

DRAFT PROGRAM

MONDAY AFTERNOON NOVEMBER 30

General Session

LOCATION: Virtual Session 1
TIME: 01:00 PM - 02:30 PM
MODERATOR: Harlene M. Hatterman-Valenti
North Dakota State University
Fargo, ND

*SPEAKER † GRADUATE CONTEST

TUESDAY MORNING DECEMBER 1

ORAL - Herbicide Physiology & Molecular Biology

LOCATION: Virtual Session 1
TIME: 08:00 AM - 10:00 AM
MODERATOR: Nick T. Harre
Purdue University
West Lafayette, IN

Virtual Session 1

*SPEAKER † GRADUATE CONTEST

- 08:00 AM** †Quantitative expression analysis of homoeologous wheat CYP81A-like genes following single and combined halauxifen-methyl and cloquintocet-mexyl foliar treatments. Olivia A. Obenland*, Brendan V. Jamison, Kris N. Lambert, Dean E. Riechers; University of Illinois, Urbana, IL (1)
- 08:15 AM** The genetics of multiple glyphosate resistant kochia plants from Colorado sugarbeet fields. Philip Westra*¹, Andrew Effertz², Todd A. Gaines¹, Crystal D. Sparks¹, Sarah Moran¹; ¹Colorado State University, Fort Collins, CO, ²Colorado State University, Ft Collins, CO (2)
- 08:30 AM** †Effect of degree of water stress on growth and fecundity of velvetleaf (*Abutilon theophrasti*) using soil moisture sensors. Jasmine M. Mausbach*¹, Suat Irmak¹, Parminder S. Chahal², Debalin Sarangi³, John Lindquist¹, Amit J. Jhala¹; ¹University of Nebraska-Lincoln, Lincoln, NE, ²FMC Corporation, Lincoln, NE, ³University of Minnesota, St. Paul, MN (3)
- 08:45 AM** †Transcriptomics-based identification of candidate genes responsible for reduced dicamba sensitivity in waterhemp (*Amaranthus tuberculatus*). Lucas K. Bobadilla*¹, Patrick Tranel²; ¹University of Illinois, Champaign, IL, ²University of Illinois, Urbana, IL (4)

- 09:00 AM** Metabolite profiling of waterhemp (*Amaranthus tuberculatus*) populations reveals the resistance mechanism to a non-selective HPPD-inhibiting herbicide. Jeanafior Crystal T. Concepcion^{*1}, Shiv S. Kaundun², Sarah-Jane Hutchings², James A. Morris², Anatoli V. Lygin¹, Dean E. Riechers¹; ¹University of Illinois, Urbana, IL, ²Syngenta Crop Protection, Bracknell, United Kingdom (5)
- 09:15 AM** †QTLs for HPPD-inhibitor resistance in a Nebraska *Amaranthus tuberculatus* population. Brent P. Murphy^{*}, Patrick Tranel; University of Illinois, Urbana, IL (6)
- 09:30 AM** Indaziflam resistance in *Poa annua* L. Jinyi Chen^{*}; Michigan State University, East Lansing, MI (7)
- 09:45 AM** †Mechanism of Lactofen Resistance in Palmer amaranth from Kansas. Ednaldo A. Borgato^{*}, Balaji Aravindhan Pandian, Sathishraj Rajendran, Anita Dille, Mithila Jugulam; Kansas State University, Manhattan, KS (8)

TUESDAY MORNING DECEMBER 1

ORAL - Weed Biology, Ecology, Management

LOCATION: Virtual Session 2
 TIME: 08:00 AM - 11:30 AM
 MODERATOR: Shawn T. McDonald
 University of Nebraska-Lincoln
 Lincoln, NE

***SPEAKER † GRADUATE CONTEST**

- 08:00 AM** †Evaluation of Italian Ryegrass (*Lolium perenne* spp. *multiflorum*) Seed Retention and Distribution in Wheat at Harvest. Amber L. Herman^{*}, Travis Legleiter; University of Kentucky, Princeton, KY (9)
- 08:15 AM** †Comparative growth of Palmer amaranth (*Amaranthus palmeri*) and waterhemp (*A. tuberculatus*) in Iowa. Rebecca S. Baker^{*}; Iowa State University, Ames, IA (10)
- 08:30 AM** †Evaluating Indiana Palmer amaranth populations for resistance to dicamba. Claudia R. Bland^{*}; Purdue University, West Lafayette, IN (11)
- 08:45 AM** †The effects of cereal rye (*Secale cereale*) seeding rate and termination timing on weed control and soybean yield. Alyssa Essman^{*}, Mark Loux, Alexander Lindsey, Anthony Dobbels; Ohio State University, Columbus, OH (12)
- 09:00 AM** Inhibiting Herbicide-Resistant Amaranthus by Suppressing Reproduction. Efrat Lidor Nili^{*1}, Ido Schwartz¹, Herve Huet¹, Miriam Aminia¹, Yuval Kadan¹, Micheal D. Owen², Orly Noivirt-Brik³; ¹WeedOUT, Ness Ziona, Israel, ²Affiliation Not Specified, Ames, IA, ³WeedOUT Ltd., Ness Ziona, Israel (13)
- 09:15 AM** †Identifying and quantifying resistance to soil-applied herbicides in waterhemp (*Amaranthus tuberculatus*) populations from Illinois using a soilless method. Dylan R. Kerr^{*1}, Seth A. Strom², Jeanafior Crystal T. Concepcion², Dean E. Riechers²; ¹University of Illinois, Champaign, IL, ²University of Illinois, Urbana, IL (14)

- 09:30 AM** †Termination timing and cover crop species influence weed suppression in corn. Malynda M. Smith*, Anita Dille, Sarah Lancaster, Kraig Roozeboom; Kansas State University, Manhattan, KS (15)
- 09:45 AM** **Break**
- 10:15 AM** †Quantifying the Effect of Norflurazon as a Component of Synergistic Tank Mixtures for Control of Multiple Herbicide-Resistant Waterhemp. Kip E. Jacobs*, Seth A. Strom, Dean E. Riechers; University of Illinois, Urbana, IL (16)
- 10:30 AM** †Widespread Geographic Distribution of Herbicide-Resistant Waterhemp (*Amaranthus tuberculatus*) in Wisconsin. Felipe A. Faleco*, Nicholas J. Arneson, Mark J. Renz, David E. Stoltenberg, Rodrigo Werle; University of Wisconsin-Madison, Madison, WI (17)
- 10:45 AM** Differential gene expression between males and females in dioecious *Amaranthus* species. YouSoon Baek*, Patrick Tranel; University of Illinois, Urbana, IL (18)
- 11:00 AM** †Cover crop termination interacts with residual herbicides for Palmer amaranth control in no-till soybean. Isaac N. Effertz*¹, Vipin Kumar², Anita Dille¹; ¹Kansas State University, Manhattan, KS, ²Kansas State University, Hays, KS (19)
- 11:15 AM** †Confirmation of Glyphosate Resistance in a Johnsongrass (*Sorghum halepense*) Biotype from Missouri. Sarah E. Dixon*¹, Justin Pollard², Reid J. Smeda¹; ¹University of Missouri, Columbia, MO, ²Bayer Crop Science, Camden Point, MO (20)
- 11:30 AM** †Patterns in the Inheritance of Resistance to ALS-Inhibiting Herbicides in Giant Ragweed Informs Link with Self-Incompatibility. Benjamin C. Westrich*¹, Subramanian Sankaranarayanan¹, Sharon A. Kessler¹, Bryan G. Young²; ¹Purdue University, West Lafayette, IN, ²Purdue University, Brookston, IN (21)

