



2007

62nd Annual Meeting

North Central Weed Science Society

www.ncwss.org

December 10th-13th

Hyatt Regency St. Louis

St. Louis, Missouri

President's Welcome

62nd North Central Weed Science Society Meeting

On behalf of the Society's Board of Directors and our Local Arrangements Committee, welcome to St. Louis and the 62nd Annual Meeting of the North Central Weed Science Society. This event provides opportunities to share information and experiences with fellow weed scientists, to participate in many informative sessions, to renew acquaintances, and to make new friends.

The Program Committee, chaired by President-elect Bill Johnson, has assembled an impressive program; and Greg Elmore and his colleagues on the Local Arrangements Committee have done an excellent job in preparing the hotel site for the meeting.

Plan to attend the "What's New in the Industry" session to catch up on the latest recommendations and updates. In addition to the many excellent volunteer paper and poster presentations, this year's program includes three symposia:

- 1) Gene Flow among Transgenic Plants and Their Wild Relatives: Implications for Risk Assessment
- 2) The Science and Art of Wildlife Habitat Restoration
- 3) Professional Communication Development

The Gene Flow Symposium brings together academia, industry, government, and other interested people to discuss research on topics related to gene flow from transgenic plants. The meeting focuses on: 1) within-species gene flow; 2) hybridization and gene introgression between transgenic plants; 3) consequences of gene flow from transgenic and non-transgenic plants; 4) approaches to managing gene flow; and 5) modeling gene flow.

Our full-day symposium on Wildlife Habitat Restoration and Improvement brings together a diverse group of professionals to discuss invasive plant biology, ecology, and management. Topics presented are management of invasive algae, impacts of invasive plants on wildlife habitat quality, value of wildlife as an alternative source of revenue for farmers and ranchers, and wildlife habitat improvement. Case studies provided by Quail Unlimited, National Wild Turkey Federation, and Quality Deer Habitat will be presented to an industry panel to discuss herbicide and application technologies in habitat improvement programs.

Our Communication Development Symposium provides practical tips to effectively prepare and present weed science information to a variety of specific audiences.

Please bring this program to the conference

President's Welcome

It's never too early to become an active member of the Society! I urge you to consider becoming more involved in your Society: volunteer for committee work, run for state/province director, or run for elected office on the Board. Each committee of the Society will meet during the conference, so please join the meeting of any committee that interests you.

Bill Johnson will make committee appointments for 2008 after this meeting. Please sign up at the meeting or send him a message that you would like to become a committee member for the coming year. Both you and the Society will benefit from your involvement.

It has been a privilege to serve as President of the NCWSS. I look forward to seeing you at the meeting and thank you for your continued active support of the NCWSS.

Adrian J. Moses, Ph.D.

NCWSS President

General Information

Conference Headquarters: All sessions of the conference and the banquet will be held at the Hyatt Regency St. Louis, One St. Louis Union Station, St. Louis, Missouri 63103; Phone: (314) 231 1234; Fax: (314) 923 3970.

Registration: Everyone attending the conference must register. Pre-registration will save you time and money. Pre-registration is \$220 (includes banquet). Registration at the conference is \$245. Student pre-registration is \$110 while student registration at the conference is \$135. Individual banquet tickets are \$50. Industry breakfast tickets are available for \$23.

Registration Hours/Executive Secretary: The registration desk (*located in the Coat Room*) will be open Monday 4 to 8 pm, Tuesday 8 am to 5 pm, Wednesday 8 am to 4 pm, and Thursday 8 am to 10 am. Everyone attending the conference must register.

Local Arrangements Headquarters: *Wabash Cannonball*

Committee Meeting Rooms: Rooms will be available at the hotel for committee meetings. Additional meetings may be arranged any time during the conference by contacting Greg Elmore, Local Arrangements Chair.

Proceedings: Copies of the 2007 NCWSS Proceedings on a Compact Disc may be requested at the registration desk. The Compact Disc is \$30 if purchasing separately.

Interactive Encyclopedia of North American Weeds: DVD is \$64.95 if purchased during the conference.

Sustaining Members: Sustaining members that have made prior arrangements with the Industry Chair may put up a display in Foyer A, B, and C. No other displays are allowed.

