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2010 NCWSS PROGRAM

Cereals/Sugar Beet/Dry Bean Posters

Organic Weed Management Strategies in Dry Edible Bean. Erin C. Taylor*, Christy L. Sprague, Karen A. Renner; Michigan State University, East Lansing, MI (1)

Weed Management in Cranberry Bean with Linuron. Nader Soltani*[1], Robert E. Nurse[2], Christy Shropshire[1], Peter H. Sikkema[1]; [1]University of Guelph, Ridgetown, ON, [2]Agriculture and Agri-Food Canada, Harrow, ON (2)

Competitiveness and Control of Volunteer Cereals in Corn. Peter H. Sikkema[1], Greg Wilson[1], Darren E. Robinson[1], Christy Shropshire[1], Clarence J. Swanton[2], Francois Tardif[2], Nader Soltani*[1]; [1]University of Guelph, Ridgetown, ON, [2]University of Guelph, Guelph, ON (3)

†Downy Brome Response to Soil Applied Flumioxazin and Pyroxasulfone. Alicia E. Hall*, Roberto Luciano, Kirk A. Howatt; North Dakota State University, Fargo, ND (4)

Tolerance of Spring Cereals to Mesotrione. Nader Soltani*, Christy Shropshire, Peter H. Sikkema; University of Guelph, Ridgetown, ON (5)

Fallow Weed Control With Saflufenacil - Annual vs. Perennial. Brian M. Jenks*, Jordan L. Hoefing, Gary P. Willoughby; North Dakota State University, Minot, ND (6)

Corn/Sorghum Posters

†Multiple Year Evaluations of the Potential for an Organophosphate Interaction in Optimum® GAT® Corn versus Conventional Glyphosate Tolerant Corn. Kevin R. Schabacker*[1], Larry H. Hageman[1], Charles E. Snipes[2], David Saunders[3]; [1]DuPont, Rochelle, IL, [2]DuPont, Greenvile, MS, [3]DuPont, Johnston, IA (7)

†Management of Glyphosate-Resistant Corn in a Corn Replant Situation. Ryan M. Terry*, William G. Johnson; Purdue University, West Lafayette, IN (8)

Realm Q - A New Postemergence Herbicide for Corn. Mick F. Holm*[1], Michael T. Edwards[2], Helen A. Flanigan[3]; [1]DuPont Crop Protection, Waunakee, WI, [2]DuPont Crop Protection, Pierre Part, LA, [3]DuPont Crop Protection, Greenwood, IN (9)

†Competition of Volunteer Corn with Hybrid Corn. Paul Marquardt*, William G. Johnson; Purdue Univ., W. Lafayette, IN (10)

†Corn (Zea mays L.) Harvest Inefficiencies and Potential for Volunteer Corn. Tye C. Shauck*, Carey F. Page, Daniel T. Earlywine, David L. Kleinsorge, Reid J. Smeda; University of Missouri, Columbia, MO (11)

Nitrogen Partitioning in Weeds and Corn in Response to Nitrogen Rate and Weed Removal Timing. Alexander J. Lindsey*, Laura E. Bast, Wesley J. Everman, Darryl D. Warncke; Michigan State University, East Lansing, MI (12)

†Sidedress Nitrogen Application Rate and Common Lambsquarters Effect on Corn Yield. Laura E. Bast*, Wesley J. Everman, Darryl D. Warncke; Michigan State University, East Lansing, MI (13)

Weed Emergence in Corn Following Early Postemergence Application of Residual Herbicides Compared to Modeled Emergence from WeedSOFT. Mark L. Bernards[1], Lowell Sandell[1], Irvin L. Schleufer*[2]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]University of Nebraska, Clay Center, NE (14)

†Growth Stage Influenced Sorghum Response to Broadcast Flaming. Santiago M. Ulloa*, Avishek Datta, Stevan Z. Knezevic; University of Nebraska-Lincoln, Concord, NE (15)

***PRESENTER † STUDENT CONTEST (#) ABSTRACT NUMBER**

Soybeans/Legumes/Forage Posters

Effect of Fall-applied Herbicides on Horseweed Populations the Following Spring. Bryan Reeb*[1], Mark M. Loux[1], Anthony F. Dobbels[2]; [1]The Ohio State University, Columbus, OH, [2]The Ohio State University, South Charleston, OH (16)

†Management of Glyphosate-resistant Horseweed in Glufosinate-tolerant Soybeans. Jason T. Parrish*[1], Mark M. Loux[1], Anthony F. Dobbels[2]; [1]The Ohio State University, Columbus, OH, [2]The Ohio State University, South Charleston, OH (17)

Observations Concerning Herbicide Resistant Weeds in Kentucky. James R. Martin*[1], Jonathan D. Green[2], William W. Witt[2]; [1]University of Kentucky, Princeton, KY, [2]University of Kentucky, Lexington, KY (18)

†Optimum GAT: Influence of Pre-plant Herbicide Applications on Burndown and Residual Weed Control in Transgenic Soybean. Nicholas V. Hustedde*, Bryan G. Young, Joseph L. Matthews; Southern Illinois University, Carbondale, IL (19)

Herbicide Programs for Optimum® GAT® Soybeans in the North Central States. Kevin L. Hahn[1], Susan K. Rick[2], David Saunders*[3]; [1]DuPont, Bloomington, IL, [2]DuPont, Waterloo, IL, [3]DuPont, Johnston, IA (20)

†Efficacy of Preplant Applications of Glyphosate-, Glufosinate-, and Paraquat-based Tank Mixtures in No-till Soybean. Jessica L. Rinderer*[1], Linglong Wei[2], Julie M. Young[1], Joseph L. Matthews[1], Bryan G. Young[1], Gordon K. Roskamp[3], Aaron G. Hager[4]; [1]Southern Illinois University, Carbondale, IL, [2]Michigan State University, East Lansing, MI, [3]Western Illinois University, Macomb, IL, [4]University of Illinois, Urbana, IL (21)

Control of Summer Annual Weeds with 2,4-D plus Glyphosate Tank Mixes. Andrew P. Robinson*, William G. Johnson; Purdue University, West Lafayette, IN (22)

†Factors Influencing Residual Activity of Dicamba. Ashley A. Schlichenmayer*, Carey F. Page, Daniel T. Earlywine, Tye C. Shauck, Reid J. Smeda; University of Missouri, Columbia, MO (23)

Mid-Season Lactofen Application's Influence on Mature Soybean Plant Structure and Yield. Eric J. Ott*[1], Trevor M. Dale[2], Dawn Refsell[3], John A. Pawlak[4]; [1]Valent USA Corporation, Greenfield, IN, [2]Valent USA Corporation, Sioux Falls, SD, [3]Valent USA Corporation, Lathrop, MO, [4]Valent USA Corporation, Lansing, MI (24)

Dose Response Curves for Comparing Herbicide Efficacy. Jon E. Scott*[1], Avishek Datta[2], Gail Stratman[3], Stevan Z. Knezevic[2]; [1]University of Nebraska, Concord, NE, [2]University of Nebraska-Lincoln, Concord, NE, [3]FMC Corporation, Stromsburg, NE (25)