TUESDAY MORNING DECEMBER 1

ORAL - Agronomic and Specialty Crops (All other agronomic and horticultural crops)

LOCATION: Virtual Session 1
 TIME: 10:00 AM - 12:00 PM
 MODERATOR: Debalin Sarangi
 University of Minnesota
 St. Paul, MN

Virtual Session 1

*SPEAKER † GRADUATE CONTEST

- 10:00 AM** †Assessment of Industrial Hemp Susceptibility to Off-target Movement of Commonly Applied Corn and Soybean Postemergence Herbicides. Milos Zaric*, Bruno Canella Vieira, Marija Savic, Barbara Vukoja, Guilherme Sousa Alves, Greg R. Kruger; University of Nebraska-Lincoln, North Platte, NE (22)
- 10:15 AM** Examining Weed Control with Pendimethalin Options for Onion in North Dakota. Harlene M. Hatterman-Valenti*, Collin Auwarter; North Dakota State University, Fargo, ND (23)

- 10:30 AM** †Response of newly planted peppermint (*Mentha x piperita*) to pyroxasulfone: a greenhouse study. Jeanine Arana*, Stephen L. Meyers, Brandi C. Woolam; Purdue University, West Lafayette, IN (24)
- 10:45 AM** Herbicide options for use in Kernza™ perennial grain: IR-4 update. Clair L. Keene*¹, Eugene P. Law², Jacob Jungers³; ¹North Dakota State University, Williston, ND, ²Cornell University, Ithaca, NY, ³University of Minnesota, St. Paul, MN (25)
- 11:00 AM** †Pumpkin Growth and Yield Response to Simulated Dicamba Drift. Lindsey Orphan*; Southern Illinois University, Makanda, IL (26)
- 11:15 AM** Response of peppermint (*Mentha x piperita*) to tiafenacil applied post-harvest. Brandi C. Woolam*, Stephen L. Meyers, Jeanine Arana; Purdue University, West Lafayette, IN (27)
- 11:30 AM** †Buffer distance impact on dicamba damage to potato, tomato and watermelon. Timothy C. Rice*, Reid J. Smeda; University of Missouri, Columbia, MO (28)
- 11:45 AM** Response of winter squashes and bell pepper to fomesafen applied PRE. Stephen L. Meyers*, Jeanine Arana, Brandi C. Woolam; Purdue University, West Lafayette, IN (29)

TUESDAY AFTERNOON DECEMBER 1

ORAL - Equipment and Application Methods

LOCATION: Virtual Session 1
 TIME: 01:00 PM - 06:00 PM
 MODERATOR: Stephen A. Valenti
 Bayer
 Fargo, ND

***SPEAKER † GRADUATE CONTEST**

- 01:00 PM** †Impact of Drift Reducing Adjuvants on Spray Pattern Uniformity of Dicamba Tank-Mixtures. Jesaelen Gizotti de Moraes*, Milos Zaric, Guilherme Sousa Alves, Bruno Canella Vieira, Jeffrey A. Golus, Greg R. Kruger; University of Nebraska-Lincoln, North Platte, NE (30)
- 01:15 PM** †Influence of Temperature on Droplet Size and Physical-chemical Properties of Glufosinate Tank-mixtures With Different Adjuvants. Joao Victor de Oliveira*¹, Antonio Augusto Correa Tavares¹, Vitor M. Muller Anunciato¹, Estefania Gomiero Polli¹, Rone Batista de Oliveira², Greg R. Kruger¹; ¹University of Nebraska-Lincoln, North Platte, NE, ²University of Northern Paraná, Bandeirantes, Brazil (31)
- 01:30 PM** Hooded Sprayer for Application of Nonselective Herbicides in Sugarbeet. Thomas J. Peters*, Alexa Lystad; North Dakota State University, Fargo, ND (32)
- 01:45 PM** †Comparison of Spray Drift as Predicted by AGDISP with Field Applications Using Air Inclusion Nozzles. Barbara Vukoja*, Guilherme Sousa Alves, Kasey P. Schroeder, Jeffrey A. Golus, Greg R. Kruger; University of Nebraska-Lincoln, North Platte, NE (33)
- 02:00 PM** See & Spray™ Technology Improves Weed Control Input Efficiency. William L. Patzoldt*; Blue River Technology, Sunnyvale, CA (34)

- 02:15 PM** †Influence of Boom Height on Spray Drift of Herbicides Application. Antonio Augusto Correa Tavares*, Guilherme Sousa Alves, Joao Victor de Oliveira, Rone Batista de Oliveira, Vitor Muller Anunciato, Greg R. Kruger; University of Nebraska-Lincoln, North Platte, NE (35)
- 02:30 PM** A Novel Approach for Decreasing Dicamba Volatility Problems. Donald Penner*, Jan Michael; Michigan State University, East Lansing, MI (36)
- 02:45 PM** †How Does Weed Density Impact Foliar Herbicide Efficacy? Tomas F. Delucchi*¹, William G. Johnson¹, Bryan G. Young²; ¹Purdue University, West Lafayette, IN, ²Purdue University, Brookston, IN (37)
- 03:00 PM** The Importance of Adjuvants and Making the Selection Easier. Joe V. Gednalske*; CPDA, River Falls, WI (38)
- 03:15 PM** †Effect of surfactants on postemergent applications of dicamba, glufosinate, and 2,4-D on Palmer amaranth and kochia. Ely D. Anderson*, Bruno C. Vieira, Jeffrey A. Golus, Greg R. Kruger; University of Nebraska-Lincoln, North Platte, NE (39)
- 03:30 PM** **Break**
- 04:00 PM** †Methodology to Estimate and Analyze UAS Swath Width Using Different Application Parameters. Trenton W. Houston*¹, Bradley K. Fritz², Wesley C. Hoffmann³, Greg R. Kruger¹; ¹University of Nebraska-Lincoln, North Platte, NE, ²USDA ARS, College Station, TX, ³Prology Consulting, College Station, TX (40)
- 04:15 PM** The Optify Line of Adjuvants: Versatile Products for a Complicated World. Ryan J. Edwards*¹, Gregory K. Dahl², Lillian C. Magidow¹, Mark A. Risley¹; ¹WinField United, River Falls, WI, ²WinField United, Eagan, MN (41)
- 04:30 PM** †Dicamba plus Glyphosate Tank Mixtures Affected by Storage Time and Temperature. Estefania Gomiero Polli*¹, Guilherme Sousa Alves¹, Jesaelen Gizotti de Moraes¹, Joao Victor de Oliveira², Greg R. Kruger¹; ¹University of Nebraska-Lincoln, North Platte, NE, ²Exacto, Inc, North Platte, NE (42)
- 04:45 PM** Increasing Spray Days Safe From Drift with Redball Hooded Sprayers. Steve Claussen*; Willmar Fabrication, LLC, Benson, MN (43)
- 05:00 PM** †Evaluation of Electrocutation as a Method of Controlling Weed Escapes in Soybean. Haylee E. Schreier*, Mandy Bish, Kevin W. Bradley, Brian Dintelmann; University of Missouri, Columbia, MO (44)
- 05:15 PM** Wind tunnel investigation of boom height on spray drift. Steven A. Fredericks*; WinField United, River Falls, WI (45)
- 05:30 PM** †Adoption of UAVs for pest management. Emma L. Gaither*; University of Missouri, Columbia, MO (46)
- 05:45 PM** Influence of Sodium Cation and Various AMS Adjuvants on the Performance of Various Glyphosate Formulations. Gregory K. Dahl*¹, Amanda Flipp², Laura J. Hennemann², Joshua J. Skelton³, Ryan J. Edwards²; ¹WinField United, Eagan, MN, ²WinField United, River Falls, WI, ³WinField United, St. Paul, MN (47)
- 06:00 PM** †Non-dicamba tolerant soybean response to reinstate from different cleaning procedures of dicamba and clethodim tank mixtures. Vinicius Velho*, Guilherme Sousa Alves, Greg R. Kruger; University of Nebraska-Lincoln, North Platte, NE (48)

