2022

Weed Science Society of America and Canadian Weed Science Society

FEBRUARY 22 – 24, 2022

JOINT ANNUAL MEETING

62nd Meeting of the Weed Science Society of America
Joint Meeting with the Canadian Weed Science Society

What a year! As we held out to the bitter end planning for an in-person annual meeting in Vancouver, CDC guidelines restricting travel in January ended our hopes. The in-person program was filled with nearly 370 title submissions offering diversity rarely observed. Transitioning the program to a virtual format has been a difficult task. Challenging our decisions are the high number of title submissions along with society members clearly noting in our fall survey that virtual fatigue must be avoided. To meet these challenges, our board decided to focus the live stream presentations on our students, the general session, our WSSA business meeting and WSSA/CWSS awards. All other presentations will be placed on our virtual platform being available for one full year to those who register.

Starting February 22 at 3:00 pm CST, our general sessions will include beekeeper Conrad Bérubé sharing his first-hand experience dispatching the first Asian giant hornet nest discovered in North America and Stephen Novak sharing lessons learned from the long-running battle with cheatgrass in the Pacific Northwest. Presidents Anita Dille (WSSA) and Marie-Josée Simard (CWSS) will collaborate on the presidential address. After their presentations, we will recognize our outstanding award winners from both WSSA and CWSS and new Fellows & Honorary Members of the WSSA.

Our program will continue to run throughout the day on Wednesday, February 23 and Thursday, February 24 beginning at 9 am CST each day; sessions will not be concurrent, simplifying your ability to participate and maneuver through the program. Arguably, the greatest downfall to a virtual meeting is the inability of our students to network, so please make sure to support them by participating and learning about their research.

On Wednesday, February 23, the Women in Weed Science networking event will take place from 11:15 to 12:15 pm CST. On Thursday, February 24, the WSSA Graduate Student Organization will be hosting their business meeting from 11:00 am to 12:00 pm CST.
Our meeting will conclude with the WSSA business meeting and WSSA/CWSS oral and poster presentation awards occurring from 4:30 to 6:30 central time on February 24th.

Pre-recorded oral presentations and PDF posters, including our student competition posters, will be available on the virtual platform once the meeting begins. The opportunity to visit these presentations is quite different than last year as you will have access to each presentation for a full year. Additionally, we are working with our symposium organizers to set up 2 to 3 webinars that will be offered to our members throughout the year.
Thank-you for joining the 2022 WSSA/CWSS joint meeting. We appreciate your ongoing support of our societies and look forward to your participation throughout our annual meeting.

Stanley Culpepper, WSSA Program Chair and President-Elect
Harold Wright, CWSS 1st Vice President

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Horticultural Crops……	Kurt Vollmer
Turf and Ornamentals……..	David Hillger
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Regulatory Aspects…….	Monty Dixon
Teaching and Extension…….....	Dawn Refsell
Formulation, Adjuvant, & Application Technology……..	Joe Ikley
Weed Biology and Ecology……	Debalin Sarangi
Biocontrol of Weeds…….....	Taylor Randell
Physiology …….	Chenxi Wu
Soil and Environmental Aspects……	David Russell
Integrated Weed Management…….	Karla Gage
Sustaining Member Exhibits……..……	Kyle Kepner
…….	Eric Gustafson
Poster Sessions……...……	Vanessa Jones
Student Poster and 3MT Contests……...……...	Marty Schraer
Student Travel Enrichment Experience …….	Delaney Foster

PROGRAM

TUESDAY AFTERNOON - FEBRUARY 22

General Session

TIME: 3:00 PM - 5:30 PM Central Time

***SPEAKER**

03:00 PM **Introductions and Announcements.** A Stanley Culpepper*[1], David R. Clements[2]; [1]University of Georgia, Tifton, GA, [2]Trinity Western University, Langley, BC, Canada

03:10 PM **First-hand Experience Dispatching the First Asian Giant Hornet Nest Discovered in North America.** Conrad Bérubé*; Senior Environmental Protection Officer, BC Ministry of Environment, Nanaimo, BC, Canada

03:40 PM **Lessons Learned from the Long-running Battle with Cheatgrass in the Pacific Northwest.** Stephen Novak*; Boise State University, Boise, ID

04:10 PM **Presidential Address.** Anita Dille*[1], Marie-Josee Simard[2]; [1]Kansas State University, Manhattan, KS, [2]Agriculture and Agri-Food Canada, Saint-jean-sur-richelieu, QC, Canada

04:30 PM **Presentation of Awards.** Mandy Bish*[1], Charles M. Geddes[2]; [1]University of Missouri, Columbia, MO, [2]Agriculture and Agri-Food Canada, Lethbridge, AB, Canada

WEDNESDAY MORNING - FEBRUARY 23

WSSA 3MT Student Oral Competition - MS

TIME: 9:00 AM - 10:25 AM Central Time
MODERATOR: Marty Schraer
Syngenta
Meridian, ID
CO-MODERATOR: Anita Dille
Kansas State University
Manhattan, KS

***SPEAKER † STUDENT CONTEST**

09:00 AM **†Survey of Herbicide Resistance and Seed Fate of Italian Ryegrass (*Lolium perenne spp. multiflorum*) in Kentucky.** Amber L. Herman*, Travis Legleiter, Catlin M. Young; University of Kentucky, Princeton, KY **(1)**

09:05 AM **†Vegetation-free Strip Width Optimization for a White Clover (*Trifolium repens*) Living Mulch in Cotton.** Sambit Shome*, Nandita Gaur, Matthew Levi, Nicholas T. Basinger; University of Georgia, Athens, GA **(2)**

09:10 AM **†Jack O'Lantern Pumpkin Tolerance to Fomesafen Applied Preemergence.** Jeanine Arana*, Stephen L. Meyers; Purdue University, West Lafayette, IN **(3)**

09:15 AM **†Role of Glyphosate Retention, Absorption, and Translocation on the Tolerance of Two Horseweed (*Erigeron canadensis* L.) Growth Types.** Justine L. Fisher*, John A. Schramski, Christy L. Sprague, Eric L. Patterson; Michigan State University, East Lansing, MI **(5)**

09:20 AM **†A Bioassay to Determine *Poa annua* Responses to Indaziflam.** Benjamin D. Pritchard*[1], Jose J. Vargas[1], Bruce Spesard[2], James Brosnan[1]; [1]University of Tennessee, Knoxville, TN, [2]Bayer Crop Science, Cary, NC **(6)**

09:25 AM **†Herbicide Program Evaluation for Control of Knotroot Foxtail (*Setaria parviflora*) in Bermudagrass (*Cynodon dactylon*) Pastures.** Logan M. Dyer*[1], Nicholas T. Basinger[1], Patrick McCullough[2], Gerald M. Henry[1]; [1]University of Georgia, Athens, GA, [2]University of Georgia, Griffin, GA **(7)**

09:30 AM **†Impact of Cereal Rye on Soil Nutrient Dynamics with Implications for Weed Suppression.** Gustavo Camargo Silva*, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX **(8)**

09:35 AM **†Utilizing Hyperspectral Imaging for Differentiation of Herbicide-Resistant Waterhemp (*Amaranthus tuberculatus*) in Midwestern Soybean Production Fields.** Austin H. Schleich*[1], Prashant Jha[1], Joseph Shaw[2], Bryan Scherrer[2], John Sheppard[2], Ramawatar Yadav[1], Alexis L. Meadows[1], Avery J. Bennett[1], Ryan Hamberg[1], Edward S. Dearden[1]; [1]Iowa State University, Ames, IA, [2]Montana State University, Bozeman, MT **(9)**

09:40 AM **†Redekop® Seed Destructor: an IWM Tool to Manage Herbicide-Resistant Waterhemp (*Amaranthus tuberculatus)* in Soybean.** Alexis L. Meadows*, Prashant Jha, Ramawatar Yadav, Avery J. Bennett, Ryan Hamberg, Austin H. Schleich, Edward S. Dearden; Iowa State University, Ames, IA **(11)**

09:45 AM Catch your breath!

09:50 AM **†The Effect of Tillage and Cover Crops on Weed Dynamics in Organic Cotton.** McKenzie J. Barth*, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX **(12)**

9:55 AM **†True Cheat (*Bromus secalinus*) in Oklahoma Winter Wheat: Integrated Management of ALS Susceptible Populations.** Hannah C. Lindell*[1], Misha R. Manuchehri[1], Emi Kimura[2], Todd A. Baughman[3], Lane S. Newlin[1], Caitlyn Carnahan[1]; [1]Oklahoma State University, Stillwater, OK, [2]Texas A&M University, Vernon, TX, [3]Oklahoma State University, Ardmore, OK **(13)**

10:00 AM **†CoAXium Wheat Varietal Tolerance to Quizalofop in the Southern Great Plains.** Caitlyn Carnahan*[1], Misha R. Manuchehri[1], Brett Carver[1], Vipan Kumar[2], Hannah C. Lindell[1], Lane Scott Newlin[1], Justin T. Childers[3]; [1]Oklahoma State University, Stillwater, OK, [2]Kansas State University, Hays, KS, [3]Oklahoma State University, Marlow, OK **(14)**

10:05 AM **†Investigating Potential Fitness Costs of Clopyralid Resistance in *Ambrosia artemisiifolia* (Common Ragweed).** Nash D. Hart*[1], Erin E. Burns[2]; [1]Michigan State University, Durand, MI, [2]Michigan State University, East Lansing, MI **(15)**

10:10 AM **†Field Evaluations of Early Post Emergence Herbicide Tolerance on Texas Native Grasses.** Wyatt J. Stutzman*, Zachary S. Howard, Matthew Matocha, Scott A. Nolte; Texas A&M University, College Station, TX **(16)**

10:15 AM **†Weed Suppression by Cotton Chromosome Substitution Lines at Different Cover Crop Production Systems.** Alyssa L. Miller*; Mississippi State University, Starkville, MS **(18)**

10:20 AM **†Anaerobic Soil Disinfestation: Microbial Driven Weed Management Technique.** Gursewak Singh*, Matthew A. Cutulle; Clemson University, Charleston, SC **(19)**

WEDNESDAY MORNING - FEBRUARY 23

Women in Weed Science

TIME: 11:15 AM - 12:15 PM Central Time
MODERATOR: Cara L. McCauley
Corteva Agriscience
Indianapolis, IN
CO-MODERATOR: Neeta Soni
Corteva Agriscience
Indianapolis, IN

WEDNESDAY AFTERNOON - FEBRUARY 23

WSSA 3MT Student Oral Competition - PhD

TIME: 12:30 PM - 1:35 PM Central Time
MODERATOR: Marty Schraer
Syngenta
Meridian, ID
CO-MODERATOR: Anita Dille
Kansas State University
Manhattan, KS

***SPEAKER † STUDENT CONTEST**

12:30 PM **†Sterile Pollen Technique as a Novel Weed Management Tool.** Wenzhuo Wu*, Mohsen B. Mesgaran; UC Davis, Davis, CA **(21)**

12:35 PM **†Growth Response of Palmer Amaranth (*Amaranthus palmeri*) to Temperature, Moisture, and Combined Stressors.** Sarah E. Kezar*, Aniruddha Maity, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX **(22)**