No Smoking: Smoking is not permitted in the sessions.

Program Symbols:

- * Presenting Author
- ** Paper or poster in the graduate student contest
- *** Poster in the undergraduate student poster contest

Meetings of the Society 2007

Board of Directors:

Monday, 1:00 pm *Illinois/New York Special (3rd Floor)*
Wednesday, 8:30 pm *Illinois/New York Special*

Local Arrangements:

Monday, 11:00 am (Pre-conference) *Missouri Pacific*
Thursday, 11:30 am (2007 & 2008 Committees) *Missouri Pacific*

Contest Judges for Paper and Poster Contests:

Paper and Poster Judges Continental Breakfast, Tuesday 7:00 am
Missouri Pacific
Poster Judges Meeting, Tuesday, 7:15 am *Frisco*
Paper Judges Meeting, Tuesday, 7:15 am *Illinois Central*
Poster Judges Meeting, Wednesday, 9:30 am *Frisco*
Paper Judges Meeting, Wednesday, 12:30 pm *Texas Special*

Meal Functions:

Breaks
Tuesday, 9:00 – 10:00 am *Foyer ABC*
Tuesday, 2:30 – 3:30 pm *Foyer ABC*
Wednesday, 9:00 – 10:00 am *Foyer ABC*
Wednesday, 2:30 – 3:30 pm *Foyer ABC*
Thursday, 9:30 – 10:30 am *Foyer ABC*

Student Mixer
Sponsored by BASF Corporation
Monday, 5:00 pm *Regency Ballroom C*

Industry Mixer
Sponsored by Industry
Tuesday, 5:30-7:30 pm *Grand Ballroom ABC*

Student Luncheon/Business Meeting
Sponsored by Monsanto
Wednesday, 11:45 am to 1:00 pm *Missouri Pacific*

Society Social Hour
Wednesday, 5:15 pm *Foyer AB*

Society Banquet
MC: Bryan Young
Wednesday, 6:45 pm *Regency Ballroom ABC*

Industry Breakfast (*Cost: \$23*)
Speaker: Gerald Dill, Monsanto Company
Thursday, 7:30 am *Regency Ballroom A*

Meetings of the Society 2007

The following meetings will take place for the purpose of conducting the business of each respective committee and to elect a new Vice Chairperson to serve as Chairperson in 2008. Most meetings are open to members. Please see the committee chair or attend the committee meeting if you are interested in serving the society by being a committee member.

NCWSS Committee Meetings:

Program Committee Monday, 12:00 pm *Midnight Special*

Finance, Steering, & Policy
Tuesday, 12:00 pm *Illinois Central*

Legislation, Regulatory & Public Policy
Tuesday, 1:30 pm *Frisco*

Distinguished Achievement Award
Tuesday, 2:00 pm *Burlington Route*

Resolutions & Necrology Tuesday, 3:00 pm *Illinois Central*

NCWSS Fellow Tuesday, 3:30 pm *Frisco*

Long Range Planning & Organizational Affairs
Tuesday, 4:00 pm *Burlington Route*

Nominating Tuesday, 4:30 pm *Missouri Pacific*

Publicity & Public Relations
Tuesday, 4:45 pm *Frisco*

Electronic Communications
Tuesday, 5:00 pm *Burlington Route*

Membership Wednesday, 9:00 am *Colorado Eagle*

Resident Education Wednesday, 12:00 pm *Frisco*

Future Site Selection Wednesday, 12:00 pm
Burlington Route

Summer Contest Wednesday, 3:00 pm
Colorado Eagle

Contest Rules Wednesday, 3:30 pm *Frisco*

Meetings of the Society 2007

Program Section Business Meetings:

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|------------------------------------|---------------------|---------------------|
| Agronomic Crops I | Tuesday, 4:45 pm | Grand Ballroom ABC |
| Agronomic Crops II | Wednesday, 3:45 pm | Regency Ballroom B |
| Agronomic Crops III | Wednesday, 11:45 am | Regency Ballroom C |
| Extension | Wednesday, 5:00 pm | Regency Ballroom C |
| Herbicide Physiology | Tuesday, 2:15 pm | Regency Ballroom AB |
| Horticulture & Ornamentals | Wednesday, 2:45 pm | Grand Ballroom A |
| Invasive Weeds | Thursday, 10:45 am | Regency Ballroom B |
| Poster Session | Wednesday, 7:30 am | Grand Ballroom DEF |
| Weed Biology, Ecology & Management | Tuesday, 4:45 pm | Regency Ballroom C |