†High Input Management Practices' Influence Upon Soybean Yield in Indiana. Ryan S. Henry*, William G. Johnson, Kiersten A. Wise; Purdue University, West Lafayette, IN (26)

Giant Ragweed Control in Non-GMO Soybeans. Anthony F. Dobbels*[1], Mark M. Loux[2]; [1]The Ohio State University, South Charleston, OH, [2]The Ohio State University, Columbus, OH (27)

†Postemergence Rescue Treatments for Non-GMO Soybeans. Rachel Berry*[1], Anthony F. Dobbels[2], Mark M. Loux[1]; [1]The Ohio State University, Columbus, OH, [2]The Ohio State University, South Charleston, OH (28)

Investigations of the Effects of Soil pH on Carryover of Triketone Herbicides to Soybean. Travis Legleiter*, Eric B. Riley, Jim D. Wait, Kevin W. Bradley; University of Missouri, Columbia, MO (29)

Sensitivity of Soybean and Tobacco to Aminopyralid in Soil Residue. Grant A. Mackey*, Meghan Edwards, Jonathan D. Green, William W. Witt; University of Kentucky, Lexington, KY (30)

†Effects of Flaming and Cultivation on Weed Control and Crop Injury in Soybean. Cris Bruening*[1], Brian D. Neilson[1], George Gogos[1], Santiago M. Ulloa[2], Stevan Z. Knezevic[2], Strahinja V. Stepanovic[3]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]University of Nebraska-Lincoln, Concord, NE, [3]University of Belgrade, Belgrade, Serbia (31)

Palmer Amaranth Control in Established Alfalfa with Flumioxazin. Dallas Peterson*[1], Dawn Refsell[2], Cathy L. Minihan[1]; [1]Kansas State University, Manhattan, KS, [2]Valent USA Corporation, Lathrop, MO (32)

Equipment and Application Posters

Spray Droplet Penetration in the Soybean Canopy. Greg R. Kruger*[1], Robert N. Klein[2], Jeffrey A. Golus[2]; [1]University of Nebraska-Lincoln, North Platte, NE, [2]University of Nebraska, North Platte, NE (33)

Adjuvant Certification through the Chemical Producers & Distributors Association. Mark L. Bernards*[1], Gregory K. Dahl[2]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]Winfield Solutions LLC, St. Paul, MN (34) (N/A)

CPDA Certified Adjuvants. Joe V. Gednalske*[1], William E. Bagley[2], Gregory K. Dahl[1]; [1]Winfield Solutions LLC, St. Paul, MN, [2]Wilbur Ellis Co., San Antonio, TX (35)

Forestry/Industrial/Turf Posters

†Chemical Mowing of Cover Crops and Weeds with Glyphosate, Clopyralid and Fluazifop for Vegetation Management in Fraser Fir. Linglong Wei*, Bernard H. Zandstra; Michigan State University, East Lansing, MI (36)

†Management of Annual Bluegrass (Poa annua) with Bispyribac Sodium on Creeping Bentgrass. John B. Haguewood*[1], Justin Q. Moss[2], Reid J. Smeda[1], Xi Xiong[1]; [1]University of Missouri, Columbia, MO, [2]Oklahoma State University, Stillwater, OK (37)

†Comparing Management Strategies for Poa annua Control and Suppression on Putting Greens. Alexandra P. Williams*, Michael Barrett, David Williams; University of Kentucky, Lexington, KY (38)

Herbicide Physiology Posters

Resistance to PPO-Inhibiting Herbicides in Common Ragweed: One Mechanism or Many? Stephanie L. Rousonelos*[1], John L. Luecke[2], Jeff M. Stachler[2], Patrick J. Tranel[1]; [1]University of Illinois, Urbana, IL, [2]NDSU and U. of MN, Fargo, ND (39)

†Role of Soil-borne Fungi in the Response of Giant Ragweed (Ambrosia trifida) Biotypes to Glyphosate. Jessica R. Schafer*, Steven G. Hallett, William G. Johnson; Purdue University, West Lafayette, IN (40)

Biomass-Based Comparison of Paraquat Resistance in Different Biotypes of Goosegrass (Eleusine indica) in China. Chengchou Han*[1], Stephen L. Young[2], Yong Chen[3]; [1]University of Nebraska- Lincoln, Lincoln, NE, [2]University of Nebraska-Lincoln, North Platte, NE, [3]South China Agricultural University, Guangzhou, Peoples Republic (41)

Horticultural Posters

Weed Control and Potato Cultivar Safety with Fomesafen. Collin Auwarter*, Harlene M. Hatterman-Valenti; North Dakota State University, Fargo, ND (42)

†Weed Suppression with Winter Annual Cover Crops in Potato. Grant H. Mehring*, Harlene M. Hatterman-Valenti; North Dakota State University, Fargo, ND (43)

The Effect of Delayed Release Nitrogen on Potato Vine Kill. Andrew J. Chomas*, Laura E. Bast, Alexander J. Lindsey, Wesley J. Everman; Michigan State University, East Lansing, MI (44)

†Intercropping for Late Season Weed Control in Organic Fresh Market Tomato Production. RaeLynn A. Butler*, Kevin Gibson; Purdue University, West Lafayette, IN (45)

Weed Management Influence on Grape Establishment. John Stenger, Harlene M. Hatterman-Valenti*, Collin Auwarter; North Dakota State University, Fargo, ND (46)

Invasive Weed Posters

Noxious and Invasive Plant Ecology and Management. Stephen L. Young*; University of Nebraska-Lincoln, North Platte, NE (47)

Invasive Plant Species Management with Geospatial Technologies and Computational Science. Stephen L. Young*[1], Qingfeng Guan[2], Sunil Narumalani[2]; [1]University of Nebraska-Lincoln, North Platte, NE, [2]University of Nebraska-Lincoln, Lincoln, NE (48)

†Influence of Herbicide Application Timing for Control of Common Reed. Ryan E. Rapp*, Stevan Z. Knezevic; University of Nebraska-Lincoln, Concord, NE (49)

Herbicides for Saltcedar Control in Kansas. Walter H. Fick*, Wayne A. Geyer; Kansas State University, Manhattan, KS (50)

Total Vegetation Control on Sandbars along the Missouri River with Calcium Carbonate, Sodium Carbonate, and Imazapyr. Avishek Datta*[1], Stevan Z. Knezevic[1], Charles A. Shapiro[1], Jon E. Scott[2], Mike Mainz[1]; [1]University of Nebraska-Lincoln, Concord, NE, [2]University of Nebraska, Concord, NE (51)

Spotted Knapweed Control with Imazapic and Saflufenacil. Stevan Z. Knezevic*[1], Avishek Datta[1], Ryan E. Rapp[1], Jon E. Scott[2], Leo D. Charvat[3], Joseph Zawierucha[4]; [1]University of Nebraska-Lincoln, Concord, NE, [2]University of Nebraska, Concord, NE, [3]BASF Corporation, Lincoln, NE, [4]BASF Corporation, RTP, NC (52)

