus tuberculatus*). R. Wuerffel*, B. Young, J. Young, J. Matthews; Southern Illinois University, Carbondale, IL (291)

2:00 Management of Glyphosate Resistant Common Waterhemp in Texas Cotton Cultures. J. A. McGinty*[1], P. A. Baumann[2], G. D. Morgan[1], M. E. Matocha[1], L. M. Etheredge[3]; [1]Texas A&M AgriLife Extension, College Station, TX, [2]Texas A&M University, College Station, TX, [3]Monsanto, Llano, TX (292)

2:15 Triazine and HPPD Inhibitors-resistant Palmer Amaranth in Nebraska. A. J. Jhala*[1], L. Sandell[1], N. Rana[2], G. Kruger[3], S. Z. Knezevic[4]; [1]University of Nebraska, Lincoln, NE, [2]Monsanto, Chesterfield, MO, [3]University of Nebraska, North Platte, NE, [4]University of Nebraska, Concord, NE (293)

2:30 Assessment of HPPD-inhibitors Applied Alone or in Combination with Atrazine for Control of Glyphosate-Resistant Palmer Amaranth (*Amaranthus palmeri*) in Corn. K. M. Vollmer*, H. P. Wilson, T. E. Hines; Virginia Tech, Painter, VA (294)

2:45 Evaluating Target-site Mutations in Nicosulfuron and Glyphosate-resistant *Sorghum halepense*. A. N. Smith*, G. Kim, J. H. Westwood, S. Hagood; Virginia Tech, Blacksburg, VA (295)

3:00 Relative Competitive Abilities of Wild vs Cultivated Switchgrass: Assessing Invasive Potential for Mitigating Biofuel Risks. D. J. Palik*[1], A. A. Snow[1], A. L. Stottlemyer[1], M. N. Miriti[1], E. A. Heaton[2]; [1]Ohio State University, Columbus, OH, [2]Iowa State University, Ames, IA (296)

3:15 Break

3:30 Why the Anthesis-silking Interval is Important in Understanding Yield Loss in Maize. C. J. Swanton*, V. H. Gonzalez, E. Lee, L. Lukens; University of Guelph, Guelph, ON (297)

3:45 Using Perpendicular Cultivation with a Tine-Weeder to Improve In-Row Weed Control in Organic Peanut Production. W. C. Johnson III*; USDA-ARS, Tifton, GA (298)

4:00 Impact of Row Spacing, Plant Population and Herbicide Program on Weed Control and Yield in Sorghum. T. E. Besancon*, W. J. Everman, R. Riar, R. Weisz; North Carolina State University, Raleigh, NC (299)

4:15 Movement of Nitrogen in Corn and Weeds as Impacted by Different Nitrogen Sources, Rates, and Weed Removal Height. A. M. Knight*, W. J. Everman, D. Jordan, R. Heiniger, T. J. Smyth; North Carolina State University, Raleigh, NC (300)

4:30 Variety, Planting Date and Herbicides Affect Fiber and Oilseed Flax Biomass and Seed Yields in the Willamette Valley of Oregon. A. G. Hulting*, K. C. Roerig, D. W. Curtis, C. A. Mallory-Smith; Oregon State University, Corvallis, OR (301)

4:45 Competitiveness of Volunteer Corn in Sugarbeet. A. C. Harden*, C. L. Sprague; Michigan State University, East Lansing, MI (302)

WEDNESDAY AFTERNOON FEBRUARY 5
Section 2. Horticultural Crops

LOCATION: Plaza A
TIME: 1:00 PM - 4:00 PM
CHAIR: Peter Dittmar
University of Florida
Gainesville, FL

***SPEAKER**

1:00 Evaluation of Pendimethalin in Transplanted Lettuce. S. A. Fennimore*, J. S. Rachuy; University of California Davis, Salinas, CA (303)

1:15 Sweet Corn CYP Genotype Responses to HPPD- and PSII-inhibitor Tankmixes. E. Choe[1], M. M. Williams II*[1], R. A. Boydston[2], J. K. Pataky[3]; [1]USDA-ARS, Urbana, IL, [2]USDA-ARS, Prosser, WA, [3]University of Illinois, Urbana, IL (304)