12:40 PM **†Pollen-mediated Gene Flow from Herbicide-resistant Corn to non-GMO White Corn Under Field Conditions.** Mandeep Singh*[1], John Lindquist[1], Stevan Knezevic[2], Suat Irmak[3], Vipan Kumar[4], Amit J. Jhala[1]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]University of Nebraska-Lincoln, Concord, NE, [3]Penn State University, State College, PA, [4]Kansas State University, Hays, KS **(23)**

12:45 PM **†Multi-State Trial Evaluating Peanut Response to Glyphosate + Dicamba at Low-Doses and Multiple Exposures.** Chad Abbott*[1], Eric P. Prostko[1], Todd A. Baughman[2], Peter A. Dotray[3], William J. Grichar[4], Michael W. Marshall[5], David L. Jordan[6], Pratap Devkota[7], Steve Li[8]; [1]University of Georgia, Tifton, GA, [2]Oklahoma State University, Ardmore, OK, [3]Texas Tech University and Texas A&M University, Lubbock, TX, [4]Texas A&M University, Yoakum, TX, [5]Clemson University, Blackville, SC, [6]North Carolina State University, Raleigh, NC, [7]University of Florida, Jay, FL, [8]Auburn University, Auburn, AL **(24)**

12:50 PM **†Allelopathy: an Alternative Approach for Integrated Weed Management in Sweet Potato.** Varsha Varsha*[1], Isabel Schlegel Werle[2], Mark W. Shankle[3], Stephen L. Meyers[4], Te-Ming (Paul) Tseng[5]; [1]Mississippi State University, Starkville, MS, [2]University of Arkansas, Fayetteville, AR, [3]Mississippi State University, Pontotoc, MS, [4]Purdue University, West Lafayette, IN, [5]Mississippi State University, Mississippi State, MS **(25)**

12:55 PM **†Response of Blackberry and Citrus to Spring and Autumn Indaziflam Applications Over Time.** Nicholas L. Hurdle*[1], Timothy L. Grey[1], Keith S. Rucker[2]; [1]University of Georgia, Tifton, GA, [2]Bayer Crop Science, Tifton, GA **(26)**

01:00 PM Catch your breath!

01:05 PM **†Mitigating the Residual Activity of Preplant Glyphosate on Broccoli and Collard Transplants.** Hannah E. Wright*, Taylor M. Randell, Jenna C. Vance, A Stanley Culpepper; University of Georgia, Tifton, GA **(27)**

01:10 PM **†Glufosinate-Resistant Palmer Amaranth: an Update on the Resistance Mechanism.** Pamela Carvalho-Moore*[1], Jason K. Norsworthy[1], Fidel Gonzalez Torralva[1], Scott McElroy[2], Tom Barber[3], Thomas Butts[1]; [1]University of Arkansas, Fayetteville, AR, [2]Auburn University, Auburn, AL, [3]University of Arkansas, Lonoke, AR **(28)**

01:15 PM **†Comparative Emergence and Phenology of Female and Male Palmer Amaranth.** Ednaldo A. Borgato*, Mithila Jugulam, Anita Dille; Kansas State University, Manhattan, KS **(30)**

01:20 PM **†Output Characteristics and Weed Control Efficacy from Targeted Application Devices in Ornamental Turfgrass.** John M. Peppers*, Shawn Askew; Virginia Tech, Blacksburg, VA **(31)**

01:25 PM **†Cotton Chromosome Substitution Lines, A Potential for Weed-Suppression.** Worlanyo Segbefia*[1], Gracen Fuller[2], Tseng Te-Ming[2]; [1]Mississippi State University, Starkville, MS, [2]Mississippi State University, Mississippi State, MS **(34)**

01:30 PM **†CS Lines: A Solution for 2,4-D Drift in Conventional Cotton?** Josiane C. Argenta*[1], Te-Ming (Paul) Tseng[2]; [1]Mississippi State University, Starkville, MS, [2]Mississippi State University, Mississippi State, MS **(35)**

WEDNESDAY AFTERNOON - FEBRUARY 23

CWSS Oral Contest: Session 1

TIME: 3:00 PM - 4:30 PM Central Time
MODERATOR: David R. Clements
Trinity Western University
Langley, BC, Canada

***SPEAKER † STUDENT CONTEST**

03:00 PM **†Effects of Winter Rye *(Secale Cereal*) Termination Strategies on Corn (*Zea mays*) Establishment, Weed Control and Yield.** Olivia M. Noorenberghe*[1], Francois Tardif[1], Peter Sikkema[2], Mike Cowbrough[3], David Hooker[2], Peter Smith[1]; [1]University of Guelph, Guelph, ON, Canada, [2]University of Guelph, Ridgetown, ON, Canada, [3]OMAFRA, Guelph, ON, Canada **(36)**

03:15 PM **†A Growth Chamber Study - the Interaction of Trifludimoxazin + Saflufenacil and Pyroxasulfone for Control of False Cleavers (*Galium spurium*) and Wild Oat (*Avena fatua*).** Kathryn Aldridge*[1], Eric N. Johnson[1], Steve Shirtliffe[1], Ethan Bertholet[2], Mark Oostlander[3]; [1]University of Saskatchewan, Saskatoon, SK, Canada, [2]BASF Canada Inc., Saskatoon, SK, Canada, [3]BASF Canada Inc., Lethbridge, AB, Canada **(37)**

03:30 PM **†Evaluation of Clethodim for Management of Hair Fescue (*Festuca filiformis*) and Red Fescue (*Festuca rubra*) in Lowbush Blueberry Fields in Atlantic Canada.** Tyler MacLean*[1], Scott N. White[2], Andrew McKenzie-Gopsill[3], Travis J. Esau[1]; [1]Dalhousie University, Bible Hill, NS, Canada, [2]Dalhousie University, East Mountain, NS, Canada, [3]Agriculture and Agri-Food Canada, Charlottetown, PE, Canada **(38)**

03:45 PM **†When Using Glyphosate Plus Dicamba, 2,4-D Ester, Halauxifen-Methyl or Pyraflufen-ethyl/2,4-D for Glyphosate-Resistant Horseweed (*Erigeron canadensis*) Control in Soybean, Which Third Tankmix Partner is Better, Saflufenacil or Metribuzin?** Meghan E. Dilliott*, Nader Soltani, David C. Hooker, Darren E. Robinson, Peter Sikkema; University of Guelph, Ridgetown, ON, Canada **(39)**

04:00 PM **†Tolerance of Four Dry Bean Market Classes (*Phaseolus vulgaris* and *Vigna angularis*) to Flufenacet, Acetochlor and *S*-Metolachlor Applied Preplant Incorporated.** Hannah E. Symington*[1] , Allan Kaastra[2] , David Hooker[1] , Darren E. Robinson[1] , Peter Sikkema[1]; [1]University of Guelph, Ridgetown, ON, Canada , [2]Bayer Crop Science, Guelph, ON, Canada**(40)**

04:15 PM **†How much will climate change increase habitat suitability of four relatively new invasive plant species in the Pacific Northwest?** Emma K. Nikkel*[1], David R. Clements[2], Jennifer L. Williams[1]; [1]University of British Columbia, Vancouver, BC, Canada, [2]Trinity Western University, Langley, BC, Canada **(41)**

THURSDAY MORNING - FEBRUARY 24

WSSA 3MT Student Oral Competition - Final Round

TIME: 9:00 AM - 10:00 AM Central Time
MODERATOR: Marty Schraer
Syngenta
Meridian, ID
CO-MODERATOR: Anita Dille
Kansas State University
Manhattan, KS

THURSDAY MORNING - FEBRUARY 24

Student Business Meeting

TIME: 11:00 AM - 12:00 PM Central Time
MODERATOR: Delaney C. Foster
University of Tennessee
Jackson, TN

THURSDAY AFTERNOON - FEBRUARY 24

CWSS Oral Contest: Session 2

TIME: 12:30 PM - 1:30 PM Central Time
MODERATOR: David R. Clements
Trinity Western University
Langley, BC, Canada

***SPEAKER † STUDENT CONTEST**

12:30 PM **†Clonal Growth Dynamics After Girdling Treatments in *Reynoutria* spp. Ecotypes.** Vanessa L. Jones*[1], Aidan R. Anderson[2], David R. Clements[2]; [1]University of British Columbia, Vancouver, BC, Canada, [2]Trinity Western University, Langley, BC, Canada **(42)**

12:45 PM **†Interaction of 4-hydroxyphenylpyruvate Dioxygenase (HPPD)-Inhibiting and Reactive Oxygen Species (ROS)-Generating Herbicides for the Control of Annual Weed Species in Corn.** John C.

Fluttert*[1], Mariano Galla[2], David C. Hooker[1], Darren E. Robinson[1], Peter Sikkema[1]; [1]University of Guelph, Ridgetown, ON, Canada, [2]ISK Biosciences, Concord, OH **(44)**

01:00 PM **†Cultural Weed Management in Irrigated Soybean.** Shamini Dilshadi Jayasekara*; University of Lethbridge, Lethbridge, AB, Canada **(45)**

01:15 PM **†Impact of Low R/FR Light Environments on Nitrogen Assimilation in Maize (*Zea mays*).** William Kramer*[1], Clarence Swanton[2], Francois Tardif[1]; [1]University of Guelph, Guelph, ON, Canada, [2]University of Guelph, Guelph, AZ, Canada **(46)**

THURSDAY AFTERNOON - FEBRUARY 24

WSSA Student Travel Enrichment Experience and Science Policy Fellow Update

TIME: 2:30 PM - 4:00 PM Central Time
MODERATOR: Delaney C. Foster
University of Tennessee
Jackson, TN

***SPEAKER**

02:30 PM **Paraquat, Peanuts, and Ponies: A Week with Syngenta's State Regulatory Group.** Devon E. Carroll*; University of Tennessee, Knoxville, TN **(47)**

02:40 PM **WSSA Travel Enrichment Experience: Cynthia Sias.** Cynthia Sias*[1], Neha Rana[2], Matthew Nelson[3]; [1]Virginia Tech, Blacksburg, VA, [2]Bayer Crop Science, St Louis, MO, [3]Bayer Crop Science, Ames, IA **(48)**

02:50 PM **Potatoes and a Pandemic: 2020 Travel Enrichment Experience with Syngenta R&D in Idaho.** Delaney C. Foster*; University of Tennessee, Jackson, TN **(49)**

03:00 PM **The Vastness of California Agriculture - My Travel Enrichment Experience with Corteva Agriscience.** Matthew Osterholt*; Purdue University, West Lafayette, IN **(50)**

03:10 PM **Syngenta's Integrated Approaches to Solve Challenges in Weed Science: 2021 Travel Enrichment Experience.** Ramawatar Yadav*[1], Ethan T. Parker[2], Jason W. Adams[2], Rakesh Jain[2], John R. Brewer[2], Jason Eaton[2]; [1]Iowa State University, Ames, IA, [2]Syngenta Crop Protection, Vero Beach, FL **(51)**

03:20 PM **From Michigan to Tennessee: A Week in the Life of a Technical Service Representative.** Justine L. Fisher*; Michigan State University, East Lansing, MI **(52)**

03:30 PM **A Tale of Two States.** Nicholas L. Hurdle*; University of Georgia, Tifton, GA **(53)**