Control of Leafy Spurge with Imazapic and Saflufenacil applied in Spring. Stevan Z. Knezevic[1], Avishek Datta[1], Ryan E. Rapp[1], Jon E. Scott[2], Leo D. Charvat*[3], Joseph Zawierucha[4]; [1]University of Nebraska-Lincoln, Concord, NE, [2]University of Nebraska, Concord, NE, [3]BASF Corporation, Lincoln, NE, [4]BASF Corporation, RTP, NC (53)

Yellow Toadflax Control in Rangeland with DPX-MAT28. Jordan L. Hoefing*, Brian M. Jenks; North Dakota State University, Minot, ND (54)

Analysis of Age Structure to Reconstruct the History of a Privet Invasion. Wanying Zhao*, Charles Goebel, Michel Andrew, John Cardina; The Ohio State University, Wooster, OH (55) (N/A)

Weed Biology/Ecology/Management Posters

†Gene Flow of Glyphosate Resistance in Giant Ragweed. Chad B. Brabham*, William G. Johnson; Purdue University, West Lafayette, IN (56)

Dose-response Analysis on a Suspected Glyphosate-resistant Kochia (Kochia scoparia) Population. Lowell Sandell*[1], Stevan Z. Knezevic[2], Avishek Datta[2], Mark L. Bernards[1], Santiago M. Ulloa[2]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]University of Nebraska-Lincoln, Concord, NE (57)

†Glyphosate-Resistant Waterhemp Survival from Glyphosate and Alternative Postemergence Herbicides in Two Waterhemp Populations. Chea E. Reeves*, Julie M. Young, Joseph L. Matthews, Bryan G. Young; Southern Illinois University, Carbondale, IL (58)

Modeling the Spread of Glyphosate-Resistant Waterhemp. Jianyang Liu*[1], Patrick J. Tranel[1], Adam S. Davis[2]; [1]University of Illinois, Urbana, IL, [2]USDA, Urbana, IL (59)

†Response of Nebraska Horseweed Populations to Dicamba. Roberto J. Crespo*[1], Mark L. Bernards[1], Greg R. Kruger[2], Robert G. Wilson[3], Donald J. Lee[1]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]University of Nebraska-Lincoln, North Platte, NE, [3]University of Nebraska-Lincoln, Scottsbluff, NE (60)

Respect the Rotation: A Comprehensive Partnership to Preserve Herbicide and Trait Technology. James Rutledge*; Bayer CropScience, RTP, NC (61)

†Degradation of the Herbicide Metolachlor in Soil under Different Environmental Conditions. Ramdas Kanissery*[1], Gerald Sims[2]; [1]University of Illinois at Urbana Champaign, Urbana, IL, [2]USDA, Urbana-Champaign, IL (62) (N/A)

The Influence of Seed Burial Depth on Common Ragweed Seed Bank Persistence. Mike J. Moechnig*, Rutendo Nyamusamba, Darrell Deneke, Jill Alms, Dave Vos; South Dakota State University, Brookings, SD (63)

†Demography of Velvetleaf(Abutilion theophrasti) in Corn and Soybean. Nabaraj Banjara*, John L. Lindquist; University of Nebraska-Lincoln, Lincoln, NE (64)

Viewing Weed Seed Decays from Microbiology Aspect. Xianhui Fu*; University of Illinois, Urbana, IL (65)

†Palmer Amaranth Growth and Gender in Response to Ammonium. Antonio R. Asebedo*, Anita Dille; Kansas State University, Manhattan, KS (66)

†Sorghum x Shattercane Outcrossing in the Field. Jared J. Schmidt*[1], John L. Lindquist[1], Mark L. Bernards[1], Jeff F. Pedersen[2]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]USDA-ARS, Lincoln, NE (67)

†Palmer Amaranth Differential Response to Pyrasulfotole & Bromoxynil. Nathan G. Lally*, Curtis R. Thompson, Dallas Peterson; Kansas State University, Manhattan, KS (68)

†Influence of Nitrogen on Palmer Amaranth Interference in Grain Sorghum. Bryan J. Unruh*, Anita Dille; Kansas State University, Manhattan, KS (69)

Factors Associated with the Mother Bulb of Star-of-Bethlehem that Influence Daughter Bulb Production. Nathan R. Johanning*[1], Linglong Wei[2], Joseph L. Matthews[1], John E. Preece[1], Bryan G. Young[1]; [1]Southern Illinois University, Carbondale, IL, [2]Michigan State University, East Lansing, MI (70)

†Evaluation of Tef as a Smother Crop for Canada Thistle Management. Stephanie Wedryk*[1], John Cardina[2]; [1]The Ohio State University, Columbus, OH, [2]The Ohio State University, Wooster, OH (71)

†Effect of Pasture Management Strategies on Forage Quality. Josh A. Tolson*, Jonathan D. Green, William W. Witt, Glen E. Aiken; University of Kentucky, Lexington, KY (72)

General Session

10:00 **Welcome to Lexington**

10:10 **Washington Report.** Lee Van Wychen*; WSSA, Washington, DC (73) (N/A)

10:30 **Triazine Herbicides: 50 Years of Revolutionizing Agriculture.** Janis McFarland*[1], Charles L. Foresman[1], David Bridges[2]; [1]Syngenta Crop Protection, Greensboro, NC, [2]Baldwin Agricultural College, Tifton, GA (74) (N/A)

11:30 **NCWSS Presidential Address.** Chris M. Boerboom*; North Dakota State University, Fargo, ND (75) (N/A)

11:45 **Necrology Report**

11:50 **Announcements**

Soybeans/Legumes/Forage and Range Papers

1:30 **†Multi-Year Survey Evaluating the Distribution of Glyphosate-Resistant Weed Species in Missouri.** Kristin K. Rosenbaum*, Eric B. Riley, Travis Legleiter, Jim D. Wait, Kevin W. Bradley; University of Missouri, Columbia, MO (76)

1:45 **†Interaction of Glyphosate Tank-Mixtures on Herbicide-Resistant and -Susceptible Waterhemp Populations.** David K. Powell*[1], Bryan G. Young[1], Douglas Maxwell[2], Gordon K. Roskamp[3]; [1]Southern Illinois University, Carbondale, IL, [2]University of Illinois, Urbana, IL, [3]Western Illinois University, Macomb, IL (77)

2:00 **†Kochia Control with Preemergence Herbicides in Soybeans.** Brandon M. Hulse*[1], Dallas Peterson[1], Kassim Al-Khatib[1], Phillip W. Stahlman[2], Patrick W. Geier[2]; [1]Kansas State University, Manhattan, KS, [2]Kansas State University, Hays, KS (78)

2:15 **†Investigations of Herbicide Programs Containing Glufosinate and 2,4-D for use in DHT Soybeans.** Brett D. Craigmyle*[1], Jeff M. Ellis[2], Kristin K. Rosenbaum[1], Bryan C. Sather[1], Kevin W. Bradley[1]; [1]University of Missouri, Columbia, MO, [2]Dow AgroSciences, Smithville, MO (79)