1:30 Do Cultivar and Saflufenacil Application Timing Influence Weed Control and Growth Response of Succulent Pea? D. Robinson*, K. E. McNaughton; University of Guelph, Ridgetown, ON (305)

1:45 Evaluation of Post Emergence Herbicides for Purple Nutsedge Control in Tomato and Bell Pepper. N. S. Boyd*; University of Florida, Wimauma, FL (306)

2:00 Effect of Moisture-Limiting Conditions on Uptake and Translocation of Glyphosate Drift Rates on Processing Tomato. K. E. McNaughton*, P. H. Sikkema, D. Robinson; University of Guelph, Ridgetown, ON (307)

2:15 Response of Broccoli and Pepper to Simulated Drift of 2,4-D and Dicamba. D. Doohan*, M. Mohseni-Moghadam; The Ohio State University, Wooster, OH (308)

2:30 Effect of Mixing Sand and Pinebark on Preemergence Herbicide Efficacy in Blueberry. P. J. Dittmar*; University of Florida, Gainesville, FL (309)

2:45 Break

3:00 Evaluation of Herbicides for Fescue (*Festuca* spp.) Control in Wild Blueberry . G. L. Graham*; NBDAAF, Fredericton, NB (310)

3:15 Weed Control in Concord Grape. C. J. Phillippo*, B. Zandstra; Michigan State University, East Lansing, MI (311)

3:30 Maintaining Raspberry Weed Free with Clopyralid and Other Herbicides. B. Zandstra*, C. J. Phillippo; Michigan State University, East Lansing, MI (312)

3:45 Business Meeting

WEDNESDAY AFTERNOON FEBRUARY 5
Section 9. Weed Biology and Ecology

LOCATION: Regency E
TIME: 1:00 PM - 4:15 PM
CHAIR: Greta Gramig
North Dakota State University
Fargo, ND

***SPEAKER**

1:00 *Echium plantagineum*: Crop, Weed, Wrinkles, and Bees. F. Forcella*, C. Eberle; USDA, Morris, MN (313)

1:15 Genomics and Domestication of Field Pennycress (*Thlaspi arvense*). K. M. Dorn*, D. Marks, D. Wyse; University of Minnesota, St Paul, MN (314)

1:30 Comparative Growth of Kochia (*Kochia scoparia*) Accessions from Northern and Central Great Plains. A. V. Varanasi*, P. Jha, V. Kumar, S. Leland; Montana State University, Huntley, MT (315)

1:45 Flowering Biology of Red Sorrel (*Rumex acetosella*) in Lowbush Blueberry (*Vaccinium angustifolium*) Fields. S. N. White*[1], N. S. Boyd[2], R. C. Van Acker[3], C. J. Swanton[3], S. Newmaster[3]; [1]University of Guelph, Truro, NS, [2]Gulf Coast Research and Education Center, Wimauma, FL, [3]University of Guelph, Guelph, ON (316)

2:00 Impact of Temperature Increase on Phenology of *Ambrosia artemisiifolia* Biotypes. D. L. Benoit*; Agriculture and Agri-Food Canada, Saint-Jean-sur-Richelieu, QC (317)

2:15 Fall Panicum Interference in Sugarcane. D. Odero*[1], N. Havranek[1], M. Duchrow[2]; [1]University of Florida, Belle Glade, FL, [2]Sugar Cane Growers Cooperative of Florida, Belle Glade, FL (318)

2:30 Past and Future Role of Wildfire, Humans and Climate in Nonindigenous Plant Invasions. B. D. Maxwell*[1], K. Taylor[1], T. Brummer[2], L. J. Rew[1], M. Lavin[1], A. Pauchard[3], D. Peltzer[4]; [1]Montana State University, Bozeman, MT, [2]Lincoln University, Lincoln, New Zealand, [3]University of Concepcion, Concepcion, Chile, [4]Landcare, Lincoln, New Zealand (319)

2:45 The Abundance of *Bromus tectorum* in Response to Wildfire and Fire Suppression. T. Seipel*, E. A. Lehnhoff, L. J. Rew; Montana State University, Bozeman, MT (320)