03:40 PM **Science Policy Fellow Update.** Devon E. Carroll*; University of Tennessee, Knoxville, TN and Rebecca J. Champagne*; University of Maine, Orono, ME

THURSDAY AFTERNOON - FEBRUARY 24

WSSA Business Meeting & WSSA/CWSS Awards

TIME:	4:30 PM - 6:30 PM Central Time
MODERATOR:	A. Stanley Culpepper University of Georgia Tifton, GA
CO-MODERATOR:	Carroll Moseley Syngenta Brown Summit, NC, NC

WSSA MASTERS POSTER CONTEST: AVAILABLE ON PLATFORM FOR 1 YEAR

POSTER - 01. Agronomic Crops: Student Contest - MS

***PRESENTER † STUDENT CONTEST**

†Evaluation of Herbicide Application Timing and Sequence for Weed Control in Soybean. Navjot Singh*[1], Ryan P. Miller[1], Thomas J. Peters[2], Seth L. Naeve[1], Debalin Sarangi[3]; [1]University of Minnesota, Saint Paul, MN, [2]North Dakota State University, Fargo, ND, [3]University of Minnesota, St. Paul, MN **(54)**

†Crop Response and Control of *Amaranthus palmeri* in Isoxaflutole-based Cotton Systems. Maxwell E. Smith*[1], Peter A. Dotray[2], Adam Hixson[3]; [1]Texas Tech University, Lubbock, TX, [2]Texas Tech University and Texas A&M University, Lubbock, TX, [3]BASF Corporation, Lubbock, TX **(55)**

†Effect of Sub-lethal Rates of Glyphosate on Quizalofop-Resistant Rice Tolerance to Quizalofop. Navdeep Godara*, Jason K. Norsworthy; University of Arkansas, Fayetteville, AR **(56)**

†Evaluation of Corn Harvest Loss in Southeastern and South Central Nebraska. Trey P. Stephens*; University of Nebraska-Lincoln, Lincoln, NE **(57)**

†Weed Control and Rice Response to Pyraclonil, A New Broad-Spectrum Herbicide in California Rice. Sarsh L. Marsh*, Aaron Becerra-Alvarez, Alex R. Ceseski, Saul Estrada, Kassim Al-Khatib; University of California, Davis, CA **(58)**

†Physiological and Microbiological Impact of Dicamba on Tolerant Soybean. Francielli S de Oliveira*[1], Pablo A de Sousa[2], Lucas G. Panciera[3], Guilherme Chudzik[4], Robson J N de Lima[3], Pedro J. Christoffoleti[5]; [1]University of São Paulo, Limeira, Brazil, [2]University of São Paulo, Teresina, Brazil, [3]University of São Paulo, Piracicaba, Brazil, [4]University of Wisconsin-Madison, Madison, WI, [5]University of Sao Paulo, Piracicaba, Brazil **(59)**

POSTER - 02. Horticultural Crops: Student Contest - MS

***PRESENTER † STUDENT CONTEST**

†Assessing Organic Mulch and Herbicide Combinations on Weed Control in Christmas Tree Production. Greta Gallina*[1], Debalina Saha[2], Eric L. Patterson[1], Bert Cregg[1]; [1]Michigan State University, East Lansing, MI, [2]Michigan State University, Apopka, FL **(60)**

†Weed Seed Dispersal Via Overhead Irrigation in Container Nurseries. Alisha O. Ray*[1], Joe C. Neal[1], Anthony LeBude[2], James Altland[3], Chris Harlow[1]; [1]North Carolina State University, Raleigh, NC, [2]North Carolina State University, Mills River, NC, [3]USDA- ARS, Wooster, OH **(61)**

Peppermint (*Mentha* × *piperita*) Response to Mesotrione and *S*-Metolachlor Applied Post-Harvest. Jeanine Arana*, Stephen L. Meyers; Purdue University, West Lafayette, IN **(62)**

†Electrical Weed Control as a Tool for Integrated Weed Management in Carrot and Green Bean Production. Erin E. Burns, Zachary Hayden, Christopher G. Galbraith*, Sushila Chaudhari; Michigan State University, East Lansing, MI **(63)**

POSTER - 04. Pasture, Range, Forest, & Rights of ways, Wildland, and Aquatic Invasive plants: Student Contest - MS

***PRESENTER † STUDENT CONTEST**

Herbicide Tolerance Evaluation of Early Post Emergence Treatments on Texas Native Grasses Under Greenhouse Conditions. Wyatt J. Stutzman*, Zachary S. Howard, Matthew Matocha, Scott A. Nolte; Texas A&M University, College Station, TX **(65)**

POSTER - 07. Formulation, Adjuvant, & Application Technology: Student Contest - MS

***PRESENTER † STUDENT CONTEST**

†The Effect of Novel Adjuvants on Glyphosate Activity in Common Lambsquarters. Isabel Schlegel Werle*[1], Gustavo Bessa[1], Matheus Machado Noguera[1], Srikanth Kumar Karaikal[1], Jeremie Kouame[1], Johan Coetzee[2], Nilda Roma-Burgos[1]; [1]University of Arkansas, Fayetteville, AR, [2]ORO AGRI-Rovensa, Fresno, CA **(66)**

POSTER - 08. Weed Biology and Ecology: Student Contest - MS

***PRESENTER † STUDENT CONTEST**

†An Integrated Multi-Omics Approach to Capture Stress-Induced Cellular Physiology in Plants: A Case Study Using Glyphosate-Resistance in Palmer Amaranth (*Amaranthus palmeri*). Pawanjit Kauur Sandhu*[1], Elizabeth Leonard[1], Vijay Nandula[2], Nishanth Tharayil[1]; [1]Clemson University, Clemson, SC, [2]USDA, Kansas City, MO **(68)**

†Impact of Management Practices on the Evolution of Herbicide- Resistant Waterhemp (*Amaranthus tuberculatus*) in Iowa. Ryan Hamberg*[1], Prashant Jha[1], Micheal D. Owen[1], Chandrashekar Aradhya[2], Avery J. Bennett[1], Alexis L. Meadows[1], Austin H. Schleich[1], Ramawatar Yadav[1]; [1]Iowa State University, Ames, IA, [2]Bayer Crop Science, Chesterfield, MO **(69)**

†Preliminary Investigation of Biological Nitrification Inhibition (BNI) Potential in Johnsongrass (*Sorghum halepense*). Eeshita Ghosh*, Nithya Rajan, Dinesh Phuyal, Muthukumar V. Bagavathiannan, Nithya K. Subramanian; Texas A&M University, College Station, TX **(70)**

†Potential of Using Wildland Weeds for Honeybee Health in Puerto Rico. Andrés Curcio Santiago*[1], Wilfredo Robles[2], Fernando Gallardo[3], Alejandro Segarra[4], Aristides Armstrong[5]; [1]University of Puerto Rico, Mayagüez, Trujillo Alto, PR, [2]University of Puerto Rico, Mayagüez, Corozal, PR, [3]University of Puerto Rico, Mayagüez, Adjuntas, PR, [4]University of Puerto Rico, Mayagüez, Lajas, PR, [5]University of Puerto Rico, Mayagüez, Mayagüez, PR **(71)**

POSTER - 12. Integrated Weed Management: Student Contest - MS

***PRESENTER † STUDENT CONTEST**

†Weed and Crop Emergence Through Chaff Lines as Influenced by Crop Yield. Matthew P. Spoth*[1], Michael L. Flessner[1], Lauren M. Lazaro[2], Travis Legleiter[3], Kevin W. Bamber[1], Wykle C. Greene[1], Eli C. Russell[1], Cynthia Sias[1], Vipin Kumar[4], Vijay Singh[4]; [1]Virginia Tech, Blacksburg, VA, [2]Louisiana State University, Baton Rouge, LA, [3]University of Kentucky, Princeton, KY, [4]Virginia Tech, Painter, VA **(73)**

†Unmanned Aerial System-Based Site-specific Weed Management in Soybean. Vipin Kumar*, Vijay Singh, Dhiraj Srivastava; Virginia Tech, Painter, VA **(74)**

†Integration of Unmanned Aerial System and Machine Learning for Weed Mapping Operations. Dhiraj Srivastava*[1], Vijay Singh[1], Michael L. Flessner[2], John McGee[2], Kevin Kochersberger[2]; [1]Virginia Tech, Painter, VA, [2]Virginia Tech, Blacksburg, VA **(75)**

†Impacts of Cover Cropping on Weed Dynamics in Eastern and Central Nebraska. Elizabeth Oys*, Andrea Basche, Katja Koehler-Cole; University of Nebraska-Lincoln, Lincoln, NE **(76)**

WSSA *PhD POSTER CONTEST: AVAILABLE ON PLATFORM FOR 1 YEAR*

POSTER - 01. Agronomic Crops: Student Contest - PhD

***PRESENTER † STUDENT CONTEST**

†The Powerful Pigweed: A Tennessee Auxin Resistance Story. Delaney C. Foster*[1], Larry Steckel[1], Peter A. Dotray[2]; [1]University of Tennessee, Jackson, TN, [2]Texas Tech University and Texas A&M University, Lubbock, TX **(77)**

†Evaluation of One, Two, and Three-Way Preemergence Herbicide Combinations in Soybean. Zachary R. Treadway*, Jenny L. Dudak, Todd A. Baughman; Oklahoma State University, Ardmore, OK **(78)**

Interaction of Quizalofop, 2,4-D Choline, and Glufosinate for Control of Glyphosate/glufosinate-resistant Volunteer Corn in Corn Resistant to Aryloxyphenoxypropionates. Mandeep Singh*[1], John Lindquist[1], Stevan Knezevic[2], Suat Irmak[3], Vipan Kumar[4], Amit J. Jhala[1]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]University of Nebraska-Lincoln, Concord, NE, [3]Penn State University, State College, PA, [4]Kansas State University, Hays, KS **(79)**

†Influence of Cover Crop on the Critical Period for Weed Control in Soybean. Annu Kumari*[1], Andrew Price[2], Nicholas Korres[3]; [1]Auburn University, Auburn, AL, [2]USDA- ARS, Auburn, AL, [3]University of Arkansas, Fayetteville, AR **(80)**

†Interaction of Mesotrione and Metribuzin for Soil-Residual Control of Giant Ragweed (*Ambrosia trifida*). Benjamin C. Westrich*[1], Bryan G. Young[2]; [1]Purdue University, West Lafayette, IN, [2]Purdue University, Brookston, IN **(81)**

†Rolled-crimped Cover Crop Effects on Weed Suppression and Organic No-till Planted Wheat (*Triticum aestivum*) Performance. Matthew R. Ryan[1], Sandra Wayman[1], Terry Rose[2], Christopher J. Pelzer[1], Uriel D. Menalled*[1]; [1]Cornell University, Ithaca, NY, [2]Southern Cross University, Lismore, Austria **(82)**

†The Truth is in the Numbers: Can We Delay Herbicide Resistance Through an Integrated Approach? Taylor M. Randell*, Jenna C. Vance, Hannah E. Wright, A Stanley Culpepper; University of Georgia, Tifton, GA **(83)**

†Evaluation of Summer Cover Crop Mixes for Suppression of Post-harvest Weed Recruits. Jodie M. McVane*, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX **(84)**