Special Interest Groups:

| | | |
|--------------------|---------------------|--------------------|
| Graduate Students | Wednesday, 11:45 pm | Missouri Pacific |
| Industry Breakfast | Thursday, 7:30 am | Regency Ballroom A |

Symposia:

What's New in the Industry

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|---------------|---------------------------|---------------------|
| Presentations | Tuesday 3:00 pm - 5:00 pm | Regency Ballroom AB |
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Gene Flow

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|---------------|------------------------------------|--------------------|
| Posters | Wednesday 8:00 – 9:15 am | Grand Ballroom DEF |
| | Wednesday 9:45 - Thursday 12:00 pm | Grand Ballroom B |
| Presentations | Wednesday 10:00 am - 5:30 pm | Grand Ballroom B |
| Presentations | Thursday 8:15 am – 12:00 pm | Grand Ballroom B |

The Science and Art of Wildlife Habitat Restoration

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|---------------|------------------------------|------------------|
| Presentations | Wednesday 10:00 am - 5:00 pm | Grand Ballroom C |
|---------------|------------------------------|------------------|

Communication Development: Message Delivery to Weed Science Colleagues and Clientele

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|---------------|----------------------------|------------------|
| Presentations | Thursday 8:55 am -11:40 am | Grand Ballroom C |
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Condensed Program – NCWSS 2007

Monday, December 10

| | | |
|---------------|----------------------------|---------------------------|
| 1:00 pm | Board of Directors Meeting | Illinois/New York Special |
| After 3:00 pm | Poster Display Setup | Grand Ballroom DEF |
| 5:00 pm | Graduate Student Mixer | Regency Ballroom C |

Tuesday, December 11

| | | |
|--------------|--|----------------------|
| 8:00 – 10:00 | Poster Session I (Authors Present 8:00 - 9:45 am) | Grand Ballroom DEF |
| 10:00 – Noon | NCWSS General Session | Regency Ballroom ABC |
| 1:00 – 4:45 | Agronomic Crops I Papers | Grand Ballroom ABC |
| 1:00 – 2:15 | Herbicide Physiology Papers | Regency Ballroom AB |
| 1:00 – 4:45 | Weed Biology, Ecology and Management Papers | Regency Ballroom C |
| 3:00 – 5:00 | What's New in the Industry? | Regency Ballroom AB |
| 5:30 – 7:30 | Industry Mixer | Grand Ballroom ABC |

Wednesday, December 12

| | | |
|--------------|---|--------------------|
| 8:00 – 9:15 | Poster Session II (Authors Present 8:00 - 9:15 am) | Grand Ballroom DEF |
| 10:00 – 5:00 | The Science and Art of Wildlife Habitat Restoration Symposium | Grand Ballroom C |
| 10:00 – 5:30 | Gene Flow Symposium | Grand Ballroom B |
| 9:30 – 3:45 | Agronomic Crop II Papers | Regency Ballroom B |
| 9:30 – 2:45 | Horticulture and Ornamentals Papers | Grand Ballroom A |
| 9:30 – 11:45 | Agronomic Crops III Papers | Regency Ballroom A |
| 1:00 – 5:00 | Extension Papers | Regency Ballroom C |

Wednesday Evening, December 12

| | | |
|------|----------------------------|---------------------------|
| 5:15 | Social | Foyer AB |
| 6:45 | Banquet | Regency Ballroom ABC |
| 8:30 | Board of Directors Meeting | Illinois/New York Special |