3:00 Ecology, Biology and Control of Some Exotic - invasive Weeds in Coastal Forests of British Columbia. R. R. Prasad*; Pacific Forestry Centre, Victoria, BC (321)

3:15 Break

3:30 Plant Community Resilience to Disturbance and *Linaria vulgaris* Invasion Across an Environmental Gradient. E. A. Lehnhoff*, B. D. Maxwell, L. J. Rew; Montana State University, Bozeman, MT (322)

3:45 Novel Bioenergy Crops: Sustainable Energy or Invaders in Waiting. L. L. Smith*, J. N. Barney; Virginia Tech, Blacksburg, VA (323)

4:00 Role of Carbon Amendments in Reversing Niche Construction in Invaded Ecosystems: A Case Study with *Polygonum cuspidatum* (Japanese knotweed). V. Suseela*[1], P. Alpert[2], N. Tharayil[1]; [1]Clemson University, Clemson, SC, [2]University of Massachusetts, Amherst, MA (324)

WEDNESDAY AFTERNOON FEBRUARY 5
Section 13. Integrated Weed Management

LOCATION: Plaza C
TIME: 1:00 PM - 5:00 PM
CHAIR: Chris Benedict
Washington State University
Bellingham, WA

***SPEAKER**

1:00 An Introduction to the Reduced-tillage Organic Systems Experiment (ROSE). W. Curran*[1], M. Dempsey[1], C. L. Keene[2], S. Mirsky[3], M. Ryan[4], B. Scott[5], M. VanGessel[5], L. Young[3]; [1]Penn State University, University Park, PA, [2]Penn State University, State College, PA, [3]USDA-ARS, Beltsville, MD, [4]Cornell University, Ithaca, NY, [5]University of Delaware, Georgetown, DE (325)

1:15 Weed Management in ROSE: The Power of Avoidance, Suppression, and Supplemental Control Tactics. M. A. Dempsey*[1], M. Ryan[2], C. L. Keene[3], W. Curran[1], S. Mirsky[4], M. VanGessel[5]; [1]Penn State University, University Park, PA, [2]Cornell University, Ithaca, NY, [3]Penn State University, State College, PA, [4]USDA-ARS, Beltsville, MD, [5]University of Delaware, Georgetown, DE (326)

1:30 Corn, Soybean, and Wheat Performance in the ROSE. C. L. Keene*[1], M. A. Dempsey[2], W. Curran[2], S. Mirsky[3], M. Ryan[4], M. VanGessel[5]; [1]Penn State University, State College, PA, [2]Penn State University, University Park, PA, [3]USDA-ARS, Beltsville, MD, [4]Cornell University, Ithaca, NY, [5]University of Delaware, Georgetown, DE (327)

1:45 Cover Crop Management in the ROSE: the Good, the Bad, and the Weedy. M. VanGessel*[1], C. L. Keene[2],

W. Curran[3], M. A. Dempsey[3], S. Mirsky[4], M. Ryan[5], B. Scott[1]; [1]University of Delaware, Georgetown, DE, [2]Penn State University, State College, PA, [3]Penn State University, University Park, PA, [4]USDA-ARS, Beltsville, MD, [5]Cornell University, Ithaca, NY (328)

2:00 Engineering Solutions to Improve the Biology: Making Cover Crop-based No-till Crop Production Work. S. Mirsky*[1], W. Curran[2], M. A. Dempsey[2], C. L. Keene[3], M. Ryan[4], M. VanGessel[5], L. Young[6]; [1]USDA-ARS, Beltsville, MD, [2]Penn State University, University Park, PA, [3]Penn State University, State College, PA, [4]Cornell University, Ithaca, NY, [5]University of Delaware, Georgetown, DE, [6]USDA, ARS, SASL, Beltsville, MD (329)

2:15 Putting the Pieces Together: Regional Recommendations from the ROSE. M. Ryan*[1], W. Curran[2], M. A. Dempsey[2], C. L. Keene[3], S. Mirsky[4], M. J. VanGessel[5]; [1]Cornell University, Ithaca, NY, [2]Penn State University, University Park, PA, [3]Penn State University, State College, PA, [4]USDA-ARS, Beltsville, MD, [5]University of Delaware, Georgetown, DE (330)