†Detection of Herbicide Symptomology in Cotton Using Digital Images and Machine Learning. Ubaldo Torres*[1], Bishwa B. Sapkota[1], Gaylon Morgan[2], Muthukumar V. Bagavathiannan[1]; [1]Texas A&M University, College Station, TX, [2]Cotton Incorporated, Cary, NC **(85)**

†Confirmation of Two Unique ALS- and PPO-inhibiting Herbicide-resistant *Amaranthus retroflexus* Populations in North Carolina. Eric A. Jones*, Ryan J. Andres, Diego J. Contreras, Jeffrey C. Dunne, Charlie W. Cahoon, Katherine M. Jennings, Ramon G. Leon, Wesley Everman; North Carolina State University, Raleigh, NC **(86)**

†Dicamba-based Herbicide Programs, Crop Rotation, and Tillage for Long-term Weed Management in Cotton. Rohith Vulchi*[1], Joshua A. McGinty[2], Muthukumar V. Bagavathiannan[1], Scott A. Nolte[1]; [1]Texas A&M University, College Station, TX, [2]Texas A&M University, Corpus Christi, TX **(87)**

†Isoxaflutole Herbicide Programs in GLIXTP Cotton. Jenny L. Dudak*, Zachary R. Treadway, Todd A. Baughman; Oklahoma State University, Ardmore, OK **(88)**

POSTER - 02. Horticultural Crops: Student Contest - PhD

***PRESENTER † STUDENT CONTEST**

†Herbicide Tolerance of Hemp Grown for Grain or Fiber. Cynthia Sias*, Michael L. Flessner, Kevin W. Bamber, John Fike; Virginia Tech, Blacksburg, VA **(89)**

†Evaluation of Pendimethalin Application Time for Seeded Onion in North Dakota. Avery Shikanai*, Collin P. Auwarter, Harlene M. Hatterman-Valenti; North Dakota State University, Fargo, ND **(90)**

†Evaluation of Pre-emergent Herbicides for Weed Suppression Under the Plastic Mulched Raised Beds in Vegetable Production. Ruby Tiwari*[1], Nathan Boyd[2], Samira Daroub[3], Nirmal Timilsina[1], Ramdas Kanissery[1]; [1]University of Florida, Immokalee, FL, [2]University of Florida, Wimauma, FL, [3]University of Florida, Everglades, FL **(91)**

†Nut and Fruit Crops Response to Simulated Drift Rates of Florpyrauxifen-benzyl Drift in California. Deniz Inci*[1], Brad Hanson[2], Kassim Al-Khatib[1]; [1]University of California, Davis, CA, [2]UC Davis, Winters, CA **(92)**

POSTER - 03. Turf and Ornamentals: Student Contest - PhD

***PRESENTER † STUDENT CONTEST**

†Annual Bluegrass (*Poa Annua* L.) Seedbank Persistence: A Multi-state Study Across Plant Hardiness Gradients in the United States. Andrew W. Osburn*[1], Rebecca Bowling[2], Muthukumar V. Bagavathiannan[1]; [1]Texas A&M University, College Station, TX, [2]Texas A&M University, Dallas, TX **(93)**

†A Comparison of Spray Deposition Patterns from the Drone and Ground-based Sprayer. Daewon Koo*, Clebson G. Goncalves, Shawn Askew; Virginia Tech, Blacksburg, VA **(95)**

POSTER - 04. Pasture, Range, Forest, & Rights of ways, Wildland, and Aquatic Invasive plants: Student Contest - PhD

***PRESENTER † STUDENT CONTEST**

†Evaluation of Purestand Max and Weedmaster XHL for the Control of Johnsongrass. Zachary S. Howard*[1], Daniel Beran[2], Scott A. Nolte[1]; [1]Texas A&M University, College Station, TX, [2]Nufarm, Eldora, IA **(96)**

POSTER - 06. Teaching and Extension: Student Contest - PhD

***PRESENTER † STUDENT CONTEST**

†Tracking Herbicide-Resistant Weeds in California Rice Through a Community-Driven Approach. Aaron Becerra-Alvarez*, Kassim Al-Khatib; University of California, Davis, CA **(97)**

POSTER - 07. Formulation, Adjuvant, & Application Technology: Student Contest - PhD

***PRESENTER † STUDENT CONTEST**

†Comparison of Residual Activity of Pre-emergence Herbicides for Control of Multiple Herbicide-resistant Palmer Amaranth (*Amaranthus palmeri*) in Food-grade White Corn. Ramandeep Kaur*[1], Yeyin Shi[1], Stevan Knezevic[2], Vipan Kumar[3], Rachana Jhala[1], Nevin Lawrence[4], Amit J. Jhala[1]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]University of Nebraska-Lincoln, Concord, NE, [3]Kansas State University, Hays, KS, [4]University of Nebraska-Lincoln, Scottsbluff, NE **(98)**

†Evaluation of an RTK-GPS Guided Unmanned Aerial System for Site-Specific Treatment of Late-Season Weed Escapes in Rice. Bholuram Gurjar*[1], Bishwa B. Sapkota[1], Isidor Ceperkovic[1], Ubaldo Torres[2], Matthew Kutugata[1], Xin-Gen Zhou[1], Daniel E. Martin[3], Muthukumar V. Bagavathiannan[1]; [1]Texas A&M University, College Station, TX, [2]Texas Tech University, Lubbock, TX, [3]USDA- ARS, College Station, TX **(99)**

†Response of Glufosinate-tolerant Soybean to Dicamba and 2,4-D Volatility in Humidomes Influenced by Formulation and Rate. Estefania Gomiero Polli*, Travis Gannon; North Carolina State University, Raleigh, NC **(100)**

†New Formulations Improve Absorption of Glyphosate in Different Weeds. Srishti Gupta*, Franck E. Dayan; Colorado State University, Fort Collins, CO **(101)**

POSTER - 08. Weed Biology and Ecology: Student Contest - PhD

***PRESENTER † STUDENT CONTEST**

†Impact of Fertilizer Placements on Liverwort (*Marchantia polymorpha*) Growth and Competitiveness with Ornamentals in Container Production. Manjot Kaur Sidhu*, Debalina Saha; Michigan State University, East Lansing, MI **(102)**

†Impact of Abiotic Stress Factors on Pollen and Stigma Characteristics of Johnsongrass. Vikas C. Tyagi*, Aniruddha Maity, Nithya K. Subramanian, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX **(103)**

†Paraquat-resistant Italian Ryegrass (*Lolium multiform*) Confirmed in North Carolina. Jose H. de Sanctis*[1], Wesley Everman[1], Travis Gannon[1], Zachary R. Taylor[2], Charlie W. Cahoon[1]; [1]North Carolina State University, Raleigh, NC, [2]North Carolina State University, Sanford, NC **(104)**

†Can the Increase in the Levels of CO_2 and Temperature Influence Palmer amaranth Biotype's Growth and Development? Juliana de Souza Rodrigues*, Timothy L. Grey; University of Georgia, Tifton, GA **(105)**

POSTER - 10. Physiology: Student Contest - PhD

***PRESENTER † STUDENT CONTEST**

†Investigating the Potential Co-occurrence of Target-Site and Non-Target-Site Resistance to PPO Inhibitors in the Same Populations of Waterhemp (*Amaranthus tuberculatus*). Jesse Haarmann*[1], Bryan G. Young[2], William G. Johnson[1]; [1]Purdue University, West Lafayette, IN, [2]Purdue University, Brookston, IN **(107)**

Protective Effect of Melatonin Against 2,4-D Injury in Cotton. Josiane C. Argenta*[1], Alyssa L. Miller[1], Antonio Augusto Tavares[1], Te-Ming (Paul) Tseng[2]; [1]Mississippi State University, Starkville, MS, [2]Mississippi State University, Mississippi State, MS **(108)**

POSTER - 12. Integrated Weed Management: Student Contest - PhD

***PRESENTER † STUDENT CONTEST**

†Integrating Fall-Planted Cover Crops for Weed Suppression in the Semiarid Central Great Plains. Sachin Dhanda*[1], Vipan Kumar[1], Anita Dille[2], Augustine Obour[1], John Holman[3]; [1]Kansas State University, Hays, KS, [2]Kansas State University, Manhattan, KS, [3]Kansas State University, Garden City, KS **(110)**

†Developing a Real-time Weed Detection System for Efficient Site-Specific Weed Management with UAVs. Bishwa B. Sapkota*, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX **(112)**

†A Powerful Approach for Weed Detection Using Image Synthesis and Semi-supervised Learning. Chengsong Hu*[1], J. Alex Thomasson[2], Muthukumar V. Bagavathiannan[1]; [1]Texas A&M University, College Station, TX, [2]Mississippi State University, Starkville, MS **(113)**

CWSS STUDENT POSTERS: AVAILABLE ON PLATFORM FOR 1 YEAR

POSTER - CWSS Student Posters

***PRESENTER**

Herbicide Tank Mixtures Affect Speed and Efficacy of Winter Rye (*Secale cereale*) Termination. Olivia M. Noorenberghe*[1], Francois Tardif[1], Peter Sikkema[2], Mike Cowbrough[3], David Hooker[1], Peter Smith[1]; [1]University of Guelph, Guelph, ON, Canada, [2]University of Guelph, Ridgetown, ON, Canada, [3]OMAFRA, Guelph, ON, Canada **(114)**

Effect of Fall Mowing Height on Flazasulfuron and Glufosinate Efficacy on Hair Fescue (*Festuca filiformis*) in Lowbush Blueberry. Janelle M. MacKeil*[1], Scott N. White[2]; [1]Dalhousie University, Truro, NS, Canada, [2]Dalhousie University, East Mountain, NS, Canada **(116)**

Evaluation of ALS Herbicide Resistance in Three Manitoba Redroot Pigweed (*Amaranthus retroflexus* L.) Populations. Sampa Sarker*, Robert Gulden; University of Manitoba, Winnipeg, MB, Canada **(117)**

Evaluation of Hair Fescue (*Festuca filformis*) Management in Wild Blueberry (*Vaccinium angustifolium* Ait.) Using Casoron. Craig B. MacEachern*[1], Travis J. Esau[1], Scott N. White[2], Qamar U. Zaman[1]; [1]Dalhousie University, Truro, NS, Canada, [2]Dalhousie University, East Mountain, NS, Canada **(118)**

GENERAL POSTERS: AVAILABLE ON PLATFORM FOR 1 YEAR

POSTER - 01. Agronomic Crops: General Posters

***PRESENTER**

One-Shot Weed Management Programs in Mississippi Corn. Taghi Bararpour*, Jason A. Bond, Gurbir Singh; Mississippi State University, Stoneville, MS **(119)**

Herbicide Resistance Updates for New York State. Lynn M. Sosnoskie*, Elizabeth C. Maloney; Cornell University, Geneva, NY **(120)**

Efficacy of Weed Management Tactics Poster: an Opportunity for Feedback. Michael L. Flessner*[1], Mark VanGessel[2], Kevin W. Bamber[1], Thierry E. Besancon[3], Rakesh S. Chandran[4], Dwight Lingenfelter[5], Claudio G. Rubione[2], Lovreet S. Shergill[6], Vijay Singh[7], Kurt M. Vollmer[8], John M. Wallace[5]; [1]Virginia Tech, Blacksburg, VA, [2]University of Delaware, Georgetown, DE, [3]Rutgers University, Chatsworth, NJ, [4]West Virginia University, Morgantown, WV, [5]Penn State University, University Park, PA, [6]Montana State University, Huntley, MT, [7]Virginia Tech, Painter, VA, [8]University of Maryland, Queenstown, MD **(121)**