TUESDAY AFTERNOON DECEMBER 1

ORAL - Agronomic Crops I - Corn

LOCATION: Virtual Session 2
TIME: 01:00 PM - 04:15 PM
MODERATOR: Michael Weber
Bayer
Des Moines, IA

Virtual Session 2

*SPEAKER † GRADUATE CONTEST

- 01:00 PM** †Influence of Cover Crops on Soil Microbial Activity and Degradation of Atrazine and Mesotrione. William G. Johnson¹, Lucas Oliveira Ribeiro Maia^{*1}, Eileen J. Kladvko¹, Shalamar Armstrong¹, Bryan G. Young², Joshua R. Widhalm¹; ¹Purdue University, West Lafayette, IN, ²Purdue University, Brookston, IN (49)
- 01:15 PM** Acuron XR herbicide - Residual Weed Control, Crop Safety and Yield in Corn. Scott E. Cully^{*1}, Tom H. Beckett², Mark J. Kitt²; ¹Syngenta Crop Protection, Marion, IL, ²Syngenta Crop Protection, Greensboro, NC (50)
- 01:30 PM** †Survey of Stakeholders to Assess Management Practices and Problem Weeds in Nebraska Cropping Systems. Shawn T. McDonald^{*1}, Debalin Sarangi², Jenny Rees³, Chris Proctor¹, Prashant Jha⁴, Amit J. Jhala¹; ¹University of Nebraska-Lincoln, Lincoln, NE, ²University of Minnesota, St. Paul, MN, ³University of Nebraska-Lincoln, York, NE, ⁴Iowa State University, Ames, IA (51)
- 01:45 PM** Effectiveness of Group 15 Herbicides for Preemergence Control of Waterhemp (*Amaranthus tuberculatus*) Populations with Differing Sensitivities at Multiple Locations in Illinois. Seth A. Strom^{*}, Kip E. Jacobs, Adam Davis, Dean E. Riechers, Aaron Hager; University of Illinois, Urbana, IL (52)
- 02:00 PM** †Variable weather, weed control, and corn management effects on yield loss due to weeds. Christopher A. Landau^{*1}, Aaron Hager¹, Martin Williams²; ¹University of Illinois, Urbana, IL, ²USDA-ARS, Urbana, IL (53)
- 02:15 PM** **Break**
- 02:45 PM** †Control of Multiple-Herbicide-Resistant Waterhemp in Corn with Postemergence Herbicides. Darren E. Robinson¹, Peter Sikkema¹, Amit J. Jhala², David C. Hooker¹, Christian A. Willemse^{*1}; ¹University of Guelph, Ridgetown, ON, Canada, ²University of Nebraska-Lincoln, Lincoln, NE (54)
- 03:00 PM** BCS-720: A New Residual Herbicide Combination for Weed Management in Corn. Eric Riley^{*1}, Mike Weber²; ¹Bayer Crop Science, St. Louis, MO, ²Bayer Crop Science, Indianola, IA (55)
- 03:15 PM** †Herbicide Safener Effects on Goss's Wilt Severity in Corn. Nathan H. Haugrud^{*}, Joseph T. Ikley; North Dakota State University, Fargo, ND (56)
- 03:30 PM** Acuron GT Launch: T-minus spring 2021. Ryan D. Lins^{*1}, Tom H. Beckett², Mark J. Kitt²; ¹Syngenta Crop Protection, Rochester, MN, ²Syngenta Crop Protection, Greensboro, NC (57)

03:45 PM †Assessing the Impact of Drought on Weed Communities and Corn Hybrids with Differing Drought Tolerance. Allyson M. Rumler*, Erin E. Burns; Michigan State University, East Lansing, MI (58)

04:00 PM Future efficacy of preemergence herbicides in corn is threatened by more variable weather. Martin Williams*¹, Christopher A. Landau², Aaron Hager², Patrick Tranel², Adam Davis², Nicolas Martin²; ¹USDA-ARS, Urbana, IL, ²University of Illinois, Urbana, IL (59)

04:15 PM †Determination of the Critical Period of Weed Control in an Interseeded System of Corn Silage and Alfalfa. Sarah A. Chu*, Erin E. Burns; Michigan State University, East Lansing, MI (60)

TUESDAY AFTERNOON DECEMBER 1

ORAL - Extension

LOCATION: Virtual Session 2
TIME: 04:30 PM - 04:45 PM
MODERATOR: Parminder Chahal
FMC Corporation
Lincoln, NE

Placed right after Agronomic Crops 1 - Corn

***SPEAKER**

04:30 PM Survey Update on Herbicide-Resistant Palmer Amaranth in Kansas. Vipin Kumar*, Rui Liu, Taylor Lambert, Phillip W. Stahlman; Kansas State University, Hays, KS (61)

WEDNESDAY MORNING DECEMBER 2

POSTER - Agronomic and Specialty Crops (All other agronomic and horticultural crops)

LOCATION: Virtual Session 1
TIME: 08:00 AM - 09:00 AM

***PRESENTER † GRADUATE CONTEST ‡ UNDERGRADUATE CONTEST**

Bicyclopyrone Use Patterns in Minor Crops. Scott A. Payne*¹, Timothy L. Trower², Eric K. Rawls³, Tom H. Beckett⁴, Pete M. Eure⁴; ¹Syngenta Crop Protection, Slater, IA, ²Syngenta Crop Protection, Baraboo, WI, ³Syngenta Crop Protection, Vero Beach, FL, ⁴Syngenta Crop Protection, Greensboro, NC (62)

†Screening of Industrial Hemp (*Cannabis sativa*) Tolerance to Corn and Soybean Herbicides. Haleigh J. Ortmeier-Clarke*, Maxwell Coura Oliveira, Nicholas J. Arneson, Shawn P. Conley, Rodrigo Werle; University of Wisconsin-Madison, Madison, WI (63)

Structured PRE and POST programs for crop tolerance and weed control in Industrial Hemp. Stevan Knezevic*¹, Ivan B. Cuvaca², Rodrigo Werle³, Jon Scott²; ¹University of Nebraska-Lincoln, Concord, NE, ²University of Nebraska-Lincoln, Lincoln, NE, ³University of Wisconsin-Madison, Madison, WI (64)

Exploratory PRE and POST treatments for crop tolerance in Industrial hemp. Jon Scott*¹, Ivan B. Cuvaca¹, Stevan Knezevic²; ¹University of Nebraska-Lincoln, Lincoln, NE, ²University of Nebraska-Lincoln, Concord, NE (65)

†Phytotoxicity of Industrial Hemp (*Cannabis sativa* L.) Extracts. Avery Shikanai*¹, Karla L. Gage²; ¹Southern Illinois University, Evanston, IL, ²Southern Illinois University, Carbondale, IL (66)