2:30 Long Term Management of Canada Thistle (*Cirsium arvense*) in a No-till Cropping System. W. E. May*[1], L. T. Juras[2], K. L. Sapsford[3], F. A. Holm[3]; [1]Agriculture and Agri-Food Canada, Indian Head, SK, [2]Dow AgroSciences Canada Inc., Saskatoon, SK, [3]University of Saskatchewan, Saskatoon, SK (331)

2:45 Performance of Pre-emergence Herbicides for the Control of Rigid Ryegrass (*Lolium rigidum*) in Zero-till Wheat. S. Kleemann, C. Preston, G. S. Gill*; University of Adelaide, Adelaide, Australia (332)

3:00 Benefits and Economics of "The Critical Period of Competition" and "The ZeroSeed Threshold" Weed Management Strategies for Transitioning to Organic Farming. M. Mohseni-Moghadam*[1], D. Doohan[1], K. Amisi[2]; [1]OSU-OARDC, Wooster, OH, [2]Grand Valley State University, Allendale, MI (333)

3:15 Break

3:30 Zone Tillage and Cover Crop Spatial Arrangement Effects on Weed Emergence and Competition in Organic

Sweet Corn Production. C. J. Lowry*, D. C. Brainard; Michigan State University, East Lansing, MI (334)

3:45 No-Herbicide No-Till Soybean in the Northeastern United States. J. Liebert*, M. Ryan; Cornell University, Ithaca, NY (335)

4:00 Merits of Cover Crop Mixtures and Alternative Termination Methods in Organic Cropping Systems. R. E. Blackshaw*[1], K. Podolsky[2], M. Entz[2], S. Shirtliffe[3]; [1]Agriculture and Agri-Food Canada, Lethbridge, AB, [2]University of Manitoba, Winnipeg, MB, [3]University of Saskatchewan, Saskatoon, SK (336)

4:15 Living Mulches With and Without Herbicides to Control Annual Grasses in Sweet Corn (*Zea mays*). R. E. Nurse*[1], R. Mensah[2], D. Robinson[3], G. Leroux[4]; [1]Agriculture and Agri-Food Canada, Harrow, ON, [2]Laval University, Quebec, QC, [3]University of Guelph, Ridgetown, ON, [4]Universite Laval, Quebec, QC (337)

4:30 Changes in Weed Flora and its Management in Direct Seeded Rice in North Western India. A. Kumar*[1], D. Yadav[2], G. S. Gill[3]; [1]CCS Haryana Agricultural University, Hisar, India, [2]CCS Haryana Agricultural University, Karnal, India, [3]University of Adelaide, Adelaide, Australia (338)

4:45 Management of Complex Weed Flora in Direct Seeded Rice. M. S. Bhullar*[1], S. Kaur[1], T. Kaur[1], S. Kumar[1], G. S. Gill[2]; [1]Punjab Agricultural University, Ludhiana, India, [2]University of Adelaide, Adelaide, Australia (339)

WEDNESDAY EVENING FEBRUARY 5
CWSS-SCM Industry Reception

LOCATION: Georgia AB
TIME: 7:00 PM - 9:00 PM

THURSDAY MORNING FEBRUARY 6
CWSS-SCM Business Meeting Breakfast

LOCATION: Georgia AB
TIME: 6:30 AM - 8:00 AM
CHAIR: David Clements
Trinity Western University
Langley, BC

THURSDAY MORNING FEBRUARY 6
Addressing Global Herbicide Resistance Issues - Industry Perspective and Initiatives

LOCATION: Regency D
TIME: 8:00 AM - 12:00 PM
CHAIR: Mark Peterson
Dow AgroSciences
West Lafayette, IN

***SPEAKER**

8:00 A Brief History of the Parallel Evolution of Herbicide Resistance and Related Industry Efforts. C. Gerwick*; Dow AgroSciences, Indianapolis, IN (340)

8:20 Economic Drivers for New Technologies and Sustainable Weed Management. D. Palmer*; Dow AgroSciences, Indianapolis, IN (341)

8:40 Collaborations Between Industry and Regulatory Agencies to Address Resistance. B. Chism*; US EPA, Washington, DC (342)