***Thlaspi arvense* Response to Carryover of Corn Herbicides in the Field and Greenhouse.** Mark Bernards*, Brent S. Heaton; Western Illinois University, Macomb, IL **(123)**

Pesticide Drift Complaints Decline While Dicamba Technology Adoption Increases. A Stanley Culpepper*, Jenna C. Vance, Taylor M. Randell, Hannah E. Wright; University of Georgia, Tifton, GA **(124)**

Isolation and Identification of Allelochemicals from Root Exudates of Cotton Chromosome Substitution Lines Known to Suppress Palmer Amaranth. Alyssa L. Miller*; Mississippi State University, Starkville, MS **(126)**

Making Room for Diversity: Evaluating the Relative Sensitivity of Cover Crops to Residual Herbicides in Corn. John Wallace*, Tosh Mazzone; Penn State University, University Park, PA **(127)**

Enhanced Metabolism Confers Imazamox Resistance in Shattercane Populations. Vipan Kumar*[1], Rui Liu[1], Ramasamy Perumal[1], Sarah Morran[2], Todd A. Gaines[2], Brent Beans[3]; [1]Kansas State University, Hays, KS, [2]Colorado State University, Fort Collins, CO, [3]United Sorghum Checkoff Program, Lubbock, TX **(128)**

Roughstalk Bluegrass Control in Winter Wheat. Christy L. Sprague*, Gary Edward Powell, Brian J. Stiles II; Michigan State University, East Lansing, MI **(129)**

The Surfactants from Other Foliar Herbicide Applications on Sensitive Soybean Can Increase the Expression of Dicamba Off-Target Movement Injury. Matthew Osterholt*[1], Bryan G. Young[2]; [1]Purdue University, West Lafayette, IN, [2]Purdue University, Brookston, IN **(130)**

Effects of Fall-Planted Cereal Cover-Crop Termination Time and Method on Weed Suppression in Hemp Grown for Fiber in Michigan. Erin E. Burns*; Michigan State University, East Lansing, MI **(131)**

Confirmation of a Five-way Herbicide-resistant Waterhemp (*Amaranthus tuberculatus*) Population in North Carolina. Eric A. Jones, Ryan J. Andres, Diego J. Contreras*, Jeffrey C. Dunne, Katherine M. Jennings, Charlie W. Cahoon, Ramon G. Leon, Wesley Everman; North Carolina State University, Raleigh, NC **(132)**

Weed Pressure in Field Grown Sulfonylurea-resistant *Camelina sativa* and *Brassica napus*. James V. Anderson*[1], Brant Bigger[1], Joseph Mettler[2], Kirk A. Howatt[2], Marisol T. Berti[2]; [1]USDA- ARS, Fargo, ND, [2]North Dakota State University, Fargo, ND **(133)**

Evaluation of Living Mulch Species and Their Effect on Weed Pressure in Cotton. McKenzie J. Barth*, Muthukumar V. Bagavathiannan, Hayden R. Taylor; Texas A&M University, College Station, TX **(134)**

Discovery of the First Glyphosate-Resistant Grass Weed in Canada. Charles M. Geddes*, Mattea M. Pittman; Agriculture and Agri-Food Canada, Lethbridge, AB, Canada **(135)**

Herbicide Susceptibility Survey of Watergrass (*Echinochloa* spp.) in California Rice. Whitney Brim-DeForest*, Taiyu Guan, Troy Clark; University of California, Yuba City, CA **(136)**

Maverick™: A New Herbicide Premix for PRE and POST Weed Control in Corn. Lowell Sandell*[1], Garrison J. Gundy[2], John Pawlak[3], Jonathon Kohrt[4], Eric Ott[5], Chad L. Smith[6], Trevor Israel[7], Ron Estes[2]; [1]Valent USA LLC, Ashland, NE, [2]Valent USA LLC, Seymour, IL, [3]Valent USA LLC, Lansing, MI, [4]Valent USA LLC, West Des Moines, IA, [5]Valent USA LLC, Greenfield, IN, [6]Valent USA LLC, Cleveland, MS, [7]Valent USA LLC, Sioux Falls, SD **(137)**

Stimulating Germination and Emergence of Wild Oat (*Avena fatua*) and Volunteer Cereals. Shaun M. Sharpe*[1], Taylor Kaye[1], Breanne D. Tidemann[2]; [1]Agriculture and Agri-Food Canada, Saskatoon, SK, Canada, [2]Agriculture and Agri-Food Canada, Lacombe, AB, Canada **(138)**

Investigations of Suspected Weed Resistance to XtendiMax® Herbicide with VaporGrip® Technology. Aruna V. Varanasi*, Jenny Krebel, John Willis, Jeffrey Herrmann, Chandra Aradhya; Bayer Crop Science, Chesterfield, MO **(139)**

Effect of Glyphosate Plus Dicamba or 2,4-D Rate and Exposure Timing on Peanut. Pratap Devkota*, Prasanna Kharel, Joseph E. Iboyi; University of Florida, Jay, FL **(140)**

Evaluation of Dicamba Volatility Reducing Agents. Ryan D. Langemeier*[1], Rodrigo Werle[2], Katilyn J. Price[1], Livia Pereira[1], Justin T. McCaghren[1], Steve Li[1]; [1]Auburn University, Auburn, AL, [2]University of Wisconsin-Madison, Madison, WI **(141)**

POSTER - 02. Horticultural Crops: General Posters

***PRESENTER**

Carrot Growth Response to Simulated 2,4-D and Dicamba Drift. Sushila Chaudhari*, Christopher G. Galbraith, Benjamin Phillips; Michigan State University, East Lansing, MI **(142)**

Effect of Steam and Cover-crop Treatments on Yield and Management of Weeds in Tomato. Tabata R. Oliveira*[1], Isabel Schlegel Werle[2], Sydney M. Stockwell[1], Shaun Broderick[1], Clay Cheroni[1], Te-Ming (Paul) Tseng[1]; [1]Mississippi State University, Mississippi State, MS, [2]University of Arkansas, Fayetteville, AR **(143)**

Gelatinous Nostoc Suppression in Container Nursery Roadways Using Glufosinate, Copper Hydroxide, or Copper Ethanolamine. Joe C. Neal*, Christopher D. Harlow; North Carolina State University, Raleigh, NC **(145)**

Italian Ryegrass (*Lolium perenne* spp. *multiflorum*) with Electric Current in Hazelnut Orchards. James R S Wirth, Rafael M. Pedroso, Marcelo L. Moretti*; Oregon State University, Corvallis, OR **(146)**

Weed Management Strategies in Organic Carrot. Maryse L. Leblanc*; Institut de recherche et de développement en agroenvironnement, St-bruno-de-montarville, QC, Canada **(148)**

Sensitivity of Eggplant (*Solanum melongena*), Cucumber (*Cucumis sativus*), and Snap Bean (*Phaseolus vulgaris*) to Sub-lethal Rates of Dicamba. Thierry E. Besancon*[1], Lynn M. Sosnoskie[2], Maggie H. Wasacz[3], Mark VanGessel[4]; [1]Rutgers University, Chatsworth, NJ, [2]Cornell University, Geneva, NY, [3]Rutgers University, Wall Township, NJ, [4]University of Delaware, Georgetown, DE **(149)**

Integration of Cover Crops, Rhizobacteria and Organic Herbicide Applications in Organic Tomato Production. Harrison T. Campbell*, Matthew A. Cutulle; Clemson University, Charleston, SC **(150)**

IR-4: Weed Control Projects Update - Food Crops. Roger B. Batts*[1], Jerry Baron[2], Venkat Pedibhotla[2]; [1]IR-4 Project, Fremont, NC, [2]IR-4 Project, Raleigh, NC **(151)**

Evaluation of Cover Crops in Anaerobic Soil Disinfestation for Weed Management in Organic Tomato Production. Gursewak Singh*, Matthew A. Cutulle; Clemson University, Charleston, SC **(152)**

Evaluating an Integrated Weed Management Approach for Flumioxazin on Potato in North Dakota. Harlene M. Hatterman-Valenti*, Collin Auwarter; North Dakota State University, Fargo, ND **(153)**

POSTER - 03. Turf and Ornamentals: General Posters

***PRESENTER**

Evaluation of Goosegrass and Creeping Bentgrass Response to Combinations of Topramezone and Chlorothalonil. John M. Peppers*[1], Matthew T. Elmore[2], Shawn Askew[1]; [1]Virginia Tech, Blacksburg, VA, [2]Rutgers University, New Brunswick, NJ **(155)**

POSTER - 04. Pasture, Range, Forest, & Rights of ways, Wildland, and Aquatic Invasive plants: General Posters

***PRESENTER**

Guardrail Bareground Applications in KY: Spring or Fall Timing? Joe Omielan*; University of Kentucky, Lexington, KY **(156)**

Leafy Spurge, E*uphorbia esula L.*, Management with Pyraflufen-ethyl Plus 2,4-D Ester. Phillip Westra*[1], Jim T. Daniel[2], Milo Lewis[3], James Adams[4]; [1]Colorado State University, Fort Collins, CO, [2]Daniel Ag Consulting, Keenesburg, CO, [3]Nichino America, Whiteface, TX, [4]Nichino America, Wilmington, DE **(157)**

Some Invasive Weeds in Coastal Forests of British Colombia, Scotch Broom (*Cytisus scoparius* L. Link). Raj Prasad*; Emeritus Scientist/Professor, Victoria/bc, BC, Canada **(159)**

POSTER - 05. Regulatory Aspects: General Posters

***PRESENTER**

Plant Back Restrictions: What Do They Really Mean? William J. Chism[1], Kelly Tindall*[2]; [1]US EPA, Point Of Rocks, MD, [2]US EPA, Washington, DC **(162)**

POSTER - 06. Teaching and Extension: General Posters

***PRESENTER**

Virginia Weed Identification Clinic Summary. Wykle C. Greene*, Michael L. Flessner, Kara Pittman, Shawn Askew; Virginia Tech, Blacksburg, VA **(164)**

Dicamba Injury in Kentucky: A Comparison of the 2017 and 2021 Growing Seasons. Travis Legleiter*; University of Kentucky, Princeton, KY **(165)**

Addressing Citizen Concerns About Glyphosate Use in Puerto Rico. Wilfredo Robles*; University of Puerto Rico, Mayagüez, Corozal, PR **(166)**

POSTER - 07. Formulation, Adjuvant, & Application Technology: General Posters

***PRESENTER**

Hooded Broadcast Sprayer for Particle Drift Reduction. Bruno Canella Vieira*[1], Maxwel Coura Oliveira[1], Guilherme Sousa Alves[2], Jeffrey A. Golus[2], Kasey Schroeder[2], Reid Smeda[3], Ryan J. Rector[4], Greg R. Kruger[2], Rodrigo Werle[1]; [1]University of Wisconsin-Madison, Madison, WI, [2]University of Nebraska-Lincoln, North Platte, NE, [3]University of Missouri, Columbia, MO, [4]Bayer Crop Science, St. Louis, MO **(167)**