Condensed Program continued – NCWSS 2007

Thursday, December 13

| | | |
|--------------|--|---------------------------|
| 7:30 – 9:00 | Industry Breakfast | <i>Regency Ballroom A</i> |
| 8:15 – Noon | Gene Flow Symposium (Continued) | <i>Grand Ballroom B</i> |
| 8:55 – 11:40 | Communication Development: Message Delivery to Weed Science Colleagues and Clientele Symposium | <i>Regency Ballroom C</i> |
| 9:00 – 10:45 | Invasive Weeds, Forage and Rangeland Papers | <i>Regency Ballroom B</i> |

Posters 2007

Poster Sessions

Tuesday & Wednesday Mornings

Room: *Grand Ballroom DEF*

Chairperson and Moderator: Steve Sanborn

Posters may be set up beginning at 3:00 pm on Monday, December 10. All posters will be on display from 8:00 am Tuesday, December 11 through 4:00 pm Wednesday, December 12.

All posters must be removed by 5:00 pm on Wednesday, December 12.

Authors should be with their posters BOTH Tuesday from 8:00 to 9:45 am and Wednesday from 8:00 to 9:15 am.

Tuesday:

8:00 am Poster Session I

9:45 am Adjourn to the NCWSS General Session

Wednesday:

7:30 am Poster Session Business Meeting

8:00 am Poster Session II

9:15 am Adjourn to the Sessions

Program Symbols:

- * Presenting Author
- ** Paper or poster in the graduate student contest
- *** Poster in the undergraduate student poster contest

Agronomic Crops I Posters

****Weed Control and Crop Response in Tribenuron-Tolerant Sunflower.** Amar S. Godar*, Phillip W. Stahlman, and J. Anita Dille, Kansas State University, Manhattan, KS. (1)

DuPont ExpressSun Trait with Pioneer 63N81 Sunflower and DuPont Herbicide Systems. James D. Harbour*, Eric Hoeft, and Jeff Meredith, DuPont Ag and Nutrition, Fargo, ND. (2)

DuPont Affinity Products Tank Mixed with Starane NXT, Cleanwave or Florasulam. Michael T. Edwards*, Eric P. Castner, James D. Harbour, C. William Kral, and Jeff H. Meredith, DuPont Crop Protection, Wilmington, DE. (3)

****Row Spacing Effects on Weed Management in Glyphosate-Resistant Sugar Beet.** Jon-Joseph Q. Armstrong* and Christy L. Sprague, Michigan State University, East Lansing, MI. (4)

Broadleaf Weed Control in Oat. Krishona Martinson*, Lisa Behnken, Fritz Breitenbach, Jochum Wiersma, and Beverly Durgan, University of Minnesota, St. Paul, MN. (5)

Responses of Winter Wheat to Preplant and Preemergence Herbicide Tank Mixes. Peter H. Sikkema, Christy Shropshire, and Nader Soltani*, University of Guelph Ridgetown Campus, Ridgetown, Ontario, Canada. NOP 2C0. (6)

Weed Management Systems in Dry Bean. Nader Soltani*, Richard Vyn, Christy Shropshire, and Peter H. Sikkema, University of Guelph Ridgetown Campus, Ridgetown, Ontario, Canada. NOP 2C0. (7)

Agronomic Crops II Posters

Waterhemp Control in Corn and Soybean with Sequential Herbicides. Nader Soltani*, Joshua D. Vyn, and Peter H. Sikkema, University of Guelph Ridgetown Campus, Ridgetown, Ontario, Canada. NOP 2C0. (8)

****Weed Tolerance to Flaming.** Stevan Z. Knezevic and Santiago Ulloa*, Haskell Agricultural Laboratory, University of Nebraska, Concord, NE. (9)

Popcorn Tolerance to Mesotrione, Tembotrione and Topramezone. Thomas T. Bauman* and Michael D. White, Purdue University, West Lafayette, IN. (10)

****Grain Sorghum Response to Postemergence Mesotrione Applied at Different Growth Stages.** Mary Joy M. Abit*, Kassim Al-Khatib, and David L. Regehr, Manhattan, KS; Mark M. Claassen, Hesston, KS; Philip W. Stahlman, Hays, KS; Barney W. Gordon, Belleville, KS; Randall S. Currie, Garden City, KS; and Brian L. Olson, Colby, KS; Kansas State University, Manhattan, KS. (11)