9:00 Collaborations Between Industry and University Extension to Address Resistance. C. L. Sprague*; Michigan State University, East Lansing, MI (343)

9:20 Stewardship and How it Affects Resistance Management. B. Glenn*[1], S. McLallen[2]; [1]CropLife America, Washington, DC, [2]CropLife Foundation, Washington, DC (344)

9:40 Global Herbicide Resistance Action Committee - Industry Collaboration to Address Herbicide Resistance. J. K. Soteres*; Monsanto, St. Louis, MO (345)

10:00 Break

10:15 Panel Discussion - Technological Advancements in Weed Control and the Part They Play in Addressing Herbicide Resistance. M. A. Peterson*[1], B. R. Miller[2], R. Cole[3], A. Cotie[4]; [1]Dow AgroSciences, West Lafayette, IN, [2]Syngenta, Minnetonka, MN, [3]Monsanto, St. Louis, MO, [4]Bayer CropScience, Research Triangle Park, NC (346)

11:15 Panel and Presenters Discussion

THURSDAY MORNING FEBRUARY 6
Section 1. Agronomic Crops

LOCATION: Regency F
TIME: 8:00 AM - 11:00 AM
CHAIR: Prashant Jha
Montana State University
Huntley, MT

***SPEAKER**

8:00 Corn and Italian Ryegrass Competition. V. K. Nandula*; USDA-ARS, Stoneville, MS (347)

8:15 Weed Dynamics and Productivity of Winter Maize + Potato Intercropping System as Influenced by Different Weed Management Strategies in *Shiwalik* Foot-Hills of North-West Himalayas. A. K. Kumar*, J. K. Kumar, B. C. Sharma, P. K. Kour; University of Agricultural Sciences and Technology, Jammu, India (348)

8:30 Managing Pokeweed in Pennsylvania No-Till Corn and Soybean Fields. K. M. Patches*, W. Curran; Penn State University, University Park, PA (349)

8:45 Crop Response to Dicamba Applications on Soybean Event MON 87708. P. C. Feng*; Monsanto, Saint Louis, MO (350)

9:00 Performance of Engenia™ Herbicide Programs in Dicamba Tolerant Crops. J. Frihauf*, S. Bowe, L. Bozeman; BASF Corporation, Research Triangle Park, NC (351)

9:15 Use of Proper Application Techniques to Mitigate Off-Target Movement of Glyphosate + Dicamba During Soybean Reproductive Development. J. K. Norsworthy*[1], L. Steckel[2], D. B. Reynolds[3], T. Irby[4], T. Barber[5], A. Mills[6], R. Montgomery[7], J. Sandbrink[8], J. Travers[8], K. Remund[8]; [1]University of Arkansas, Fayetteville, AR, [2]University of Tennessee, Jackson, TN, [3]Mississippi State University, Mississippi State, MS, [4]Mississippi State University, Starkeville, MS, [5]University of Arkansas, Lonoke, AR, [6]Monsanto, Scott, MS, [7]Monsanto, Jackson, AR, [8]Monsanto, St. Louis, MO (352)

9:30 Stewardship of Engenia™ Herbicide. W. E. Thomas*[1], L. L. Bozeman[2], S. Bowe[1]; [1]BASF Corporation, Research Triangle Park, NC, [2]BASF, Raleigh, NC (353)

9:45 Enlist Weed Control System for Canada. A. W. MacRae*[1], A. McFadden[2]; [1]Dow AgroSciences Canada, Winnipeg, MB, [2]Dow AgroSciences Canada Inc, Guelph, ON (354)

10:00 Break

10:15 Drift and Tank Contamination of 2,4-D in Non-tolerant Cotton. M. R. Manuchehri*[1], P. A. Dotray[2], T. S. Morris[3], J. Keeling[3], P. A. Baumann[4], G. D. Morgan[5]; [1]Texas Tech Univ, Lubbock, TX, [2]Texas Tech Univ., Texas A&M AgriLife Research and Extension, Lubbock, TX, [3]Texas A&M AgriLife Research, Lubbock, TX, [4]Texas A&M University, College Station, TX, [5]Texas A&M AgriLife Extension, College Station, TX (355)