POSTER - 08. Weed Biology and Ecology: General Posters

***PRESENTER**

Cross-resistance to Photosystem II Inhibitors Observed in Target Site Resistant But Not in Non-target Site Resistant Common Ragweed (*Ambrosia artemisiifolia*). Martin Laforest*[1], Marie-Josee Simard[2], Sydney Meloche[3], Lydia Maheux[4], Francois Tardif[5], Eric Page[6]; [1]AAC-AAFC, St-jean-sur-richelieu, QC, Canada, [2]Agriculture and Agri-Food Canada, Saint-jean-sur-richelieu, QC, Canada, [3]Agriculture and Agri-Food Canada, Harrow, ON, Canada, [4]Agriculture and Agri-Food Canada, St-jean-sur-richelieu, QC, Canada, [5]University of Guelph, Guelph, ON, Canada, [6]Agriculture and Agri-Food Canada, Harrow, Canada **(171)**

Import of Palmer Amaranth (*Amaranthus palmeri* S. Wats.) Seed with Sweet Potato (*Ipomea batatas*) Slips. Eric Page*; Agriculture and Agri-Food Canada, Harrow, ON, Canada **(172)**

Competition Between Bird's Rape and Canola in Unmanaged Field Borders: Year 1. Marie-Josee Simard*[1], Martin Laforest[2], Sara Martin[3], Lydia Maheux[1]; [1]Agriculture and Agri-Food Canada, Saint-jean-sur-richelieu, QC, Canada, [2]Agriculture and Agri-Food Canada, St-jean-sur-richelieu, QC, Canada, [3]Agriculture and Agri-Food Canada, Ottawa, ON, Canada **(174)**

Sterile Pollen Technique as a Novel Weed Management Tool. Wenzhuo Wu*[1], Mohsen B. Mesgaran[2]; [1]University of California, Davis, CA, [2]UC Davis, Davis, CA **(175)**

Utilizing RNA Sequence Transcriptome Analysis to Identify Genes Involved in Conferring Clopyralid Resistance in *Ambrosia artemisiifolia* (Common Ragweed). Nash D. Hart*[1], Erin E. Burns[2], Eric L. Patterson[2]; [1]Michigan State University, Durand, MI, [2]Michigan State University, East Lansing, MI **(176)**

Palmer Amaranth (*Amaranthus palmeri*) Seed Germination Under Simulated Lunar and Martian Magnetic Fields and Microgravity. Aniruddha Maity*, Anton Classen, Dipankar Sen, Alma Fernandez, Aart J. Verhhoef, Alexei Sokolov, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX **(177)**

Effect of Cereal Rye Cover Crop and Narrow Row Soybean on Waterhemp in a Corn-Soybean Rotation Over Two Years. Ramawatar Yadav*, Prashant Jha, Alexis L. Meadows, Austin H. Schleich, Avery J. Bennett; Iowa State University, Ames, IA **(179)**

Light Up the Seeds: Influence of Red and Far-Red Light on Palmer Amaranth Seed Dormancy. Sarah E. Kezar*, Shuyang Zhen, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX **(180)**

Residual Weed Population Shifts in Saskatchewan - 1976 to 2021. Julia Y. Leeson*, Shane Hladun; Agriculture and Agri-Food Canada, Saskatoon, SK, Canada **(181)**

Prospective Modeling of Weed Community Responses to Herbicide Programs Based on Species Population Dynamics. Fernando H. Oreja, Matthew Inman, David L. Jordan, Deepayan Bardhan, Ramon G. Leon*; North Carolina State University, Raleigh, NC **(182)**

Comparative Biology of Female and Male Palmer Amaranth. Ednaldo A. Borgato*, Mithila Jugulam, Anita Dille; Kansas State University, Manhattan, KS **(183)**

POSTER - 10. Physiology: General Posters

***PRESENTER**

Absorption, Translocation, and Metabolism of Glufosinate in Glufosinate-Resistant Palmer Amaranth. Pamela Carvalho-Moore*[1], Jason K. Norsworthy[1], Jeong-In Hwang[1], Maria Leticia Zaccaro-Gruener[1], Tom Barber[2], Thomas Butts[1]; [1]University of Arkansas, Fayetteville, AR, [2]University of Arkansas, Lonoke, AR **(185)**

POSTER - 12. Integrated Weed Management: General Posters

***PRESENTER**

Weed Suppression by Full-season Cover Crops in Atlantic Canada. Andrew McKenzie-Gopsill*, Aaron Mills, Tandra Fraser, Judith Nyiraneza; Agriculture and Agri-Food Canada, Charlottetown, PE, Canada **(187)**

Survey of Herbicide-Resistant Wild Oat (*Avena fatua*) in the Lower-Saint-Laurent Region of Quebec. Sandra Flores-Mejia*[1], Firmo Sousa[1], Véronique Bélanger[1], Ayitre Akpakouma[2], Jalinets Navarro[3], Marc Tétrault[4], Yan Gosselin[4], Éric Pagé[4], Annie Marcoux[5], David Miville[5], Michel Dupuis[6], Samuel Comtois[7], Mario Handfield[8], Salah Zoghlami[9], Darrell M. Pack[10]; [1]Centre de recherche sur les grains (CÉROM), Saint-mathieu-de-beloeil, QC, Canada, [2]Ministère de l'Agriculture, des Pêcheries et de l'Alimentation (MAPAQ)., Rivière-du-loup, QC, Canada, [3]Ministère de l'Agriculture, des Pêcheries et de l'Alimentation (MAPAQ), Amqui, QC, Canada, [4]Fédération de l'Union de producteurs agricoles du Bas-Saint-Laurent (FUPABSL), Rimouski, QC, Canada, [5]Laboratoire d'expertise et de diagnostic en phytoprotection. (LEDP-MAPAQ), Quebec, QC, Canada, [6]Coordination services-conseils, Longueuil, QC, Canada, [7]Groupe PleineTerre, Napierville, QC, Canada, [8]Université du Québec à Rimouski (UQAR), Rimouski, QC, Canada, [9]Producteurs de grains du Québec (PGQ), Longueuil, QC, Canada, [10]CropLife Canada, Ottawa, ON, Canada **(189)**

Weed Suppression at Different Levels of Cereal Rye Biomass Production. Gustavo Camargo Silva*, Muthukumar V. Bagavathiannan; Texas A&M University, College Station, TX **(190)**

Screening of Sweet Potato Varieties for Their Allelopathic Ability to Suppress Palmer Amaranth Growth in a Stair-step Structure. Varsha Varsha*[1], Isabel Schlegel Werle[2], Mark W. Shankle[3], Stephen L. Meyers[4], Te-Ming (Paul) Tseng[5]; [1]Mississippi State University, Starkville, MS, [2]University of Arkansas, Fayetteville, AR, [3]Mississippi State University, Pontotoc, MS, [4]Purdue University, West Lafayette, IN, [5]Mississippi State University, Mississippi State, MS **(191)**

US-Herbicide Resistance Action Committee (HRAC): Who We Are and What We Do? Zahoor A. Ganie[1], Chandrashekar Aradhya*[2], Greg Elmore[2], Lowell Sandell[3], Dane L. Bowers[4], David M. Simpson[5]; [1]FMC Corporation, Newark, DE, [2]Bayer Crop Science, Saint Louis, MO, [3]Valent USA LLC, Ashland, NE, [4]Syngenta Crop Protection, Greensboro, NC, [5]Corteva Agriscience, Indianapolis, IN **(192)**

Effects of Cover Crops on Weed Emergence Across Three Soybean Producing Regions. Sarah A. Chu*[1], Lauren M. Lazaro[1], Gabrielle LaBiche[1], Muthukumar V. Bagavathiannan[2], Michael L. Flessner[3], Ramon G. Leon[4], Steven Brian Mirsky[5], Mark VanGessel[6]; [1]Louisiana State University, Baton Rouge, LA, [2]Texas A&M University, College Station, TX, [3]Virginia Tech, Blacksburg, VA, [4]North Carolina State University, Raleigh, NC, [5]USDA-ARS, Beltsville, MD, [6]University of Delaware, Georgetown, DE **(193)**

PRE-RECORDED ORAL PRESENTATIONS: AVAILABLE ON PLATFORM FOR 1 YEAR

ORAL - 01. Agronomic Crops

***SPEAKER**

Can a Rapid Assay be Developed to Confirm Glufosinate Resistance Before Widespread Evolution? Eric A. Jones*, Robert Austin, Diego J. Contreras, Charlie W. Cahoon, Katherine M. Jennings, Ramon G. Leon, Wesley Everman, Jeffrey Dunne; North Carolina State University, Raleigh, NC **(197)**

Development of Oxadiazon-resistant Crops and Potential for Weed Control. Joseph S. McElroy*[1], James Harris[1], Jinesh Patel[1], Luqi Li[2], Roch Gaussoin[2], Thomas Clemente[2]; [1]Auburn University, Auburn, AL, [2]University of Nebraska-Lincoln, Lincoln, NE **(198)**

Ectopic Expression of a Rice Triketone Dioxygenase Gene Confers Mesotrione Tolerance in Soybean. Sarah Berger*, Shunhong Dai, Nikolaos Georgelis, Mohamed Bedair, Yun-Jeong Hong, Qungang Qi, Clayton Larue, Bikram Sitoula, Wei Huang, Brian Krebel, Michael Shepard, Wen Su, Jiaxin Dong, Thomas Slewinski, Christine Ellis, Agoston Jerga, Marguerite Varagona; Bayer Crop Science, Chesterfield, MO **(199)**

Herbicide Tolerance Traits for PPO-inhibitor Herbicides in Field Crops. Clayton Larue*, Christine Ellis, Shirley Guo, Qungang Qi, Rita Varagona, James Roberts; Bayer Crop Science, Chesterfield, MO **(200)**

Rapidicil™, A New and Unique PPO Inhibiting Herbicide for Burndown Program. John Pawlak*[1], Lowell Sandell[2], Yoshimi Fujino[3], Yoshinao Sada[4], Yoshinobu Jin[4], Akihiro Tomita[3]; [1]Valent USA LLC, Lansing, MI, [2]Valent USA LLC, Ashland, NE, [3]Sumitomo Chemical Co., Ltd., Tokyo, Japan, [4]Sumitomo Chemical Co., Ltd., Hyogo, Japan **(201)**

Rapidicil™, a New Systemic PPO Herbicide for Broad-spectrum Weed Control. Yoshinobu Jin*[1], Yoshinao Sada[1], Masashi Hikosaka[1], Kunio Ido[1], John Pawlak[2]; [1]Sumitomo Chemical Co. Ltd., Hyogo, Japan, [2]Valent USA LLC, Lansing, MI **(202)**

Confirmation of Resistance in Smallflower Umbrella Sedge (*Cyperus difformis*) to an ALS Inhibiting Herbicide and its Control with Florpyrauxifen-benzyl. Seshadri S. Reddy*[1], David Ouse[1], Craig Alford[2], Vijay K. Choudhary[3]; [1]Corteva Agriscience, Indianapolis, IN, [2]Corteva Agriscience, Johnston, IA, [3]ICAR–Directorate of Weed Research, Jabalpur, Mp, India **(203)**

Target-Site And Nontarget Pathways of ALS Inhibitor Resistance in *Cyperus difformis*. Alex R. Ceseski*, Kassim Al-Khatib; University of California, Davis, CA **(204)**