Industrial Hemp Variety Tolerance to PRE-Herbicides. Ivan B. Cuvaca*¹, Amit J. Jhala¹, Jon Scott¹, Stevan Knezevic²; ¹University of Nebraska-Lincoln, Lincoln, NE, ²University of Nebraska-Lincoln, Concord, NE (67)

Fall-seeded cereal rye suppresses horseweed in sugarbeet. Brian Stiles*¹, Christy Sprague²; ¹Michigan State University, Durand, MI, ²Michigan State University, East Lansing, MI (68)

‡Comparison of Available ACC-ase Inhibiting Herbicides for Use in Industrial Hemp. Marija Savic*, Milos Zaric, Jeffrey A. Golus, Kasey P. Schroeder, Greg R. Kruger; University of Nebraska-Lincoln, North Platte, NE (69)

Weed Control and Cabbage/Cauliflower Response to Pyridate. Sushila Chaudhari*, Bernard Zandstra, Nicole Soldan; Michigan State University, East Lansing, MI (70)

Sunflower, Dry Pea, Chickpea, and Lentil Tolerance to Fall-Applied 2,4-D and Dicamba. Brian Jenks*¹, Caleb D. Dalley²; ¹North Dakota State University, Minot, ND, ²North Dakota State University, Hettinger, ND (71)

WEDNESDAY MORNING DECEMBER 2

POSTER - Agronomic Crops I - Corn

LOCATION: Virtual Session 1
TIME: 08:00 AM - 09:00 AM

*PRESENTER † GRADUATE CONTEST

†Influence of Cover Crops on Soil Microbial Activity and Degradation of S-Metolachlor. Lucas Oliveira Ribeiro Maia*¹, William G. Johnson¹, Bryan G. Young², Joshua R. Widhalm¹, Eileen J. Kladvko¹, Shalamar Armstrong¹; ¹Purdue University, West Lafayette, IN, ²Purdue University, Brookston, IN (72)

†Interaction Effects of Herbicide and Nitrogen Inhibitors on Nitrification and Weed Suppression in Corn. William H. Neels*¹, Amit J. Jhala¹, Javed Iqbal¹, Bijesh Maharjan², Laila Puntel¹, Richard Little¹; ¹University of Nebraska-Lincoln, Lincoln, NE, ²University of Nebraska-Lincoln, Scottsbluff, NE (73)

†Photosynthetic Response of Drought Tolerant Corn Hybrids to Water Stress and Weed Competition. Nash D. Hart*¹, Allyson M. Rumler², Erin E. Burns²; ¹Michigan State University, Durand, MI, ²Michigan State University, East Lansing, MI (74)

WEDNESDAY MORNING DECEMBER 2

POSTER - Agronomic Crops II - Soybeans

LOCATION: Virtual Session 1
TIME: 08:00 AM - 09:00 AM

***PRESENTER † GRADUATE CONTEST ‡ UNDERGRADUATE CONTEST**

†Antagonism of ACCase Inhibitor Herbicides Used for Control of Volunteer Corn in Enlist E3 Soybean Systems. Marcelo Zimmer^{*1}, Bryan G. Young², William G. Johnson¹; ¹Purdue University, West Lafayette, IN, ²Purdue University, Brookston, IN (75)

Waterhemp Management in Southern Wisconsin Using a Layered Residual Approach in Glufosinate-Resistant Soybeans. Daniel H. Smith^{*}, Nicholas J. Arneson, Ryan P. DeWerff, Maxwell Coura Oliveira, Rodrigo Werle; University of Wisconsin-Madison, Madison, WI (76)

†Soybean Symptomology and Yield Response to Sub-Labeled Doses of 2,4-D and Dicamba as Influenced by Varieties. Jesaalen Gizotti de Moraes^{*}, Vitor M. Muller Anunciato, Jeffrey A. Golus, Kasey P. Schroeder, Greg R. Kruger; University of Nebraska-Lincoln, North Platte, NE (77)

Interaction of 2,4-D applied in combination with glyphosate or graminicides on grass weed control in Enlist E3[®] soybeans. Rui Liu^{*1}, Isaac N. Effertz², Taylor Lambert¹, Amit J. Jhala³, Prashant Jha⁴, Vipin Kumar¹; ¹Kansas State University, Hays, KS, ²Kansas State University, Manhattan, KS, ³University of Nebraska-Lincoln, Lincoln, NE, ⁴Iowa State University, Ames, IA (78)

†Integrative Analysis of Soybean Weed Management in Kansas. Tyler P. Meyeres^{*}, Dallas E. Peterson, Sarah Lancaster; Kansas State University, Manhattan, KS (79)

Interaction of dicamba applied in combination with glyphosate or graminicides on grass weed control in Roundup Ready 2 Xtend[®] soybeans. Rui Liu^{*1}, Isaac N. Effertz², Taylor Lambert¹, Amit J. Jhala³, Prashant Jha⁴, Vipin Kumar¹; ¹Kansas State University, Hays, KS, ²Kansas State University, Manhattan, KS, ³University of Nebraska-Lincoln, Lincoln, NE, ⁴Iowa State University, Ames, IA (80)

Assessment of Soybean (*Glycine max*) Tolerance to Pre-emergence Exposure of Trifludimoxazin, and other PPO-Inhibiting Herbicides in a Hydroponic System. Nicholas R. Steppig^{*1}, Samuel D. Willingham², Douglas A. Findley², Bryan G. Young³; ¹Purdue University, West Lafayette, IN, ²BASF Corporation, Research Triangle Park, NC, ³Purdue University, Brookston, IN (81)

‡Effects of Cereal Rye Seeding Rate on Soybean Growth and Early-season Emergence of Waterhemp and Foxtail Species. Jacob E. Vaughn^{*}, Brian Dintelmann, Eric G. Oseland, Mandy Bish, Kevin W. Bradley; University of Missouri, Columbia, MO (82)

Utilization of residual herbicides in 2,4-D tolerant soybean production. Jon Scott^{*1}, Ivan B. Cuvaca¹, Stevan Knezevic²; ¹University of Nebraska-Lincoln, Lincoln, NE, ²University of Nebraska-Lincoln, Concord, NE (83)

Glyphosate-Tolerant Soybean Response to 2,4-D Micro Rates. Ivan B. Cuvaca^{*1}, Jon Scott¹, Stevan Knezevic²; ¹University of Nebraska-Lincoln, Lincoln, NE, ²University of Nebraska-Lincoln, Concord, NE (84)

†Effect of Soybean Chaff on Emergence Patterns of Waterhemp, Velvetleaf, and Giant Foxtail. Avery J. Bennett^{*}, Prashant Jha, Ramawatar Yadav, Alexis L. Meadows, Edwards Dearden, Ryan C. Hamberg; Iowa State University, Ames, IA (85)

Dicamba-Tolerant Soybean Response to 2,4-D Micro Rates. Stevan Knezevic^{*1}, Jon Scott², Ivan B. Cuvaca²; ¹University of Nebraska-Lincoln, Concord, NE, ²University of Nebraska-Lincoln, Lincoln, NE (86)

Herbicide Programs for Weed Control in Isoxaflutole-Resistant Soybean. Vipin Kumar^{*1}, Isaac N. Effertz², Taylor Lambert¹, Rui Liu¹; ¹Kansas State University, Hays, KS, ²Kansas State University, Manhattan, KS (87)

‡The effect of cereal rye cover crop with various rates and application timings of acetochlor on common waterhemp control. Alexander R. Mueth^{*}, Madison R. Decker, Karla L. Gage; Southern Illinois University, Carbondale, IL (88)