10:30 Metabolic Fate of 2,4-D in Enlist Soybeans. J. J. Skelton*[1], D. Simpson[2], A. V. Lygin[3], D. E. Riechers[3]; [1]University of Illinois, Champaign, IL, [2]Dow AgroSciences, Indianapolis, IN, [3]University of Illinois, Urbana, IL (356)

10:45 Peanut Injury and Yield Reduction in Response to Simualted 2,4-D and Dicamba Drift at Two Growth Stages. R. G. Leon[1], B. J. Brecke*[1], J. A. Ferrell[2]; [1]University of Florida, Jay, FL, [2]University of Florida, Gainesville, FL (357)

THURSDAY MORNING FEBRUARY 6
Section 5. Wildland and Aquatic Invasive Plants

LOCATION: Plaza B
TIME: 8:00 AM - 10:45 AM
CHAIR: Andrew Skibo
SePRO Corporation
Fort Collins, CO

***SPEAKER**

8:00 Aquatic and Riparian Weed Problems in Brazil: Research and Management Opportunities. L. Anderson*[1], D. Matos[2]; [1]Waterweed Solutions, Inverness, CA, [2]Ecologia e Conservacao Depto de Hidrobiologia, UFSCar, Brazil (358)

8:15 Herbicide Trials for Management of Flowering Rush in Minnesota. J. D. Madsen*, B. Sartain, G. Turnage; Mississippi State University, Mississippi State, MS (359)

8:30 Metabolic Profiles of the Submersed Aquatic Weed *Hydrilla verticillata* Treated Alone and in Combination with ALS-inhibiting Herbicides and Endothall. M. A. Heilman*[1], S. T. Meadows[2], R. J. Richardson[2], J. D. Burton[2]; [1]SePRO Corporation, Carmel, IN, [2]North Carolina State University, Raleigh, NC (360)

8:45 Advances in Aquatic Weed & Algae Control in Western Irrigation Ditches. A. Z. Skibo*[1], S. Nissen[2], M. Heilman[3]; [1]SePRO Corporation, Fort Collins, CO, [2]Colorado State University, Fort Collins, CO, [3]SePRO Corporation, Carmel, IN (361)

9:00 Field and Mesocosm Evaluations of Granular Herbicide and Pre-emergent Use Patterns for Control of Flowering Rush (*Butomus umbellatus*). A. Z. Skibo*[1], M. A. Heilman[2]; [1]SePRO Corporation, Fort Collins, CO, [2]SePRO Corporation, Carmel, IN (362)

9:15 Native Prairie Functional Groups to Resist Invasion by *Cirsium arvense*. R. L. Becker*[1], M. J. Haar[2], L. D. Klossner[3]; [1]University of Minnesota, St. Paul, MN, [2]National Park Service, Interior, SD, [3]University of Minnesota, Lamberton, MN (363)

9:30 Current Trends of Invasive Weed Species in Greater-Himalayan Region. A. K. Kumar*, J. K. Kumar, B. C. Sharma, N. S. Sharma; University of Agricultural Sciences and Technology, Jammu, India (364)

9:45 Seed Production and Predation of Amur Honeysuckle (*Lonicera maackii*). R. J. Smeda*, S. A. Riley; University of Missouri, Columbia, MO (365)

10:00 An Empirical Test of a Novel Model to Determine the Total Impact of an Invasive Grass. D. R. Tekiela*, J. N. Barney; Virginia Tech, Blacksburg, VA (366)

10:15 Aminopyralid Research Summary for Aquatic Labeling. D. E. Barnekow*[1], V. F. Peterson[2], J. J. Jachetta[1], P. L. Havens[1], L. A. Brinkworth[1], W. T. Haller[3], W. N. Kline[4], J. L. Troth[1]; [1]Dow AgroSciences, Indianapolis, IN, [2]Dow AgroSciences, Mulino, OR, [3]University of Florida, Gainesville, FL, [4]Dow AgroSciences, Duluth, GA (367)

10:30 Business Meeting

THURSDAY MORNING FEBRUARY 6
Section 7. Education and Extension

LOCATION: Plaza C
TIME: 8:00 AM - 11:15 AM
CHAIR: Darrin Dodds
Mississippi State University
Mississippi State, MS