Johnsongrass Control with Postemergence Corn Herbicides Applied Alone or in Tank Mix Combinations. James R. Martin* and Charles R. Tutt, University of Kentucky, Princeton, KY. (12)

Program Approaches to Weed Control in Corn with Various Blends of Rimsulfuron, Nicosulfuron and Thifensulfuron-methyl plus Isoxadifen-ethyl Safener. Helen A. Flanigan*, Gregory R. Armel, Kevin L. Hahn and Susan K. Rick, DuPont Crop Protection, Wilmington, DE. (13)

****Competitive Ability of Volunteer Corn in Corn and Soybean.** Jill Alms*, Mike Moechnig, Darrell Deneke, and Dave Vos, South Dakota State University, Brookings, SD. (14)

Broadleaf Weed Control with KIH-485. Peter J. Porpiglia* and Yoshihiro Yamaji, K-I Chemical U.S.A., Inc. and Osamu Watanabe, Kumiai Chemical Industry Company, Ltd., Shizuoka, Japan. (15)

Dose Response Curves of KIH-485 for Weed Control in Corn. Stevan Z. Knezevic, Jon E. Scott* and Peter Porpiglia, Haskell Agricultural Laboratory, University of Nebraska, Concord, NE, and Kumiai America, White Plains, New York. (16)

Agronomic Crops III Posters

****Field Survey of PPO-Resistance in Illinois Waterhemp Populations.** Daniel D. Schnitker*, Bryan G. Young, Julie M. Young, and Joseph L. Matthews, Southern Illinois University, Carbondale, IL. (17)

Sandbur Control in Soybean with Imazethapyr. Peter H. Sikkema, Joshua D. Vyn, Chris Kramer, and Nader Soltani*, University of Guelph Ridgetown Campus, Ridgetown, Ontario, Canada. NOP 2C0. (18)

Effectiveness of Preplant Soybean Herbicides on Glyphosate-resistant Giant Ragweed. Mark M. Loux*, Jeff M. Stachler, and Anthony F. Dobbels, The Ohio State University, Columbus, OH. (19)

Fall Applications of Chlorimuron-ethyl Based Offerings in Comparison to Key Competitive Standards in Soybean. Marsha J. Martin*, Gregory R. Armel, Helen A. Flanigan, and Susan K. Rick, DuPont Crop Protection, Wilmington, DE. (20)

Influence of Preplant Growth Regulator Herbicides on Soybean Development and Yield. Joseph L. Matthews*, Bryan G. Young, Dean E. Riechers, and Gordon K. Roskamp, Southern Illinois University, Carbondale, IL; University of Illinois, Urbana, IL; and Western Illinois University, Macomb, IL. (21)

Prefix for Residual Weed Control in Soybean. Dain E. Bruns*, Don J. Porter, Scott E. Cully, and Eric W. Palmer, Syngenta Crop Protection, Inc., Greensboro, NC. (22)

Burndown and Residual Control with Two New Chlorimuron-ethyl, Thifensulfuron-methyl Plus Flumioxazin Blends in Soybeans. Susan K. Rick*, Marsha J. Martin, Gregory R. Armel and Helen A. Flanigan, DuPont Crop Protection, Wilmington, DE. (23)

Volunteer Glyphosate-resistant Corn Control in Roundup Ready Soybeans. Kevin R. Westerfeld*, Vince M. Davis, Melissa M. Kruger, and William G. Johnson, Purdue University, West Lafayette, IN. (24)

****Response of Soybean Cyst Nematode and Plant Growth to Combinations of Purple Deadnettle, Annual Ryegrass and Soybeans.** Valerie A. Mock*, Purdue University, West Lafayette, IN; J. Earl Creech, University of Nevada Cooperative Extension, Fallon, NV; and William G. Johnson, Purdue University, West Lafayette, IN. (25)

Extension Posters

A New Extension Publication Concerning Winter Annual Weeds and Soybean Cyst Nematode. Valerie A. Mock*, William G. Johnson, and Kevin L. Smith, Purdue University, West Lafayette, IN and Kevin Bradley, University of Missouri, Columbia, MO. (26)