Identification of Different Tolerance Levels of Dicamba-Sensitive Soybean Lines to Dicamba. Matthew Osterholt*¹, Scott McAdam¹, Bryan G. Young²; ¹Purdue University, West Lafayette, IN, ²Purdue University, Brookston, IN (89)

Variability in Response of Horseweed (*Conyza canadensis*) Populations to Dicamba and Glufosinate from Five Soybean Production States. Nick T. Harre*¹, Julie M. Young², Kevin W. Bradley³, Karla L. Gage⁴, Aaron Hager⁵, Greg R. Kruger⁶, Mark Loux⁷, Jason K. Norsworthy⁸, Larry Steckel⁹, Bryan G. Young¹⁰; ¹Purdue University, West Lafayette, IN, ²Affiliation Not Specified, Brookston, IN, ³University of Missouri, Columbia, MO, ⁴Southern Illinois University, Carbondale, IL, ⁵University of Illinois, Urbana, IL, ⁶University of Nebraska-Lincoln, North Platte, NE, ⁷Ohio State University, Columbus, OH, ⁸University of Arkansas, Fayetteville, AR, ⁹University of Tennessee, Jackson, TN, ¹⁰Purdue University, Brookston, IN (90)

WEDNESDAY MORNING DECEMBER 2

POSTER - Equipment and Application Methods

LOCATION: Virtual Session 1
TIME: 08:00 AM - 09:00 AM

***PRESENTER † GRADUATE CONTEST ‡ UNDERGRADUATE CONTEST**

†Assessing soil variability in commercial fields and the potential impact on weed management. Rose V. Vagedes*¹, Bryan G. Young², William G. Johnson¹; ¹Purdue University, West Lafayette, IN, ²Purdue University, Brookston, IN (91)

†Efficacy of postemergent formulated dicamba, glufosinate, glyphosate, 2,4-D and un-formulated glufosinate on common lambsquarters. Ely D. Anderson*¹, Bruno C. Vieira¹, Jeffrey A. Golus¹, J Susan Sun², Greg R. Kruger¹; ¹University of Nebraska-Lincoln, North Platte, NE, ²Croda Inc., New Castle, DE (92)

†Effects of Drift-reducing Nozzles and Adjuvants on Dicamba Efficacy. Milos Zaric*, Kasey P. Schroeder, Jesaelen Gizotti de Moraes, Bruno Canella Vieira, Guilherme Sousa Alves, Jeffrey A. Golus, Greg R. Kruger; University of Nebraska-Lincoln, North Platte, NE (93)

Measuring Weed Control Efficacy in Small Research Plots Using Aerial Imagery. Lee A. Boles*¹, Ryan J. Edwards¹, Heather L. Matthees²; ¹WinField United, River Falls, WI, ²WinField United, Arden Hills, MN (94)

†Damage on Soybean Caused by Spray Drift from a dicamba + glyphosate Tank-mixture. Antonio Augusto Correa Tavares*, Joao Victor de Oliveira, Rone Batista de Oliveira, Greg R. Kruger; University of Nebraska-Lincoln, North Platte, NE (95)

‡Drift Potential of Glufosinate when Applied with a Single, Double or Triple Fan Nozzle. Livia I. Pereira*, Leandro H S Guimaraes, Barbara Vukoja, Guilherme Sousa Alves, Greg R. Kruger; University of Nebraska-Lincoln, North Platte, NE (96)

†Deposition of a Four Rotor UAS as Influenced by Flight Speed, Flight Height, and Nozzle. Trenton W. Houston*, Brad K. Fritz, Clint W. Hoffmann, Antonio Augusto Correa Tavares, Greg R. Kruger; University of Nebraska-Lincoln, North Platte, NE (97)

Evaluation of Dicamba Vapor Reducing Agents Across Different Environments. Sarah V. Striegel*¹, Ryan D. Langemeier², Bruno C. Vieira³, Steve Li², Greg R. Kruger³, Rodrigo Werle¹; ¹University of Wisconsin-Madison, Madison, WI, ²Auburn University, Auburn, AL, ³University of Nebraska-Lincoln, North Platte, NE (98)

†Influence of Surfactant-humectant Adjuvants on Efficacy of Glufosinate Herbicides on Horseweed and Palmer Amaranth Control. Estefania Gomiero Polli*¹, Guilherme Sousa Alves¹, Frank Sexton², Greg R. Kruger¹; ¹University of Nebraska-Lincoln, North Platte, NE, ²Exacto, Inc, Sharon, WI (99)

†Glufosinate Control and Physical-chemical Properties With Different Adjuvants on *Chenopodium album* and *Bassia scoparia*. Joao Victor de Oliveira*¹, Antonio Augusto Correa Tavares¹, Estefania Gomiero Polli¹, Leandro H S Guimaraes¹, Jesaelen Gizotti de Moraes¹, Rone Batista de Oliveira², Greg R. Kruger¹; ¹University of Nebraska-Lincoln, North Platte, NE, ²University of Northern Paraná, Bandeirantes, Brazil (100)

†Influence of droplet size in control of velvetleaf and lambsquarter treated with fomesafen. Vitor M. Muller Anunciato*¹, Antonio Augusto Correa Tavares¹, Joao Victor de Oliveira¹, Jesaelen Gizotti de Moraes¹, Caio A. Carbonari², Greg R. Kruger¹; ¹University of Nebraska-Lincoln, North Platte, NE, ²UNESP, Botucatu, Brazil (101)

Analyzing spray coverage and herbicide efficacy with Hypro ULD nozzles for Liberty and Enlist tank mixtures. Josh Skelton*, Anderson Weber, Aszhia Albrecht, Amanda Flipp; Winfield United, River Falls, WI (102)

†Efficiency of tank cleaning different dicamba formulations. Vinicius Velho*, Guilherme Sousa Alves, Greg R. Kruger; University of Nebraska-Lincoln, North Platte, NE (103)

‡Single vs twin fan nozzle coverage on broadleaf weeds. Jessica B. Oliveira*, Bruno C. Vieira, Kasey P. Schroeder, Jeffrey A. Golus, Greg R. Kruger; University of Nebraska-Lincoln, North Platte, NE (104)

WEDNESDAY MORNING DECEMBER 2

POSTER - Extension

LOCATION: Virtual Session 1
TIME: 08:00 AM - 09:00 AM

***PRESENTER**

Weed Seed Dispersal Management Outreach– Wisconsin Combine Cleaning Clinic. Daniel H. Smith*, Nicholas J. Arneson, Rodrigo Werle; University of Wisconsin-Madison, Madison, WI (105)

Weed Seed Dispersal Management Outreach – Wisconsin Combine Case Study. Nicholas J. Arneson*, Daniel H. Smith, Rodrigo Werle; University of Wisconsin-Madison, Madison, WI (106)

North Central Weed Science Society Meeting Papers and Posters: An overview of the past 20 years using text analysis. Maxwell Coura Oliveira*¹, Sarah M. Matos Marinho², Rodrigo Werle¹; ¹University of Wisconsin-Madison, Madison, WI, ²University of Sao Paulo, Sao Paulo, Brazil (107)

Creating an In-person, Self-guided Research Plot Tour. Ryan P. Miller*¹, Lisa M. Behnken¹, Phyllis M. Bongard²; ¹University of Minnesota, Rochester, MN, ²University of Minnesota, Farmington, MN (108)