***SPEAKER**

8:00 UGA Weed Webinar: How We Conducted 18 County Production Meetings in One Day. E. P. Prostko*, S. Culpepper, K. Lewis, P. M. Eure; University of Georgia, Tifton, GA (368)

8:15 Using Polycom™ to Reach Massive Extension Audiences for Pesticide Education. F. M. Fishel*[1], L. A. Gettys[2]; [1]University of Florida, Gainesville, FL, [2]University of Florida, Fort Lauderdale, FL (369)

8:30 Weed Science in Social Media: Lesson Learned and Gaps Identified. J. Person*, J. K. Soteres; Monsanto, St. Louis, MO (370)

8:45 Developing a Multi-State Weed Science Training. T. A. Baughman*[1], P. A. Baumann[2], P. A. Dotray[3]; [1]Oklahoma State University, Ardmore, OK, [2]Texas A&M University, College Station, TX, [3]Texas Tech University, Lubbock, TX (371)

9:00 Management of Glyphosate and ALS Resistant Horseweed. B. Reeb*, M. M. Loux; The Ohio State University, Columbus, OH (372)

9:15 On-farm Use of Chelated Iron to Safen Grain Sorghum Following Pyrasulfotole Plus Bromoxynil Applied POST. R. M. Merchant*; University of Georgia, Tifton, GA (373)

9:30 Clopyralid and Dicamba Residue Impacts on Potatoes and Weeds. S. Seefeldt*[1], R. A. Boydston[2], P. N. Kaspari[3]; [1]University of Alaska, Fairbanks, AK, [2]USDA-ARS, Prosser, WA, [3]University of Alaska Fairbanks, Delta Junction, WA (374)

9:45 Current and Future Stewardship Training for Engenia™ Herbicide. L. Bozeman*[1], D. Pepitone[1], S.

Wilson[1], R. E. Wolf[2]; [1]BASF Corporation, Research Triangle Park, NC, [2]Wolf Consulting and Research, Mahomet, IL (375)

10:00 Break

10:15 Weed Distribution and Associated Field Management Practices in Alberta. C. Neeser*[1], J. Y. Leeson[2], N. Kimmel[3], M. Vadnais[3]; [1]Government of Alberta, Brooks, AB, [2]Agriculture and Agri-Food Canada, Saskatoon, SK, [3]Government of Alberta, Edmonton, AB (376)

10:30 Herbicide Resistant Weeds in Iowa; Update and Assessment. M. D. Owen*; Iowa State University, Ames, IA (377)

10:45 Weed Invasion-A Case Study from Pakistan. K. B. Marwat*; SBB University, Sheringal, Dir Upper, Pakistan, Sheringal, Dir Upper, Pakistan (378)

11:00 Business Meeting

THURSDAY MORNING FEBRUARY 6
Section 11. Physiology

LOCATION: Regency E
TIME: 8:00 AM - 12:00 PM
CHAIR: Todd Gaines
University of Western Australia
Crawley, WA, Australia

***SPEAKER**

8:00 Signatures of Selection and EPSPS Gene Copy Number Across Genus *Amaranthus* and the Potential Origins of Glyphosate Resistance. A. L. Lawton-Rauh*[1], K. E. Beard[1], N. R. Burgos[2], S. J. Barfield[1], J. D. Burton[3]; [1]Clemson University, Clemson, SC, [2]University of Arkansas, Fayetteville, AR, [3]North Carolina State University, Raleigh, NC (379)

8:15 Current Status of Glyphosate Resistant Kochia and Mechanism of Resistance in North America. P. Westra*[1], E. Westra[1], A. Wiersma[2], D. Giacomini[1]; [1]Colorado State University, Fort Collins, CO, [2]Michigan State University, East Lansing, MI (380)

8:30 EPSPS Gene Amplification Confers Glyphosate Resistance in Kochia (*Kochia scoparia*) Populations from Montana. V. Kumar*[1], P. Jha[1], P. Westra[2], E. Westra[2], D. Giacomini[2], C. Vanhorn[2]; [1]Montana State University, Huntley, MT, [2]Colorado State University, Fort Collins, CO (381)

8:45 Mechanism of Glyphosate Resistance in Kochia (*Kochia scoparia*). M. Jugulam*, K. Niehues, B. Gill; Kansas State University, Manhattan, KS (382)