Using Network Effects to Describe the Rate of Herbicide-Resistant Soybean Adoption Among Neighbors. Sarah Lancaster*[1], Mandy Bish[2], Tanner McCarty[3], Jeffrey Young[4], Dallas Wood[5]; [1]Kansas State University, Manhattan, KS, [2]University of Missouri, Columbia, MO, [3]Utah State University, Logan, UT, [4]Murray State University, Murray, KY, [5]RTI International, Research Triangle Park, NC **(205)**

Voraxor™: A New Pre-seed Burndown Herbicide for Cereals and Pulse Crops in Canada. Ethan Bertholet*; BASF Canada Inc., Saskatoon, SK, Canada **(207)**

TriVolt Herbicide: A New Residual Herbicide Combination for Weed Management in Corn. Eric Riley*; Bayer Crop Science, St. Louis, MO **(210)**

Smoulder™: A New Pre-Seed Herbicide for Wheat and Barley. Brendan Metzger*[1], Ethan Bertholet[2], Brittany Hedges[3]; [1]BASF Canada Inc., Morden, MB, Canada, [2]BASF Canada Inc., Saskatoon, SK, Canada, [3]BASF Canada Inc., Lethbridge, AB, Canada **(211)**

TVE29: A New Mode-of-Action Herbicide Interfering with *de Novo* Pyrimidine Biosynthesis for Effective Management of Herbicide-Resistant Grass Weeds Globally. Atul Puri*, Thomas Selby, Steven Gutteridge, Mark Holliday, Adam Prestegord; FMC Corporation, Wilmington, DE **(213)**

GROWing Into the Future: Outreach and Extension. Michael L. Flessner*[1], Mark VanGessel[2], Claudio G. Rubione[2], Eugene P. Law[3], Lauren M. Lazaro[4], Ramon G. Leon[5], Steven Brian Mirsky[6], John M. Wallace[7]; [1]Virginia Tech, Blacksburg, VA, [2]University of Delaware, Georgetown, DE, [3]University of Delaware, Beltsville, MD, [4]Louisiana State University, Baton Rouge, LA, [5]North Carolina State University, Raleigh, NC, [6]USDA- ARS, Beltsville, MD, [7]Penn State University, University Park, PA **(214)**

GROWing Into the Future: Research. Lauren M. Lazaro*[1], Michael L. Flessner[2], Eugene P. Law[3], Ramon G. Leon[4], Steven Brian Mirsky[5], Mark VanGessel[6], John M. Wallace[7]; [1]Louisiana State University, Baton Rouge, LA, [2]Virginia Tech, Blacksburg, VA, [3]University of Delaware, Beltsville, MD, [4]North Carolina State University, Raleigh, NC, [5]USDA- ARS, Beltsville, MD, [6]University of Delaware, Georgetown, DE, [7]Penn State University, University Park, PA **(215)**

Feral Rye (*Secale cereale*) Management with CoAXium and Clearfield Wheat Production Systems. Misha R. Manuchehri*[1], Hannah C. Lindell[1], Lane Scott Newlin[1], Caitlyn Carnahan[1], Justin T. Childers[2]; [1]Oklahoma State University, Stillwater, OK, [2]Oklahoma State University, Marlow, OK **(216)**

Crop Herbicide Tolerance Evaluation Using UAV Based Remote Sensing. Ryan D. Langemeier*, Livia Pereira, Justin T. McCaghren, Steve Li; Auburn University, Auburn, AL **(219)**

Evaluation of Broadcast Partners with See and Spray™ in Soybean Production. William L. Patzoldt*[1], Aaron Hager[2], Kip E. Jacobs[3], Michael M. Houston[4], Jason K. Norsworthy[4]; [1]Blue River Technology, Sunnyvale, CA, [2]University of Illinois, Urbana, IL, [3]University of Illinois, Champaign, IL, [4]University of Arkansas, Fayetteville, AR **(220)**

Kochia (*Bassia scoparia*) Patch Management with Physical Control Strategies. Shaun M. Sharpe*, Taylor Kaye; Agriculture and Agri-Food Canada, Saskatoon, SK, Canada **(221)**

Early Postemergence Guineagrass Control in Sugarcane. D Calvin Odero*[1], Alex G. Rodriguez[1], Venkatanaga Shiva Datta Kumar Sharma Chiruvelli[2]; [1]University of Florida, Belle Glade, FL, [2]University of Florida, Gainesville, FL **(222)**

Efficacy of Preplant Incorporated, Preemergence, and Postemergence Herbicides for Control of Waterhemp (*Amaranthus tuberculatus*) and Palmer Amaranth (*Amaranthus palmeri*) in Dry Bean. Joseph T. Ikley*, Nathan H. Haugrud, Stephanie DeSimini; North Dakota State University, Fargo, ND **(224)**

Effect of Quinclorac on Wild Oat (*Avena fatua*) Fecundity and Seed Viability. Eric N. Johnson*, Christian Willenborg, Steve Shirtliffe; University of Saskatchewan, Saskatoon, SK, Canada **(225)**

Effect of Soil Moisture Levels on Tolerance of Quizalofop-Resistant Cultivars to Quizalofop. Navdeep Godara*, Jason K. Norsworthy; University of Arkansas, Fayetteville, AR **(229)**

Fall Application Timing for Sulfentrazone and Pyroxasulfone. Deanna McLennan*[1], Mitch Long[1], Kyle E. Schroeder[1], Pat Forsyth[2]; [1]FMC Canada, Saskatoon, SK, Canada, [2]FMC Canada, Wetaskiwin, AB, Canada **(230)**

Application of Pre-emergent Oxyfluorfen as a Novel Chemical Control Option for California Weedy Rice (*Oryza sativa spontanea*). Liberty B. Galvin*, Kassim Al-Khatib; University of California, Davis, CA **(231)**

ORAL - 02. Horticultural Crops

***SPEAKER**

The Potato Vine Crusher - A New Tool for Harvest Weed Seed Control. Andrew McKenzie-Gopsill*[1], Nicolle MacDonald[1], Laura Anderson[1], Scott N. White[2], Christine Noronha[1]; [1]Agriculture and Agri-Food Canada, Charlottetown, PE, Canada, [2]Dalhousie University, East Mountain, NS, Canada **(232)**

Allelopathy, Competitive Cultivars, and Cover Crops: IWM Tools for Sweetpotato Production. Isabel Schlegel Werle*, Matheus Machado Noguera, Srikanth Kumar Karaikal, Gustavo Bessa, Nilda Roma-Burgos; University of Arkansas, Fayetteville, AR **(233)**

Impact of Anaerobic Soil Disinfestation and Soil Type on Weed Infestation,Guava Root Knot Nematode Viability and Sweetpotato Health. Matthew A. Cutulle*[1], Harrison T. Campbell[1], Phil Wadl[2], William Rutter[2]; [1]Clemson University, Charleston, SC, [2]USDA- ARS, Charleston, SC **(234)**

Plasticulture Vegetable Production is Influenced by Residual Activity of Glyphosate and Glufosinate Applied Preplant. Taylor M. Randell*, Lavesta C. Hand, Hannah E. Wright, A Stanley Culpepper; University of Georgia, Tifton, GA **(236)**

A Multi-State Evaluation of Pumpkin Tolerance to Delayed PRE Applications of *S*-Metolachlor. Thierry E. Besancon[1], Sushila Chaudhari[2], Douglas Doohan[3], Harlene M. Hatterman-Valenti*[4], Katherine M. Jennings[5], Dwight Lingenfelter[6], Stephen L. Meyers[7], Lynn M. Sosnoskie[8], Mark VanGessel[9], Kurt M. Vollmer[10]; [1]Rutgers University, Chatsworth, NJ, [2]Michigan State University, East Lansing, MI, [3]The Ohio State University, Wooser, OH, [4]North Dakota State University, Fargo, ND, [5]North Carolina State University, Raleigh, NC, [6]Penn State University, University Park, PA, [7]Purdue University, West Lafayette, IN, [8]Cornell University, Geneva, NY, [9]University of Delaware, Georgetown, DE, [10]University of Maryland, Queenstown, MD **(237)**

Spring Seeded Grass Cover Crops for Weed Suppression in Cucurbit Crops. Kurt M. Vollmer*[1], Thierry E. Besancon[2], Baylee L. Carr[2]; [1]University of Maryland, Queenstown, MD, [2]Rutgers University, Chatsworth, NJ **(238)**

Evaluation of Amino Acid-inhibiting Herbicide Tank Mixtures for Hair Fescue (*Festuca filiformis*) Management in Wild Blueberry (*Vaccinium angustifolium* Ait). Scott N. White*; Dalhousie University, East Mountain, NS, Canada **(240)**

Smart Spray Technology for Weed Management in Tomato. Nathan Boyd*[1], Arnold Schumann[2]; [1]University of Florida, Balm, FL, [2]University of Florida, Lake Alfred, FL **(241)**

ORAL - 03. Turf and Ornamentals

***SPEAKER**

Celsius XTRA: A New Bayer Turfgrass Herbicide. Devon E. Carroll*[1], Bruce Spesard[2], James W. Hempfling[2], Sheryl Wells[3], Jeffery Michel[2], Patrick Burgess[2]; [1]University of Tennessee, Knoxville, TN, [2]Bayer Crop Science, Cary, NC, [3]Bayer Crop Science, Milledgeville, GA **(242)**

The Performance of Halauxifen-methyl + Fluroxypyr + 2,4-D Choline (GameOn) in Golf Native Area Weed Management Programs. David E. Hillger*[1], Amy L. Agi[2], Paul T. Marquardt[3]; [1]Corteva Agriscience, Thorntown, IN, [2]Corteva Agriscience, Brooks, GA, [3]Corteva Agriscience, San Diego, CA **(243)**

Multi-State Survey of Target Site Resistance Alleles for Four Modes of Action in Annual Bluegrass (*Poa annua*). Claudia A. Rutland*[1], Eli C. Russell[2], Nathan D. Hall[3], Jinesh Patel[1], Shawn Askew[2], Muthukumar V. Bagavathiannan[4], Rebecca Bowling[4], James Brosnan[5], Travis Gannon[6], Clebson G. Goncalves[2], Daniel Hathcoat[4],

Lambert B. McCarty[7], Patrick McCullough[8], James D. McCurdy[9], Aaron Patton[10], J Bryan Unruh[11], Joseph S. McElroy[1]; [1]Auburn University, Auburn, AL, [2]Virginia Tech, Blacksburg, VA, [3]Michigan State University, East Lansing, MI, [4]Texas A&M University, College Station, TX, [5]Univeristy of Tennessee, Knoxville, TN, [6]North Carolina State University, Raleigh, NC, [7]Clemson University, Clemson, SC, [8]University of Georgia, Griffin, GA, [9]Mississippi State University, Starkville, MS, [10]Purdue University, West Lafayette, IN, [11]University of Florida, Gainesville, FL **(244)**

A Bioassay to Determine *Poa annua* Responses to Indaziflam. Benjamin D. Pritchard*[1], Jose J. Vargas[1], Bruce Spesard[2], James Brosnan[3]; [1]University of Tennessee, Knoxville, TN, [2]Bayer Crop Science, Cary, NC, [3]Univeristy of Tennessee, Knoxville, TN **(245)**