WEDNESDAY MORNING DECEMBER 2

POSTER - Invasive Weeds, Rangeland, Pasture, and Vegetation Management

LOCATION: Virtual Session 1
TIME: 08:00 AM - 09:00 AM

***PRESENTER**

Evaluation of Poison Hemlock Control Options. Joe Omielan*; University of Kentucky, Lexington, KY (109)

Garlic mustard monitoring efforts inform a coupled weed-herbivore population model for simulating the release of potential biocontrol agents. Mary Marek-Spartz*¹, Roger Becker¹, George Heimpel¹, Lori Knosalla², Rebecca Montgomery¹, Laura Van Riper²; ¹University of Minnesota, St. Paul, MN, ²Minnesota Department of Natural Resources, St. Paul, MN (110)

An Update: Biological Control of Garlic Mustard with Crown-Boring and Seed-Feeding Weevils. Jeanie Katovich*¹, Roger Becker¹, Ghislaine Cortat², Harriet Hinz², Laura VanRiper³, Mary Marek-Spartz¹; ¹University of Minnesota, St. Paul, MN, ²CABI, Delemont, Switzerland, ³Minnesota Department of Natural Resources, St. Paul, MN (111)

WEDNESDAY MORNING DECEMBER 2

POSTER - Weed Biology, Ecology, Management

LOCATION: Virtual Session 1
TIME: 08:00 AM - 09:00 AM

***PRESENTER † GRADUATE CONTEST ‡ UNDERGRADUATE CONTEST**

†Effect of row spacing and overlapping residual herbicides in 2,4-D and isoxaflutole-resistant soybeans. Chad J. Lammers*, Sarah Lancaster, Tyler P. Meyeres; Kansas State University, Manhattan, KS (112)

†Response of a Putative ALS-resistant Fall Panicum Accession from Wisconsin to Nicosulfuron and Other POST Herbicides. Jose J. Nunes*¹, Alexandre T. Rosa², Nicholas J. Arneson¹, Jeff Laufenberg³, Rodrigo Werle¹; ¹University of Wisconsin-Madison, Madison, WI, ²University of Nebraska-Lincoln, Lincoln, NE, ³Syngenta Crop Protection, Fond Du Lac, WI (113)

†Current Status of Herbicide-Resistant Waterhemp (*Amaranthus tuberculatus*) in Iowa Corn and Soybean Fields. Ryan C. Hamberg*, Prashant Jha, Ramawatar Yadav, Avery J. Bennett, Alexis L. Meadows, Edward S. Dearden, Iththiphonh A. Macvilay; Iowa State University, Ames, IA (114)

Foxtail Management in Smooth Brome Hay Meadows. Stewart Duncan*, Sarah Lancaster; Kansas State University, Manhattan, KS (115)

‡Waterhemp Control as Affected by Respray Order and Timing Using Single Active Ingredient Applications of Glufosinate, Dicamba, 2,4-D and Glyphosate. Elaina M. Crawford*, Kinsey E. Tiemann, Brent S. Heaton, Mark L. Bernards; Western Illinois University, Macomb, IL (116)

‡Weed Control in and Yield of Soybean Planted into Green Rye Treated with Supplemental Nitrogen. Kinsey E. Tiemann*, Brent S. Heaton, Joel Gruver, Mark L. Bernards; Western Illinois University, Macomb, IL (117)

‡Interaction of Tank-mixtures of Glyphosate and Dicamba on Glyphosate-resistant Horseweed. Leandro H S Guimaraes*¹, Estefania Gomiero Polli¹, Jose H. Scarparo de Sanctis², Guilherme Sousa Alves¹, Greg R. Kruger¹; ¹University of Nebraska-Lincoln, North Platte, NE, ²University of Nebraska-Lincoln, Lincoln, NE (118)

Stubble Height Influences Weed Suppression by Triticale. Tyler P. Meyeres*, Malynda M. Smith, Sarah Lancaster; Kansas State University, Manhattan, KS (119)

†Impact of Soil Management Practices on the Persistence of S-metolachlor and Sulfentrazone. Kolby Grint*¹, Rodrigo Werle², Nicholas J. Arneson², Daniel H. Smith², Ryan P. DeWerff²; ¹University of Wisconsin-Madison Agronomy Department, Madison, WI, ²University of Wisconsin-Madison, Madison, WI (120)

†Evaluation of Putative Resistance in Wisconsin Giant Ragweed (*Ambrosia trifida*) to Group 2, 9, and 14 Herbicides. Felipe A. Faleco*, David E. Stoltenberg, Rodrigo Werle; University of Wisconsin-Madison, Madison, WI (121)

†Using Multi-Tactic Strategies to Manage Herbicide-Resistant Waterhemp in Corn-Soybean Rotations of the Midwest. Ramawatar Yadav*, Prashant Jha, Damian D. Franzénburg, Iththiphonh A. Macvilay, Ryan C. Hamberg, Avery J. Bennett, Edward S. Dearden, Alexis L. Meadows; Iowa State University, Ames, IA (122)

Physical mapping of amplified copies of *EPSPS* gene in glyphosate-resistant *Bromus diandrus*. Sathishraj Rajendran*¹, Dal-Hoe Koo¹, Christopher Preston², Mithila Jugulam¹; ¹Kansas State University, Manhattan, KS, ²University of Adelaide, Adelaide, Australia (123)

†Role Reversal: Glufosinate Control of Suspected Glyphosate-Resistant Johnsongrass (*Sorghum halepense*) in XtendFlex® Soybean. Sarah E. Dixon*¹, Neha Rana², Justin Pollard³, Reid J. Smeda¹; ¹University of Missouri, Columbia, MO, ²Bayer Crop Science, St Louis, MO, ³Bayer Crop Science, Camden Point, MO (124)

†Weed Seed Dynamics in an Interseeded System of Corn Silage and Alfalfa. Sarah A. Chu*, Erin E. Burns; Michigan State University, East Lansing, MI (125)

†Crop canopy development influences waterhemp (*A. tuberculatus*) growth. Nikola Arsenijevic*¹, Nicholas J. Arneson², Maxwell Coura Oliveira², Rodrigo Werle²; ¹University of Wisconsin-Madison, Madison, WI, ²University of Wisconsin-Madison, Madison, WI (126)

The development of Ames 25286: a herbicide sensitive reference population for *Amaranthus tuberculatus*. Brent P. Murphy*, Patrick Tranel; University of Illinois, Urbana, IL (127)

‡Field pennycress (*Thlaspi arvense*) Response to Simulated Carryover of Group 27 Herbicides in the Greenhouse. Daniela R. McConville*¹, Claudia R. Bland², Brent S. Heaton¹, Mark L. Bernards¹; ¹Western Illinois University, Macomb, IL, ²Purdue University, West Lafayette, IN (128)

‡Field Pennycress (*Thlaspi arvense*) Population and Growth Following Corn Treated with Group 27 Herbicides. Jacob W. Johnson*, Brent S. Heaton, Mark L. Bernards; Western Illinois University, Macomb, IL (129)

Resistance Fighter: Local Partnerships Drive Better Herbicide Recommendations. Marshall Hay*¹, Peter Eure², Ethan T. Parker¹, Dane L. Bowers³; ¹Syngenta Crop Protection, Vero Beach, FL, ²Syngenta Crop Protections, Greensboro, NC, ³Syngenta Crop Protection, Greensboro, NC (130)

‡Field Pennycress (*Thlaspi arvense*) Response to Simulated Carryover of Group 15 Herbicides in the Greenhouse. Nathan L. Stufflebeam*¹, Mason R. Blickenstaff¹, Claudia R. Bland², Brent S. Heaton¹, Mark L. Bernards¹; ¹Western Illinois University, Macomb, IL, ²Purdue University, West Lafayette, IN (131)