2:30 **†Effect of Postemergence Applications of 2,4-D on the Yield Components of DHT Soybean.** Andrew P. Robinson*[1], David M. Simpson[2], William G. Johnson[1]; [1]Purdue University, W. Lafayette, IN, [2]Dow AgroSciences, Indianapolis, IN (80)

2:45 **†A Strobilurin Fungicide's Impact on Soybean Growth and Yield in Weed-Free Indiana Fields.** Ryan S. Henry*, William G. Johnson, Kiersten A. Wise; Purdue University, West Lafayette, IN (81)

3:15 **†The Timing of Broadcast Flaming Influenced Soybean Yield.** Santiago M. Ulloa*, Avishek Datta, Stevan Z. Knezevic; University of Nebraska-Lincoln, Concord, NE (82)

3:30 **†Rotational Crop Response to Chlorimuron as Affected by Soil pH.** David J. Carruth*; North Dakota State University, Fargo, ND (83)

3:45 **†Influence of Herbicides Containing Metsulfuron on Tall Fescue Growth and Seedhead Production.** Bryan C. Sather*, Kristin K. Rosenbaum, Brett D. Craigmyle, Kevin W. Bradley; University of Missouri, Columbia, MO (84)

4:00 **†Roughstalk Bluegrass - an Emerging Problem in Michigan Forage Systems.** John M. Green*[1], Wesley J. Everman[1], Timothy Dietz[1], Phil Kaatz[2]; [1]Michigan State University, East Lansing, MI, [2]Michigan State University, Lapeer, MI (85)

Weed Biology/Ecology/Management Papers

1:30 **†Weed Community Response to 12 Years of Selection Pressure in a Glyphosate-Resistant Cropping System.** Nevin C. Lawrence*[1], Andrew R. Kniss[1], Robert G. Wilson[2]; [1]University of Wyoming, Laramie, WY, [2]University of Nebraska-Lincoln, Scottsbluff, NE (86)

1:45 **†Life History of Glyphosate Resistant Giant Ragweed.** Chad B. Brabham*, William G. Johnson; Purdue University, West Lafayette, IN (87)

2:00 **†Managing Burcucumber in Corn.** Nathan D. Miller*; The Ohio State University, Columbus, OH (88)

2:15 **†The Effect of Dairy Compost Rate on Weed Competition in Potato.** Alexander J. Lindsey*, Wesley J. Everman; Michigan State University, East Lansing, MI (89)

2:30 **†Ecology of Cutleaf Teasel Seeds.** Stephen D. Eschenbach*, George O. Kegode, David Vlieger; Northwest Missouri State University, Maryville, MO (90)

2:45 **Weed Management Systems in Dicamba-Tolerant Soybeans (DTS).** Simone Seifert-Higgins*; Monsanto Company, St. Louis, MO (91)

3:00 **Palmer Amaranth Survives Pyrasulfotole & Bromoxynil and other HPPD Herbicide Treatment.** Curtis R. Thompson*, Dallas Peterson, Nathan G. Lally; Kansas State University, Manhattan, KS (92)

3:15 **Maternal Corn Environment Influences Wild-proso Millet Seed Characteristics.** Martin M. Williams II*[1], Brian J. Schutte[1], Yim F. So[2]; [1]USDA-ARS, Urbana, IL, [2]Germain's Technol. Group, Gilroy, CA (93)

Herbicide Physiology Papers

4:00 **†Metabolism of Quizalofop and Rimsulfuron in Herbicide-Resistant Grain Sorghum.** M. Joy M. Abit*[1], Kassim Al-Khatib[1], Mitch Tuinstra[2]; [1]Kansas State University, Manhattan, KS, [2]Purdue University, West Lafayette, IN (94)

4:15 **†Soil-borne Fungi Contribute to the Efficacy of Glyphosate in both Resistant and Susceptible Horseweed (Conzya canadensis) in the Field.** Jessica R. Schafer*, Steven G. Hallett, William G. Johnson; Purdue University, West Lafayette, IN (95)

4:30 **Molecular-Marker-Based Survey of Herbicide Resistances in Waterhemp.** Chance W. Riggins*, Patrick J. Tranel, Aaron G. Hager; University of Illinois, Urbana, IL (96)

Corn/Sorghum Student Contest Papers

1:30 **†Effects of Nitrogen Timing and Volunteer Corn Interference on Corn Grain Yield.** Ryan M. Terry*, James J. Camberato, William G. Johnson; Purdue University, West Lafayette, IN (97)

1:45 **†Critical Time of Winter Annual Weed Removal in a Corn-Soybean Cropping System.** Venkatarao Mannam*[1], Mark L. Bernards[1], Stevan Z. Knezevic[2], John L. Lindquist[1], Timothy J. Arkebauer[1], Suat Irmak[1]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]University of Nebraska-Lincoln, Concord, NE (98)

2:00 **†Influence of Winter Annual Grass Height on the Efficacy of Chlorimuron + Rimsulfuron and Glyphosate.** Nicholas V. Hustedde*, Bryan G. Young, Joseph L. Matthews; Southern Illinois University, Carbondale, IL (99)

2:15 **†Effects of Flaming and Cultivation on Weed Control and Crop Injury in Corn.** Cris Bruening*[1], Brian D. Neilson[1], George Gogos[1], Santiago M. Ulloa[2], Stevan Z. Knezevic[2], Strahinja V. Stepanovic[3]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]University of Nebraska-Lincoln, Concord, NE, [3]University of Belgrade, Belgrade, Serbia (100)

2:30 **†Nitrogen Assimilation of Weed Species as Influenced by Nitrogen Rate and Weed Size.** Laura E. Bast*, Wesley J. Everman, Darryl D. Warncke; Michigan State University, East Lansing, MI (101)

2:45 **†Grain Sorghum Response to Pyrasulfotole & Bromoxynil: a Potential New Herbicide in Grain Sorghum.** Nathan G. Lally*[1], Curtis R. Thompson[1], Larry D. Maddux[2], Dallas Peterson[1]; [1]Kansas State University, Manhattan, KS, [2]Kansas State University, Topeka, KS (102)

Cereals/Sugar Beet/Dry Bean Papers

3:15 **†Weed Control Strategies and Row Width in an Upright Variety of Black Bean.** Ryan C. Holmes*, Christy L. Sprague; Michigan State University, East Lansing, MI (103)

3:30 **†Impact of Weeds on Nitrogen Availability in Glyphosate-resistant Sugarbeet.** Alicia J. Spangler*, Christy L. Sprague, Darryl D. Warncke; Michigan State University, East Lansing, MI (104)

3:45 **Preemergence Ethofumesate Increases Postemergence Spray Retention on Common Lambsquarters.** Andrew R. Kniss*[1], Dennis C. Odero[2]; [1]University of Wyoming, Laramie, WY, [2]University of Florida, Belle Glade, FL (105)