A Common Garden Study to Evaluate Morphological Trait Diversity in Annual Bluegrass (*Poa annua* L.). Andrew W. Osburn*[1], Rebecca Bowling[2], Muthukumar V. Bagavathiannan[1]; [1]Texas A&M University, College Station, TX, [2]Texas A&M University, Dallas, TX **(246)**

Investigating Low-dose Herbicide Programs for Goosegrass and Smooth Crabgrass Control on Creeping Bentgrass Greens. Shawn Askew*[1], John R. Brewer[2]; [1]Virginia Tech, Blacksburg, VA, [2]Syngenta Crop Protection, Vero Beach, FL **(247)**

Influence of Turfgrass Species, Fertility Program, and Plant Growth Regulators on Floral Density of a Bulb Lawn. Daewon Koo*[1], Shawn Askew[1], Mike Goatley[1], John R. Brewer[2], Clebson G. Goncalves[1], John M. Peppers[1]; [1]Virginia Tech, Blacksburg, VA, [2]Syngenta Crop Protection, Vero Beach, FL **(248)**

ORAL - 04. Pasture, Range, Forest, & Rights of ways, Wildland, and Aquatic Invasive plants

***SPEAKER**

2021 Survey Results for the Most Common and Troublesome Weeds in Aquatic and Non-Crop Areas. Lee Van Wychen*; Weed Science Society of America, Alexandria, VA **(250)**

Florpyrauxifen-benzyl + Aminopyralid with Flumioxazin + Pyroxasulfone for Non-Crop Weed Control in U.S. Land Management. William L. Hatler*[1], Byron B. Sleugh[2], Scott Flynn[3], Sam Ingram[4]; [1]Corteva Agriscience, Meridian, ID, [2]Corteva Agriscience, Carmel, IN, [3]Corteva Agriscience, Lees Summit, MO, [4]Corteva Agriscience, Savannah, GA **(251)**

Florpyrauxifen-benzyl Plus Aminopyralid as a Foundation Herbicide for Total Vegetation Control in Industrial Land Management. Cody J. Chytyk[1], Laura Smith*[2], Rory Degenhardt[3], Jamshid Ashigh[4], Kevin G. Falk[5]; [1]Corteva Agriscience, Saskatoon, SK, Canada, [2]Corteva Agriscience, West Lorne, ON, Canada, [3]Corteva Agriscience, Edmonton, AB, Canada, [4]Corteva Agriscience, London, ON, Canada, [5]Corteva Agriscience, Oak Bluff, MB, Canada **(252)**

Finding a Fit for Florpyrauxifen-benzyl-containing Herbicides in Pastures and Hayfields. Wykle C. Greene*[1], Michael L. Flessner[1], Scott Flynn[2]; [1]Virginia Tech, Blacksburg, VA, [2]Corteva Agriscience, Lees Summit, MO **(253)**

East Texas Sandbur Control: A Two Decade Meta-analysis. Zachary S. Howard*, Scott A. Nolte; Texas A&M University, College Station, TX **(254)**

Beyond the Dead Weed - Collaborating to Capture and Share the Benefits of Managing Vegetation to Meet Wildlife, Pollinator and Other Habitat Objectives. Byron B. Sleugh*[1], Charles Hart[2], Scott Flynn[3], Travis Rogers[4], William L. Hatler[5], Sam Ingram[6], Mark J. Renz[7], Brian A. Mealor[8], Timothy S. Prather[9], Jane Mangold[10]; [1]Corteva Agriscience, Carmel, IN, [2]Corteva Agriscience, Abilene, TX, [3]Corteva Agriscience, Lees Summit, MO, [4]Corteva Agriscience, Charleston, SC, [5]Corteva Agriscience, Meridian, ID, [6]Corteva Agriscience, Indianapolis, IN,

[7]University of Wisconsin-Madison, Madison, WI, [8]University of Wyoming, Laramie, WY, [9]University of Idaho, Moscow, ID, [10]Montana State University, Bozeman, MT **(256)**

ORAL - 05. Regulatory Aspects

***SPEAKER**

An Overview of the Paraquat Registration Review Interim Decision Requirements for Paraquat Containing Products: What Does That Mean for the End-User and Registrant. Montague U. Dixon*; Syngenta Crop Protection, Greensboro, NC **(259)**

Enlist Herbicides Label Update. David M. Simpson*[1], Reuben Baris[2], Byron B. Sleugh[3], Tammie Jones-Jefferson[1]; [1]Corteva Agriscience, Indianapolis, IN, [2]Corteva Agriscience, Indianapollis, IN, [3]Corteva Agriscience, Carmel, IN **(261)**

Enlist Herbicides: Regulatory Case Study in the New Realities in Herbicide Registrations in the US. Reuben Baris*[1], Tammie Jones-Jefferson[2], David M. Simpson[2]; [1]Corteva Agriscience, Zionsville, IN, [2]Corteva Agriscience, Indianapolis, IN **(262)**

Governing Weed Science: Takeaways from the Science Policy Fellowship Experience. Rebecca Champagne*[1], Devon E. Carroll[2], Lee Van Wychen[3]; [1]University of Maine, Orono, ME, [2]University of Tennessee, Knoxville, TN, [3]Weed Science Society of America, Alexandria, VA **(263)**

ORAL - 06. Teaching and Extension

***SPEAKER**

CAST At 50 Years: Where to from Here? Jill Schroeder*[1], Gregory K. Dahl[2], Lyn A. Gettys[3], John Hinz[4], Hilary A. Sandler[5]; [1]New Mexico State University, Las Cruces, NM, [2]Winfield United, Eagan, MN, [3]University of Florida, Davie, FL, [4]Bayer Crop Science, Story City, IA, [5]UMass Cranberry Station, East Wareham, MA **(264)**

Glyphosate Education and Emerging Environmental Issues in Florida. Stephen F. Enloe*; University of Florida, Gainesville, FL **(265)**

2021 Georgia Pesticide Application Equipment and Technology Survey. Eric P. Prostko*, Simerjeet Virk; University of Georgia, Tifton, GA **(266)**

Nonchemical Strategies for Managing Herbicide-Resistant Weeds in Semiarid U.S. Great Plains: Research and Extension Needs. Vipan Kumar*[1], Rui Liu[1], Sachin Dhanda[1], Prashant Jha[2], Jason K. Norsworthy[3], Phillip Stahlman[1]; [1]Kansas State University, Hays, KS, [2]Iowa State University, Ames, IA, [3]University of Arkansas, Fayetteville, AR **(267)**

Agricultural Sustainability and Denial. Robert L. Zimdahl*; Colorado State University, Fort Collins, CO **(268)**

ORAL - 07. Formulation, Adjuvant, & Application Technology

***SPEAKER**

Effects of Weather and Adjuvants on Lateral Airplane Spray Droplet Distribution. Gregory K. Dahl[1], John W. Gottula[2], Kyle Gustafson*[3], Ryan Wolf[4]; [1]Winfield United, Eagan, MN, [2]SAS Institute, Cary, NC, [3]Winfield United, Brookings, SD, [4]Land O Lakes, Eagan, MN **(270)**

Positive and Negative Herbicide and Adjuvant Interactions with Quizalopfop-p-ethyl. Richard K. Zollinger*[1], Joseph A. Bruce[2], Kirk A. Howatt[3], Peter Porpiglia[4]; [1]AMVAC Chemical Corporation, Spokane Valley, WA, [2]AMVAC Chemical Corporation, Glen Carbon, IL, [3]North Dakota State University, Fargo, ND, [4]AMVAC Chemical Corporation, Newport Beach, CA **(271)**

Introducing UltraLock™, a Novel Deposition and Drift Reducing Adjuvant. Gregory K. Dahl*[1], Ryan J. Edwards[2], Ryan Wolf[3], Joshua Mayfield[4], Joshua J. Skelton[5], Steven A. Fredericks[2], Christine Colby[2], Eric P. Spandl[6], Kevin Krueger[7]; [1]Winfield United, Eagan, MN, [2]WinField United, River Falls, WI, [3]Winfield United, Sheldon, IA, [4]Winfield United, Four Oaks, NC, [5]WinField United, Saint Paul, MN, [6]Winfield United, Shoreview, MN, [7]Winfield United, Arden Hills, MN **(272)**

The Utility of Soil Adsorption Agents for Improving Residual Herbicide Retention in Sandy Soils. Ramdas Kanissery*; University of Florida, Immokalee, FL **(273)**

Sand Abrasion and Herbicide Application Effects Controlling Brazilian Peppertree (*Schinus terebinthifolia*). Shawn T. Steed*[1], Chris Oswalt[2]; [1]University of Florida, Seffner, FL, [2]University of Florida, Bartow, FL **(276)**

Spray Drift of Dicamba into Soybeans: A Comparison of Application and Measurement Methods. Tom Wolf*[1], Brian Caldwell[1], Christian Willenborg[2], Eric N. Johnson[2], Sid A. Darras[3], Ian Paulson[4]; [1]Agrimetrix Research & Training, Saskatoon, SK, Canada, [2]University of Saskatchewan, Saskatoon, SK, Canada, [3]Research Associate, Saskatoon, SK, Canada, [4]PAMI, Saskatoon, SK, Canada **(277)**

ORAL - 08. Weed Biology and Ecology

***SPEAKER**

Weed Suppression and Community Assembly Across Management Gradients: A Taxonomic and Trait-based Approach. Uriel D. Menalled*[1], Guillaume Adeux[2], Stéphane Cordeau[2], Richard G. Smith[3], Steven Brian Mirsky[4], Matthew R. Ryan[1]; [1]Cornell University, Ithaca, NY, [2]INRAe, Dijon, France, [3]University of New Hampshire, Durham, NH, [4]USDA- ARS, Beltsville, MD **(279)**

Introducing the Critical Period for Weed 'Seed' Control. Charles M. Geddes*[1], Adam S. Davis[2]; [1]Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, [2]University of Illinois, Urbana, IL **(280)**

The Role of Hydrochory in Bohemian Knotweed (*Reynoutria x bohemica*) Seed Dispersal and Seedling Establishment. Maria Goncharova*[1], David R. Clements[2]; [1]Trinity Western University, Surrey, BC, Canada, [2]Trinity Western University, Langley, BC, Canada **(284)**

Leaf Morphology Variation in Knotweed (*Reynoutria*) Species in Relation to Interspecific Hybridization. David R. Clements*[1], Micaela Janse van Rensburg[1], Alida Janmaat[2], Vanessa L. Jones[1], Virginia V. Oeggerli[1], Matthew G. Strelau[1], Shicai Shen[3], Bo Liu[4], Guangzhong Zhang[4]; [1]Trinity Western University, Langley, BC, Canada, [2]University of the Fraser Valley, Abbotsford, BC, Canada, [3]Key Laboratory of Green Prevention and Control of Agricultural Transboundary Pests of Yunnan Province, Agricultural Environment and Resource Research Institute, Yunnan Academy of Agricultural Sciences, Kunming, China, [4]Shenzhen Branch, Guangdong Laboratory

of Lingnan Modern Agriculture; Genome Analysis Laboratory of the Ministry of Agriculture and Rural Affairs; Agricultural Genomics Institute at Shenzhen, Chinese Academy of Agricultural Sciences, Shenzhen, China **(285)**

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