9:00 Extensive Gene Amplification of *EPSPS* Endows Glyphosate Resistance in Two *Bromus diandrus* (Great Brome) Populations in Australia. J. M. Malone, S. Morran, P. Boutsalis, N. Shirley, C. Preston*; University of Adelaide, Glen Osmond, Australia (383)

9:15 New Evidence for Multiple Glyphosate-Resistance Mechanisms Within a Population of Common Ragweed (*Ambrosia artemisiifolia*). J. T. Parrish*[1], M. M. Loux[1], D. M. Mackey[1], L. K. McHale[1], D. Sammons[2], D. Wang[2], E. L. Ostrander[3], D. A. D'Avignon[3], X. Ge[3], P. Westra[4], C. R. Van Horn[4], A. Wiersma[5]; [1]The Ohio State University, Columbus, OH, [2]Monsanto, St. Louis, MO, [3]Washington University, St. Louis, MO, [4]Colorado State University, Fort Collins, CO, [5]Michigan State University, East Lansing, MI (384)

9:30 Determining the Mechanism of Resistance to Glyphosate in Two Biotypes of Giant Ragweed. T. Jeffery*[1], C. Hall[1], M. McLean[1], F. J. Tardif[1], P. H. Sikkema[2], D. Robinson[2], M. B. Lawton[3]; [1]University of Guelph, Guelph, ON, [2]University of Guelph, Ridgetown, ON, [3]Monsanto Canada, Guelph, ON (385)

9:45 Updates on Molecular Response of Glyphosate Resistant Giant Ragweed (*Ambrosia trifida*). C. R. Van Horn*, P. Westra; Colorado State University, Fort Collins, CO (386)

10:00 Break

10:15 Inheritance of Resistance to Glyphosate, Paraquat and Clethodim in a Multiple Resistant Population of Rigid Ryegrass (*Lolium rigidum*) from South Australia. S. Morran*, P. Boutsalis, C. Preston; University of Adelaide, Glen Osmond, Australia (387)

10:30 Glyphosate Impacts Phytohormone Signaling and Vegetative Growth Patterns from Underground Adventitious Buds of Leafy Spurge. M. Dogramaci*, J. V. Anderson, M. E. Foley; USDA-ARS, Fargo, ND (388)

10:45 Arylex™ Mode and Site of Action Characterization. J. L. Bell*; Dow AgroSciences LLC, Indianapolis, IN (389)

11:00 Understanding the Differential Responses of *Setaria viridis* (Green Foxtail) and *Setaria pumila* (Yellow Foxtail) to Pyroxsulam. N. M. Satchivi*, G. J. deBoer; Dow AgroSciences, Indianapolis, IN (390)

11:15 Physiological Basis of Reduced Mesotrione Efficacy under Elevated Growth Temperatures in Palmer Amaranth. M. Jugulam*, A. S. Godar, P. Prasad; Kansas State University, Manhattan, KS (391)

11:30 Effect of Growth Stage, Light, and Temperature on Hairy Fleabane (*Conyza bonariensis*) Control with Postemergence Herbicides. M. R. Dennis[1], S. I. Rios[1], K. Hembree[2], J. Bushoven[1], A. Shrestha*[1]; [1]California State University, Fresno, CA, [2]University of California Cooperative Extension, Fresno, CA (392)

11:45 A Variety of *psbA* Mutations in *Amaranthus* sp. Infesting Carrot Production. G. Davis*, F. J. Tardif; University of Guelph, Guelph, ON (393)

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PERSONAL TIME SCHEDULE

Time	Monday	Tuesday	Wednesday	Thursday
6:00				
6:15				
6:30				CWSS/ SCM Business Meeting Breakfast
6:45				
7:00				
7:15				
7:30				
7:45				
8:00		Poster Session Even Numbers	Poster Session Odd Numbers	
8:15				
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Noon		Grad Student Luncheon	CWSS/SCM Awards Luncheon	
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4:00	WSSA/ CWSS-SCM General Session			
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5:00		WSSA Business Meeting		
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6:00	All attendee Reception			
6:45				
7:00			CWSS/ SCM Industry Reception	
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