4:00 **Influence of Application Timing on Winter Annual Grass Control with Pyroxsulam in Winter Wheat.** Jeff M. Ellis*[1], Chad Cummings[2], Neil A. Spomer[3], Samuel M. Ferguson[4]; [1]Dow AgroSciences, Smithville, MO, [2]Dow AgroSciences, Perry, OK, [3]Dow AgroSciences, Brookings, SD, [4]Dow AgroSciences, Omaha, NE (106)

4:15 **Performance of Rimfire MaxTM Herbicide in Wheat Grown in the Northern Plains.** Bradley E. Ruden*[1], Kevin B. Thorsness[2], Steven R. King[3], Dean W. Maruska[4], Mary D. Paulsgrove[5], Michael C. Smith[6], George S. Simkins[7], Mark A. Wrucke[8]; [1]Bayer CropScience, Bruce, SD, [2]Bayer CropScience, Fargo, ND, [3]Bayer CropScience, Huntley, MT, [4]Bayer CropScience, Warren, MN, [5]Bayer CropScience, Research Triangle Park, NC, [6]Bayer CropScience, Sabin, MN, [7]Bayer CropScience, Vadnais Heights, MN, [8]Bayer CropScience, Farmington, MN (107)

4:30 **Residual Activity of Flumioxazin + Pyroxasulfone in the Western Soybean Belt.** Mark L. Bernards*[1], Trevor M. Dale[2], Bob G. Hartzler[3], Micheal D. Owen[3], Dallas Peterson[4], Douglas E. Shoup[5], Jeff Gunsolus[6], Stevan Z. Knezevic[7], Robert G. Wilson[8], Rich Zollinger[9], Mike J. Moechnig[10], Dawn Refsell[11], John A. Pawlak[12]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]Valent USA Corporation, Sioux Falls, SD, [3]Iowa State University, Ames, IA, [4]Kansas State University, Manhattan, KS, [5]Kansas State University, Chanute, KS, [6]University of Minnesota, St. Paul, MN, [7]University of Nebraska-Lincoln, Concord, NE, [8]University of Nebraska-Lincoln, Scottsbluff, NE, [9]North Dakota State University, Fargo, ND, [10]South Dakota State University, Brookings, SD, [11]Valent USA Corporation, Lathrop, MO, [12]Valent USA Corporation, Lansing, MI (108)

Mixed Student Contest Papers

1:30 **†Herbicide Efficacy Influenced by Carrier Water Quality.** Jared M. Roskamp*, William G. Johnson; Purdue University, West Lafayette, IN (109)

1:45 **†Interaction of Nozzle Type and Adjuvant on Droplet Spectra and Efficacy of Glyphosate, Glufosinate, Glyphosate plus Clethodim, and Glyphosate plus Mesotrione and s-Metolachlor.** Jon R. Kohrt*[1], Greg R. Kruger[2], James Reiss[3], Bryan G. Young[1]; [1]Southern Illinois University, Carbondale, IL, [2]University of Nebraska-Lincoln, North Platte, NE, [3]Precision Laboratories, Waukegan, IL (110)

2:00 **†A Precision Guided Shielded Sprayer for Postemergence Weed Control in Carrot and Lettuce.** Chad M. Herrmann*, Bernard H. Zandstra; Michigan State University, East Lansing, MI (111)

2:15 **†Postemergence Herbicides with Adjuvants for Early Season Weed Control in Onion.** James R. Loken*, Harlene M. Hatterman-Valenti; North Dakota State University, Fargo, ND (112)

2:30 **†Avoiding Crop Injury and Maximizing Yield with Preemergence and Postemergence Herbicides in Onion.** Chad M. Herrmann*, Bernard H. Zandstra; Michigan State University, East Lansing, MI (113)

2:45 **†Weed Suppression with Winter Annual Cover Crops in Potato.** Grant H. Mehring*, Harlene M. Hatterman-Valenti; North Dakota State University, Fargo, ND (114)

3:00 **†Examining the Unpredictable Nature of Yellow Toadflax in Colorado.** Nicholas J. Krick*; COLORADO STATE UNIVERSITY, FORT COLLINS, CO (115) (N/A)

3:15 **†Integrated Management of Common Reed (Phragmites australis) along the Platte River.** Ryan E. Rapp*, Stevan Z. Knezevic; University of Nebraska-Lincoln, Concord, NE (116)

Forestry/Industrial/Turf Papers

3:45 **Utility of Aminopyralid + Metsulfuron for Weed Control, Seedhead and Grass Height Suppression in Bahia and Tall Fescue Roadsides.** Byron B. Sleugh*[1], William N. Kline[2], Vanelle Peterson[3], Pat Burch[4], Jason Belcher[5], Steve Enloe[5], Jason Ferrell[6], Fred Yelverson[7], Leon Warren[7], Reid J. Smeda[8]; [1]Dow AgroSciences, West Des Moines, IA, [2]Dow AgroSciences, Duluth, GA, [3]Dow AgroSciences, Mulino, OR, [4]Dow AgroSciences, Christiansburg, VA, [5]Auburn University, Auburn, AL, [6]University of Florida, Gainesville, FL, [7]North Carolina State University, Raleigh, NC, [8]University of Missouri, Columbia, MO (117)

4:00 **Control of Bush Honeysuckle with Low Volume Foliar Herbicide Applications.** Joe Omielan*, William W. Witt; University of Kentucky, Lexington, KY (118)

4:15 **†White Clover, Hard Fescue and Perennial Rye Cover Crops for Weed Suppression in Fraser Fir.** Linglong Wei*, Bernard H. Zandstra; Michigan State University, East Lansing, MI (119)

Corn/Sorghum Papers

8:00 **Saflufenacil Tank Mixes for Weed Control in Grain Sorghum.** Randall S. Currie*; Kansas State Univ., Garden City, KS (120)

8:15 **One Pass PRE vs PRE followed by POST Corn Herbicide Programs in Indiana, Michigan, and Ohio.** Wesley J. Everman*[1], William G. Johnson[2], Mark M. Loux[3], John B. Willis[4]; [1]Michigan State University, East Lansing, MI, [2]Purdue University, West Lafayette, IN, [3]The Ohio State University, Columbus, OH, [4]Monsanto Company, Troy, OH (121)

8:30 **Utility of Pyroxasulfone for Residual Weed Control in Corn and Soybean.** Walter E. Thomas*[1], John S. Harden[1], Ryan Bond[1], Steven J. Bowe[1], Rex A. Liebl[1], Yoshihiro Yamaji[2], Hisashi Honda[2], Toshihiro Ambe[3]; [1]BASF Corporation, Research Triangle Park, NC, [2]Kumiai America, White Plains, NY, [3]Kumiai Chemical Industry, Tokyo, Japan (122)

8:45 **Performance of Flumioxazin + Pyroxasulfone in Midwest Corn Trials.** Dawn Refsell*[1], John A. Pawlak[2], Eric J. Ott[3], Trevor M. Dale[4], Pat Clay[5], Gary W. Kirfman[6], John R. Cranmer[7]; [1]Valent USA Corporation, Lathrop, MO, [2]Valent USA Corporation, Lansing, MI, [3]Valent USA Corporation, Greenfield, IN, [4]Valent USA Corporation, Sioux Falls, SD, [5]Valent USA Corporation, Maricopa, AZ, [6]Valent USA Corporation, Ada, MI, [7]Valent USA Corporation, Cary, NC (123)