†Impacts of Simulated Dicamba and 2,4-D Drift Rates on Native Plants in Field Margins. Samuel N. Ramirez*, Karla L. Gage; Southern Illinois University, Carbondale, IL (132)

WEDNESDAY MORNING DECEMBER 2

POSTER - Herbicide Physiology & Molecular Biology

LOCATION: Virtual Session 1
TIME: 08:00 AM - 09:00 AM

***PRESENTER † GRADUATE CONTEST**

†The Effect of Trifludimoxazin on the Frequency of the ?G210 Target Site Mutation in Field Populations of Waterhemp. Jesse A. Haarmann*¹, Bryan G. Young², William G. Johnson¹; ¹Purdue University, West Lafayette, IN, ²Purdue University, Brookston, IN (133)

†Resistance to S-metolachlor in HPPD-resistant Palmer amaranth from Nebraska. Carlos Alberto G. Rigon*¹, Anita Küpper², Todd A. Gaines¹; ¹Colorado State University, Fort Collins, CO, ²Bayer Crop Science, Frankfurt, Germany (134)

†Effect of Increased Temperature on Lactofen Efficacy on PPO-Inhibitor-Resistant and -Susceptible Palmer amaranth. Ednaldo A. Borgato*, Sathishraj Rajendran, Anita Dille, Mithila Jugulam; Kansas State University, Manhattan, KS (135)

†Predominance of Metabolic Resistance in a Six-way-resistant Palmer amaranth (*Amaranthus palmeri*) population. Chandrima Shyam*, Ednaldo A. Borgato, Dallas E. Peterson, Anita Dille, Mithila Jugulam; Kansas State University, Manhattan, KS (136)

WEDNESDAY MORNING DECEMBER 2

ORAL - Agronomic Crops II - Soybeans

LOCATION: Virtual Session 1
TIME: 08:00 AM - 12:00 PM
MODERATOR: Cody Evens
Bayer
Franklin, IL

***SPEAKER † GRADUATE CONTEST**

08:00 AM †The Biologically Effective Dose of Bromoxynil, Applied Alone and Tankmixed with Metribuzin, for the Control of Glyphosate-Resistant Canada Fleabane [*Conyza Canadensis* (L.) Cronq.] Applied Preplant in Soybean. David Westerveld*, Peter Sikkema, Darren E. Robinson, David C. Hooker; University of Guelph, Ridgetown, ON, Canada (137)

08:15 AM †Assessment of dicamba movement in Missouri using a large-scale field trial. Jerri Lynn Henry*¹, Ryan Rector², Reid J. Smeda¹; ¹University of Missouri, Columbia, MO, ²Bayer Crop Science, St Louis, MO (138)

08:30 AM †Interactions of Dicamba, Glyphosate, and Glufosinate Tank-Mixtures for Control of Glyphosate-Resistant Weeds. Adam L. Constine*, Christy Sprague; Michigan State University, East Lansing, MI (139)

08:45 AM Pollen-Mediated Gene Flow from Glyphosate- and Dicamba-Resistant to Conventional Soybean (*Glycine max*). Zahoor A. Ganie*¹, Parminder S. Chahal², Amit J. Jhala³; ¹FMC Corporation, Newark, DE, ²FMC Corporation, Lincoln, NE, ³University of Nebraska-Lincoln, Lincoln, NE (140)

- 09:00 AM** †Optimizing Horseweed Management with Fall-Seeded Cover Crops and Soybean Row Widths. Justine L. Fisher*, Christy Sprague; Michigan State University, East Lansing, MI (141)
- 09:15 AM** †Antagonism of ACCase Inhibitor Herbicides Used in Xtend Soybean Systems for Control of Volunteer Corn. Marcelo Zimmer*¹, Bryan G. Young², William G. Johnson¹; ¹Purdue University, West Lafayette, IN, ²Purdue University, Brookston, IN (142)
- 09:30 AM** †Influence of agronomic practices on soybean canopy development and PRE-emergence herbicide fate. Nikola Arsenijevic*¹, Ryan P. DeWerff², Shawn P. Conley², Matthew Ruark², Rodrigo Werle²; ¹University of Wisconsin-Madison, Madison, WI, ²University of Wisconsin-Madison, Madison, WI (143)
- 09:45 AM** **Break**
- 10:15 AM** †Glyphosate Alternatives for Cereal Rye Termination with Different Application Timings in Soybean. Jose H. de Sanctis*, Amit J. Jhala; University of Nebraska-Lincoln, Lincoln, NE (144)
- 10:30 AM** †Interference of Interseeded Winter Wheat on Soybean Growth and Weed Suppression. Madison R. Decker*, Ronald F. Krausz, Karla L. Gage; Southern Illinois University, Carbondale, IL (145)
- 10:45 AM** †Oat Companion Crop Effects on *Amaranthus spp.* Suppression and Iron Deficiency Chlorosis in Soybean. Jeffery K. Stith*; North Dakota State University, Fargo, ND (146)
- 11:00 AM** Efficacy of PRE herbicides with single and multiple active ingredients on residual waterhemp control in Wisconsin. Alexandre T. Rosa*¹, Nicholas J. Arneson², Daniel H. Smith², Ryan P. DeWerff², Maxwell Coura Oliveira², Rodrigo Werle²; ¹University of Nebraska-Lincoln, Lincoln, NE, ²University of Wisconsin-Madison, Madison, WI (147)
- 11:15 AM** †Influence of Environment and Soybean Trait Adoption on Dicamba and 2,4-D Concentrations in Rainwater and Air Deposits Collected throughout Missouri. Eric G. Oseland*, Mandy Bish, Kevin W. Bradley; University of Missouri, Columbia, MO (148)
- 11:30 AM** †Economics of herbicide programs for weed management in dicamba/glufosinate/glyphosate-resistant soybean. Adam Striegel*, Amit J. Jhala; University of Nebraska-Lincoln, Lincoln, NE (149)
- 11:45 AM** †Evaluation of the Seed Terminator™ as a Harvest Weed Seed Control Tool in Missouri Soybean Production Systems. Travis Winans*, Brian Dintelmann, Mandy Bish, Kevin W. Bradley; University of Missouri, Columbia, MO (150)

WEDNESDAY MORNING DECEMBER 2

SYMPOSIUM - Technology in Application: Learning From the Past and Building into the Future

LOCATION: Virtual Session 2
 TIME: 09:00 AM - 12:00 PM
 MODERATOR: Stephen A. Valenti
 Bayer
 Fargo, ND

***SPEAKER**

- 09:00 AM** Spatial modeling of canopy penetration. Rone Batista de Oliveira*; UENP, Fargo, Brazil (151)
- 09:15 AM** Engineering Considerations Associated with the Application of Agrochemicals Using Unmanned Aerial Systems (UAS). Bradley K. Fritz*; USDA, College Station, TX (152)
- 09:30 AM** Automatic weed spectrum and weed pressure assessment using imagery data. Marek M. Schikora*; BASF, Langenfeld, Germany (153)
- 09:45 AM** Untapped opportunities for wind tunnel testing. Steven A. Fredericks*; Winfield United, River Falls, WI (154)
- 10:00 AM** Electronically Actuated Nozzle Bodies – Enabling Hands Free Nozzle Switching. Nicholas J. Fleitz*¹, Luis Dowling²; ¹Pentair Hypro, New Brighton, MN, ²Pentair Hypro, Lincoln, NE (155)
- 10:15 AM** Fifty Years of Pesticide Application Technology. Robert Klein*; UNIVERSITY OF NEBRASKA, North Platte, NE (156)
- 10:30 AM** Application Technology: Where We Are Going. Greg Kruger*; University of Nebraska - Lincoln, North Platte, NE (157)
- 10:45 AM** Battling Resistant Weeds with Spot Spray Technology WEED-IT. Albert Bosscha¹, Hans IJken*²; ¹Rometron, Don't Know, Netherlands, ²Rometron, Steenderen, Netherlands
- 11:00 AM**