9:00 **Tembotrione Mixes with Commercial Adjuvant Packages.** David J. Lamore*[1], Gary Schwarzlose[2], Matt Mahoney[3], John Cantwell[4], Jim Bloomberg[5]; [1]Bayer CropScience, Bryan, OH, [2]Bayer CropScience, Spring Branch, TX, [3]Bayer CropScience, Oxford, MD, [4]Bayer CropScience, Strawberry Point, IA, [5]Bayer CropScience, RTP, NC (124)

9:15 **Identification of a Tall Waterhemp (Amaranthus tuberculatus) Biotype Resistant to 4-HPPD Inhibiting Herbicides and Atrazine in Iowa.** Patrick M. McMullan*[1], Jerry M. Green[2]; [1]Pioneer Hi-Bred International, Johnston, IA, [2]Pioneer Hi-Bred International, Newark, DE (125)

9:30 **Characterization of a Common Waterhemp (Amaranthus tuberculatus) Biotype in Illinois resistant to HPPD-inhibiting herbicides.** Aaron G. Hager*, Nicholas E. Hausman, Dean E. Riechers, Patrick J. Tranel, Sukhvinder Singh, Lisa Gonzini, Douglas Maxwell; University of Illinois, Urbana, IL (126)

9:45 **Control of HPPD-Resistant Waterhemp in Corn and Soybeans.** Gordon D. Vail*[1], Charles L. Foresman[1], Nicholas D. Polge[2], Vinod K. Shivrain[1], David A. Thomas[3]; [1]Syngenta Crop Protection, Greensboro, NC, [2]Syngenta Crop Protection, Vero Beach, FL, [3]Syngenta Crop Protection, Monticello, IL (127)

10:15 **Crop Tolerance and Yield of Dow AgroSciences Herbicide Trait Technology in Corn.** Scott C. Ditmarsen*[1], David M. Simpson[2], Jeff M. Ellis[3], David C. Ruen[4], Samuel M. Ferguson[5], Nelson N. Carranza[6], Courtney A. Gallup[7], Bradley W. Hopkins[8]; [1]Dow AgroSciences, Madison, WI, [2]Dow AgroSciences, Indianapolis, IN, [3]Dow AgroSciences, Smithville, MO, [4]Dow AgroSciences, Lanesboro, MN, [5]Dow AgroSciences, Omaha, NE, [6]Dow AgroSciences, Bogota, Colombia, [7]Dow AgroSciences, Davenport, IA, [8]Dow AgroSciences, Westerville, OH (128)

10:30 **Efficacy and Crop Tolerance of GF-2654 and GF-2726 in Corn.** Eric F. Scherder*[1], Marvin E. Schultz[2], Andrew T. Ellis[3], Neil A. Spomer[4], Ronda L. Hamm[2], John S. Richburg[5], Jonathan A. Huff[6], Brian D. Olson[7], Gustavo R. Tofoli[8]; [1]Dow AgroSciences, Huxley, IA, [2]Dow AgroSciences, Indianapolis, IN, [3]Dow AgroSciences, Greenville, MS, [4]Dow AgroSciences, Brookings, SD, [5]Dow AgroSciences, Headland, AL, [6]Dow AgroSciences, Herrin, IL, [7]Dow AgroSciences, Geneva, NY, [8]Dow AgroSciences, Goiania, Brazil (129)

10:45 **Effects of Tank Mixes and Contamination in Corn.** Stephen L. Young*[1], Mark L. Bernards[2], Greg R. Kruger[1], Lowell Sandell[2], Stevan Z. Knezevic[3]; [1]University of Nebraska-Lincoln, North Platte, NE, [2]University of Nebraska-Lincoln, Lincoln, NE, [3]University of Nebraska-Lincoln, Concord, NE (130)

11:00 **Nitrogen Use Rate and the Effect on Stacked Volunteer Corn and Insect Resistance Management.** Paul Marquardt*, William G. Johnson; Purdue University, West Lafayette, IN (131)

Horticulture and Ornamental Papers

8:30 **How Safe is Capreno on Sweet Corn?** Martin M. Williams II*[1], Jerald K. Pataky[2]; [1]USDA-ARS, Urbana, IL, [2]University of Illinois, Urbana, IL (132)

8:45 **Does Hail Damage Synergize Injury from Herbicide Applications in Tomato and Sweet Corn?** Darren E. Robinson*[1], Robert E. Nurse[2]; [1]University of Guelph, Ridgetown, ON, [2]Agriculture and Agri-Food Canada, Harrow, ON (133)

9:00 **Potato Injury from Glyphosate Drift.** Harlene M. Hatterman-Valenti*, Collin Auwarter; North Dakota State University, Fargo, ND (134)

9:15 **Low Dose Effects of 2,4-D and Dicamba on Solanaceae and Curcurbitaceae Vegetables.** David P. Hynes*, Stephen C. Weller; Purdue University, West Lafayette, IN (135)

9:30 **Developments in Weed Control in Lettuce.** Bernard H. Zandstra*, Rodney V. Tocco Jr.; Michigan State University, East Lansing, MI (136)

9:45 **New Herbicides for Weed Control in Highbush Blueberry.** Rodney V. Tocco Jr.*, Bernard H. Zandstra; Michigan State University, East Lansing, MI (137)

10:00 **Relative Herbicide Safety on Four Iris Species.** John E. Kaufmann*; Kaufmann AgKnowledge, Okemos, MI (138)

More NCWSS Learning Store: Application and Adjuvant Symposium

8:15 **Introduction to DRT.** William E. Bagley*; Wilbur Ellis Co., San Antonio, TX (139)

8:25 **EPA DRT Program Update.** Jay Ellenberger*; U.S. Evironmental Protection Agency, Washington, DC (140) (N/A)

8:50 **Development of Drift Reduction Testing.** Clint Hoffman*; USDA-ARS, College Station, TX (141) (N/A)

9:15 **New Developments in Spraying Technology.** Robert E. Wolf*; Kansas State University, Manhattan, KS (142)

9:40 **Proposed ASTM Methodology for Evaluation of Drift Reduction for Ground Sprayers.** Curtis Elsik*; Huntsman Advanced Technology Center, The Woodlands, TX (143)

10:05 **Making Technology Work.** Robert N. Klein*[1], Greg R. Kruger[2]; [1]University of Nebraska, North Platte, NE, [2]University of Nebraska-Lincoln, North Platte, NE (144)

10:30 **Proposed ASTM Method for Evaluating Water Conditioners.** Rich Zollinger*; North Dakota State University, Fargo, ND (145)

More NCWSS Learning Store: Application and Adjuvant Symposium

1:30 **Stewardship of Existing and New Technologies in Weed Science.** Gregory K. Dahl*; Winfield Solutions LLC, St. Paul, MN (146)

1:40 **Demonstrating Application Technology to Growers and Commercial Applicators.** Ryan Wolf*, Eric Spandl; Winfield Solutions LLC, St. Paul, MN (147)

2:00 **The CPDA Certified Adjuvant Program.** Bruce Bollinger*; Rosen's Inc., McCordsville, IN (148)

2:20 **DHT - Managing the Performance, Minimizing the Risk.** Kirk Dietz*; Dow AgroSciences, Indianapolis, IN (149)

2:45 **Dicamba Tolerant Crops - Managing the Performance, Minimizing the Risk.** Cindy Arnevik*; Monsanto Company, St. Louis, MO (150) (N/A)

Soybeans/Legumes/Forage and Range Papers

1:30 **Studies on Glyphosate Resistant Giant Ragweed in Ontario.** Peter H. Sikkema*[1], Joe Vink[1], Darren E. Robinson[1], Mark B. Lawton[2], Francois Tardif[3]; [1]University of Guelph, Ridgetown, ON, [2]Monsanto Canada, Guelph, ON, [3]University of Guelph, Guelph, ON (151)

1:45 **Burndown of Glyphosate Resistant Horseweed (Conyza canadensis) with Saflufenacil Tank Mixtures in Soybean (Glycine max).** Brock S. Waggoner*[1], Bryan G. Young[2], Lawrence E. Steckel[1]; [1]University of Tennessee, Jackson, TN, [2]Southern Illinois University, Carbondale, IL (152)

2:00 **Length of Residual Weed Control with V-10266 and Other Preemergence Soybean Herbicides.** Bryan G. Young*[1], Kevin W. Bradley[2], Mark L. Bernards[3], Aaron G. Hager[4], Bob G. Hartzler[5], William G. Johnson[6], Mark M. Loux[7], Dallas Peterson[8], Christy L. Sprague[9], Charles Slack[10], Eric J. Ott[11], Dawn Refsell[12], Trevor M. Dale[13], John R. Cranmer[14], Gary W. Kirfman[15], John A. Pawlak[16]; [1]Southern Illinois University, Carbondale, IL, [2]University of Missouri, Columbia, MO, [3]University of Nebraska-Lincoln, Lincoln, NE, [4]University of Illinois, Urbana, IL, [5]Iowa State University, Ames, IA, [6]Purdue University, West Lafayette, IN, [7]The Ohio State University, Columbus, OH, [8]Kansas State University, Manhattan, KS, [9]Michigan State University, East Lansing, MI, [10]University of Kentucky, Lexington, KY, [11]Valent USA Corporation, Greenfield, IN, [12]Valent USA Corporation, Lathrop, MO, [13]Valent USA Corporation, Sioux Falls, SD, [14]Valent USA Corporation, Cary, NC, [15]Valent USA Corporation, Ada, MI, [16]Valent USA Corporation, Lansing, MI (153)

2:15 **Tankmixing Residual Herbicides with Glufosinate to Improve Postemergence Weed Control in Glufosinate Resistant Soybeans.** Mike Weber*[1], James Rutledge[2], Jayla Allen[3]; [1]Bayer CropScience, Indianola, IA, [2]Bayer CropScience, RTP, NC, [3]Bayer CropScience, Research Triangle Park, NC (154)

2:30 **The Use of Lactofen for White Mold (Sclerotinia sclerotioum) Control in Soybeans.** Trevor M. Dale*[1], John A. Pawlak[2], Gerald J. Holmes[3], Eric J. Ott[4], Dawn Refsell[5]; [1]Valent USA Corporation, Sioux Falls, SD, [2]Valent USA Corporation, Lansing, MI, [3]Valent USA Corporation, Cary, NC, [4]Valent USA Corporation, Greenfield, IN, [5]Valent USA Corporation, Lathrop, MO (155)

2:45 **Weed Control in Glyphosate-Resistant Alfalfa.** Ronald F. Krausz*[1], Bryan G. Young[2]; [1]Southern Illinois University at Carbondale, Belleville, IL, [2]Southern Illinois University, Carbondale, IL (156)

3:15 **Aminocyclopyrachlor for Range and Pasture Weed Control.** Jeff H. Meredith*[1], Jon S. Claus[2], Craig Alford[3]; [1]DuPont, Memphis, TN, [2]DuPont, Wilmington, DE, [3]DuPont, Denver, CO (157)

3:30 **Broadleaf Weed Control in Pastures with Aminocyclopyrachlor.** Susan K. Rick*[1], Marsha J. Martin[2], Jeff H. Meredith[3]; [1]DuPont, Waterloo, IL, [2]Dupont, Columbus, IL, [3]DuPont, Memphis, TN (158)

3:45 **Determination of Critical Time for Weed Removal in Imidazolinone-resistant Sunflower.** Avishek Datta*[1], Igor Elezovic[2], Stevan Z. Knezevic[1]; [1]University of Nebraska-Lincoln, Concord, NE, [2]University of Belgrade, Belgrade, Serbia (159)

Cover Crops and Weed Management

1:30 **Introduction of Speakers and Symposium.** Erin C. Taylor*[1], George O. Kegode[2]; [1]Michigan State University, East Lansing, MI, [2]Northwest Missouri State University, Maryville, MO (160) (N/A)

1:45 **Can Cover Crops Fit into No-tillage Crop Production Systems in Eastern and Western Kansas.** Anita Dille*, Justin Petrosino, Kraig Roozeboom, John Holman; Kansas State University, Manhattan, KS (161)

2:15 **A Decision Tool to Help Midwest Farmers Select Cover Crops.** Dean Baas*; Michigan State University, East Lansing, MI (162)

3:00 **Termination of Cover Crops Using Rollers/crimpers.** Andrew Price*; USDA-ARS, Auburn, AL (163)

3:30 **Weed Suppression in Transitional Organic, No-tillage Winter Rye-soybean Systems.** Emily Bernstein, David Stoltenberg*, Joshua Posner, Janet Hedtcke; University of Wisconsin - Madison, Madison, WI (164)

4:00 **Are Cover Crops Enough? Supplementing High Residue Covers in Conventional and Organic Systems with Other Options.** William Curran*[1], Matthew Ryan[1], David Mortensen[1], Steven Mirsky[2]; [1]Penn State University, University Park, PA, [2]USDA-ARS, Beltsville, MD (165)

Extension Papers

1:30 **Benefits of Best Management Practices to Reduce Runoff of Chlorotriazine Herbicides to Surface Water.** Richard S. Fawcett*; Fawcett Consulting, Huxley, IA (166)

1:45 **A Survey of Grower, Crop Adviser, and Extension Agent Perceptions about Glyphosate Resistant Weeds in Kansas.** Dallas Peterson*[1], Curtis R. Thompson[1], Douglas E. Shoup[2], Brian L. Olson[3], Jeanne S. Falk[3], Kent L. Martin[4]; [1]Kansas State University, Manhattan, KS, [2]Kansas State University, Chanute, KS, [3]Kansas State University, Colby, KS, [4]Kansas State University, Garden City, KS (167)