WEDNESDAY MORNING DECEMBER 2

ORAL - Invasive Weeds, Rangeland, Pasture, and Vegetation Management

LOCATION: Virtual Session 2
TIME: 08:00 AM - 09:00 AM
MODERATOR: Joseph Omielan
University of Kentucky
Lexington, KY

***SPEAKER † GRADUATE CONTEST**

- 08:00 AM** Saltcedar Control Using Herbicides on the Cimarron National Grasslands. Walter H. Fick*; Kansas State University, Manhattan, KS (158)
- 08:15 AM** †Interaction between clethodim and dicamba in control of volunteer corn. Vitor M. Muller Anunciato*¹, Gabrielle Castro Macedo², Daniel Araujo Doretto³, Caio A. Carbonari³, Jeff A. Golus¹, Greg R. Kruger¹; ¹University of Nebraska-Lincoln, North Platte, NE, ²Teejeet, Sao Paulo, Brazil, ³UNESP, Botucatu, Brazil (159)
- 08:30 AM** Effect of 2,4-D + florypyrauxifen applications on weed control, clover tolerance and forage biomass in grass-legume pastures in Wisconsin. Jose Luiz Carvalho de Souza Dias¹, Garrett N. Imhoff*², Scott Flynn³, Mark J. Renz²; ¹University of Wisconsin-Madison, Madison, WI, ²University of Wisconsin-Madison, Madison, WI, ³Corteva Agriscience, Lees Summit, MO (160)

08:45 AM Is there a magic bullet? Greenhouse screening of herbicides on Bohemian knotweed (*Fallopia x bohemica*). Roger Becker*, Alan G. Smith, Neil O. Anderson, Ryan Mentz, Jeanie Katovich, Mary Marek-Spartz; University of Minnesota, St. Paul, MN (161)

THURSDAY AFTERNOON OCTOBER 29

SYMPOSIUM - Training Tomorrow's Extension Leaders: What is Working and Where Can We Grow

LOCATION: Virtual Session 2
TIME: 02:00 PM - 05:00 PM
MODERATOR: Nicholas J. Arneson
University of Wisconsin-Madison
Madison, WI

***SPEAKER**

- 02:00 PM** The Nebraska On-Farm Research Network: Innovative and Impactful Extension Work During COVID and Beyond. Laura Thompson*; University of Nebraska-Lincoln, Lincoln, NE (162)
- 02:30 PM** Extensions Community-based Efforts to Combat Palmer Amaranth and Steward Pesticide Use in Georgia. A Stanley Culpepper*; University of Georgia, Tifton, GA (163)
- 03:00 PM** 'App'-riculture: Putting Plant Disease Prediction in the Hands of Farmers. Damon Smith*; University Wisconsin, Madison, WI (164)
- 03:30 PM** Café Talks: Meeting Farmers in Their Comfort Zone. Abby M. Wick*; North Dakota State University, Fargo, ND

WEDNESDAY AFTERNOON DECEMBER 2

ORAL - Agronomic Crops II - Soybeans

LOCATION: Virtual Session 1
TIME: 02:00 PM - 05:00 PM
MODERATOR: Cody Evens
Bayer
Franklin, IL

***SPEAKER † GRADUATE CONTEST**

- 02:00 PM** Management of velvetleaf by tank-mixing glufosinate and fluthiacet-methyl in glufosinate-resistant soybean. Parminder S. Chahal*¹, Zahoor A. Ganie², Amit J. Jhala³; ¹FMC Corporation, Lincoln, NE, ²FMC Corporation, Newark, DE, ³University of Nebraska-Lincoln, Lincoln, NE (165)

- 02:15 PM** Influence of Various Broadleaf Herbicides on the Control of Corn and Other Grasses with Clethodim Herbicides. Gregory K. Dahl^{*1}, Joshua J. Skelton², Ryan J. Edwards³, Laura J. Hennemann³, Lee A. Boles³; ¹WinField United, Eagan, MN, ²WinField United, St. Paul, MN, ³WinField United, River Falls, WI (166)
- 02:30 PM** A23372A - A Broad-Spectrum Solution for Superior Weed Management in Soybean. Brett R. Miller^{*1}, Tom H. Beckett², Peter Eure³; ¹Syngenta Crop Protection, Fargo, ND, ²Syngenta Crop Protection, Greensboro, NC, ³Syngenta Crop Protections, Greensboro, NC (167)
- 02:45 PM** Control of volunteer Enlist E3[®] corn (*Zea mays*) in Enlist E3[®] soybean (*Glycine max*). Rui Liu^{*1}, Isaac N. Effertz², Taylor Lambert¹, Vipin Kumar¹; ¹Kansas State University, Hays, KS, ²Kansas State University, Manhattan, KS (168)
- 03:00 PM** **Break**
- 03:15 PM** Influence of Multiple Sites of Action and Residual Herbicide Application Timing on Season-Long Waterhemp (*Amaranthus tuberculatus* (Moq.) J. D. Sauer) Control in Soybean. Travis Legleiter^{*1}, J D. Green²; ¹University of Kentucky, Princeton, KY, ²University of Kentucky, Lexington, KY (169)
- 03:30 PM** Influence of Glufosinate Tank-mix Combinations with PPO-inhibitors on Waterhemp Control, Crop Injury and Yield in Enlist E3 Soybeans. Rodrigo Werle^{*1}, Nicholas J. Arneson¹, Ryan P. DeWerff¹, Daniel H. Smith¹, Nikola Arsenijevic², Mark L. Bernards³; ¹University of Wisconsin-Madison, Madison, WI, ²Universtiy of Wisconsin-Madison, Madison, WI, ³Western Illinois University, Macomb, IL (170)
- 03:45 PM** Herbicide Weed Control Program in XtendFlex[®] Soybean. Neha Rana^{*1}, Cody Evans², Devin Hammer³, Ryan E. Rapp⁴, Rod Stevenson⁵, Carl Coburn¹, Blake Barlow⁶; ¹Bayer Crop Science, St Louis, MO, ²Bayer Crop Science, Franklin, IL, ³Bayer Crop Science, Mankato, MN, ⁴Bayer Crop Science, Mitchell, SD, ⁵Bayer Crop Science, Delton, MI, ⁶Bayer Crop Science, Columbia, MO (171)
- 04:00 PM** Weed Efficacy and Crop Safety with MON 51817 in Roundup Ready[®] Xtend Crop System. Neha Rana^{*1}, Ryan Rector¹, Ryan E. Rapp², Cody Evans³, Devin Hammer⁴, Carl Coburn¹, Rod Stevenson⁵, Blake Barlow⁶; ¹Bayer Crop Science, St Louis, MO, ²Bayer Crop Science, Mitchell, SD, ³Bayer Crop Science, Franklin, IL, ⁴Bayer Crop Science, Mankato, MN, ⁵Bayer Crop Science, Delton, MI, ⁶Bayer Crop Science, Columbia, MO (172)