2:00 **Herbicide Resistance Education and Training Modules Sponsored by WSSA.** Wesley J. Everman*[1], Les Glasgow[2], Jill Schroeder[3], David R. Shaw[4], John Soteres[5], Jeff M. Stachler[6], Francois Tardif[7]; [1]Michigan State University, East Lansing, MI, [2]Syngenta Crop Protection, Greensboro, NC, [3]New Mexico State University, Las Cruces, NM, [4]Mississippi State University, Mississippi State, MS, [5]Monsanto Company, St. Louis, MO, [6]NDSU and U. of MN, Fargo, ND, [7]University of Guelph, Guelph, ON (168)

2:15 **Benchmark Study: Four Years Later - Trends in Weed Spectrum and Population Density.** Micheal D. Owen*[1], Stephen C. Weller[2], Bryan G. Young[3], David R. Shaw[4], David L. Jordan[5], Dean Grossnickle[1], Philip M. Dixon[1], Robert G. Wilson[6]; [1]Iowa State University, Ames, IA, [2]Purdue University, West Lafayette, IN, [3]Southern Illinois University, Carbondale, IL, [4]Mississippi State University, Mississippi State, MS, [5]North Carolina State University, Raleigh, NC, [6]University of Nebraska-Lincoln, Scottsbluff, NE (169)

2:30 **Benchmark Study: Efficacy and Economics of Weed Management Tactics of Growers versus University Recommendations.** Bryan G. Young*[1], Joseph L. Matthews[1], David L. Jordan[2], Micheal D. Owen[3], Philip M. Dixon[3], David R. Shaw[4], Robert G. Wilson[5], William G. Johnson[6], Stephen C. Weller[6]; [1]Southern Illinois University, Carbondale, IL, [2]North Carolina State University, Raleigh, NC, [3]Iowa State University, Ames, IA, [4]Mississippi State University, Mississippi State, MS, [5]University of Nebraska-Lincoln, Scottsbluff, NE, [6]Purdue University, West Lafayette, IN (170)

2:45 **Utility of the Soybean Micro-rate Program.** Rich Zollinger*; North Dakota State University, Fargo, ND (171)

3:15 **Controlling Glyphosate-resistant Ragweed and Waterhemp with Preemergence Soybean Herbicides having Safety to Sugarbeet in Rotation.** Jeff M. Stachler*, John L. Luecke, Jason M. Fisher; NDSU and U. of MN, Fargo, ND (172)

3:30 **Utilizing Video to Expand Extension Clientele.** Douglas E. Shoup*; Kansas State University, Chanute, KS (173)

2,4-D - Past, Present and Future: Status of One of the World's Most Widely Used Herbicides

8:15 **Introduction to the Symposium - 2,4-D - Past, Present, and Future. Status of One of the World's Most Widely Used Herbicides.** Mark A. Peterson*; Dow AgroSciences, West Lafayette, IN (174)

8:30 **Discovery and Evolution of 2,4-D - a Brief History.** Cliff Gerwick*; Dow AgroSciences, Indianapolis, IN (175)

9:00 **Weed Control and Crop Tolerance with 2,4-D - An Overview.** Dallas Peterson*; Kansas State University, Manhattan, KS (176)

9:30 **2,4-D Mode of Action - Recent Advances in Understanding How Auxin Herbicides Work in Plants.** Terence A. Walsh*; Dow AgroSciences, Indianapolis, IN (177)

10:15 **Development of Resistance to the Auxinic Herbicides: Historical Perspectives, Genetics, and Mechanisms of Weed Resistance.** Dean E. Riechers*[1], Mithila Jugulam[2], William G. Johnson[3]; [1]University of Illinois, Urbana, IL, [2]University of Guelph, Guelph, ON, [3]Purdue University, West Lafayette, IN (178)

10:45 **2,4-D Public Perceptions - Issues, Challenges, and Realities.** Larry Hammond*; 2,4-D Task Force, Indianapolis, IN (179)

11:15 **Future of 2,4-D - New Uses and New Technologies.** David M. Simpson*; Dow AgroSciences, Indianapolis, IN (180)

Equipment and Application Methods Papers

8:30 **Spray Quality Affects Herbicide Efficacy.** Kirk A. Howatt*[1], John R. Lukach[2]; [1]North Dakota State University, Fargo, ND, [2]North Dakota State University, Langdon, ND (181)

8:45 **The Effect of Adjuvant, Nozzle Type, Droplet Size, and Spray Volume on Postemergence Weed Control Using Ignite.** Robert E. Wolf*, Dallas Peterson; Kansas State University, Manhattan, KS (182)

9:00 **The Effect of Nozzle Type, Pressure, and a Drift Reduction/Deposition Aid Product on Postemergence Weed Control with a Dicamba/Glyphosate Tank Mixture.** Robert E. Wolf*[1], Scott Bretthaurer[2]; [1]Kansas State University, Manhattan, KS, [2]University of Illinois, Urbana, IL (183)

9:15 **Spray Drift Minimization Technology.** Robert N. Klein*; University of Nebraska, North Platte, NE (184)

9:30 **Reducing Herbicide Particle Drift with Combinations of Application Equipment and Herbicide Formulation Innovations.** Stephen L. Wilson*, Kuide Qin, Brandon Downer; Dow AgroSciences, Indianapolis, IN (185)

9:45 **Field Methods for Evaluation of Herbicide Volatility.** David E. Hillger*[1], Patrick L. Havens[1], David M. Simpson[1], Bo Braxton[2]; [1]Dow AgroSciences, Indianapolis, IN, [2]Dow AgroSciences, Travelers Rest, SC (186)

10:00 **Laboratory Evaluations of New Forms of 2,4-D for Volatility and Potential to Damage Non-Target Plants.** David G. Ouse*, Jim M. Gifford, Ayesha A. Ahmed, Curtiss J. Jennings; Dow AgroSciences, Indianapolis, IN (187)

10:15 **Break**

10:30 **Should Adjuvant Rates be Based on Spray Volume or Area Covered?** Kirk A. Howatt*, Rich Zollinger; North Dakota State University, Fargo, ND (188)

10:45 **Comparing a New Water Conditioner with AMS.** Angela J. Kazmierczak*[1], Rich Zollinger[1], Mark L. Bernards[2], Scott Tann[3], Howard Stridde[3]; [1]North Dakota State University, Fargo, ND, [2]University of Nebraska-Lincoln, Lincoln, NE, [3]Huntsman, The Woodlands, TX (189)

11:00 **Application of Glyphosate Plus Micronutrients.** Donald Penner*, Jan Michael; Michigan State University, East Lansing, MI (190)

11:15 **Development and Performance Comparison of Weed Flaming Equipment.** George Gogos*[1], Cris Bruening[1], Brian D. Neilson[1], Santiago M. Ulloa[2], Stevan Z. Knezevic[2]; [1]University of Nebraska-Lincoln, Lincoln, NE, [2]University of Nebraska-Lincoln, Concord, NE (191)