Transitioning WeedSOFT to Internet-based General Access Applications. Richard C. Eubanks*, Mark L. Bernards, and Lowell D. Sandell, University of Nebraska, Lincoln, NE; Chris M. Boerboom, University of Wisconsin, Madison, WI; Christy L. Sprague, Michigan State University, East Lansing, MI; William G. Johnson, Purdue University, West Lafayette, IN; Kevin W. Bradley, University of Missouri, Columbia, MO; and Dallas E. Peterson, Kansas State University, Manhattan, KS. (27)

North Central Weed Science Society Weed Contest - 2007. Jess Spotanski*, Midwest Research Inc., York, NE and Tate Castillo, Bennett Agricultural Research Corp., Richland, IA. (28)

Equipment and Application Posters

****Deposition Adjuvants for Enhancing Downy Brome and Wild Oat Control.** Mike H. Ostlie* and Kirk A. Howatt, North Dakota State University, Fargo, ND. (29)

****Herbicide Solution pH Effect on Control of Downy Brome and Wild Oat.** Angela J. Kazmierczak* and Kirk A. Howatt, North Dakota State University, Fargo, ND. (30)

Adjuvant Class Screening with Propoxycarbazone for Control of Downy Brome. Angela J. Kazmierczak* and Kirk A. Howatt, North Dakota State University, Fargo, ND. (31)

Building a Research Flamer. Stevan Z. Knezevic, Logan Dana*, Jon E. Scott and Santiago Ulloa, Haskell Agricultural Laboratory, University of Nebraska, Concord, NE. (32)

Flaming Weeds in Integrated Cropping Systems. Erin C. Taylor-Hill*, Karen A. Renner, Christy L. Sprague, and Dale R. Mutch, Michigan State University, East Lansing, MI. (33)

Herbicide Physiology Posters

****Target-site Resistance to ALS Inhibitors in Horseweed.** Danman Zheng*, Vince M. Davis, Greg R. Kruger, William G. Johnson, and Patrick J. Tranel, University of Illinois, Urbana, IL, Purdue University, West Lafayette, IN. (34)

****Investigating Linkage of Different Herbicide Resistance and Seed Dormancy in Waterhemp by Segregation Analysis.** Gurpreet S. Smagh*, William L. Patzoldt, and Patrick J. Tranel, University of Illinois, Urbana, IL. (35)

Assay Comparison for Measuring Shikimate Accumulation in Glyphosate-Treated Plant Species. Keith A. Kretzmer* and Douglas R. Sammons, Monsanto Company, St. Louis, MO. (36)

****Resistance to PPO Inhibitors in Common Ragweed: Molecular Investigation of Target-Site Genes.** Stephanie L. Rousonelos*, Ryan M. Lee, Mark J. VanGessel, and Patrick J. Tranel, University of Illinois, Urbana-Champaign, IL and University of Delaware, Georgetown, DE. (37)

Utilizing R Software Package for Dose Response Studies: The Concept and Data Analysis. Stevan Knezevic*, Jens Streibig and Christian Ritz, University of Nebraska, Concord, NE and Royal Veterinary and Agricultural University Copenhagen, Denmark. (38)

****Distribution and Characterization of ALS Resistance in Indiana Horseweed (*Conyza canadensis*) Populations.** Greg R. Kruger*, Vince M. Davis, Andrew M. Westhoven, Valerie A. Mock, Stephen C. Weller, and William G. Johnson, Purdue University, West Lafayette, IN. (39)

Response of Glyphosate-tolerant Common Lambsquarters Biotypes to Glyphosate. Melissa M. Kruger*, Andrew M. Westhoven, and William G. Johnson, Purdue University, West Lafayette, IN. (40)

Weed Biology, Ecology and Management Posters

****Biological Characteristics of Common Lambsquarters Biotypes with Tolerance to Glyphosate.** Andrew M. Westhoven*, Purdue University, West Lafayette, IN; Jeff M. Stachler, The Ohio State University, Columbus, OH; Mark M. Loux, The Ohio State University, Columbus, OH; and William G. Johnson, Purdue University, West Lafayette, IN. (41)

****Understanding the Chenopodium Complex using DNA-based Markers.** Sukhvinder Singh* and Patrick J. Tranel, University of Illinois, Urbana, IL. (42)

Seed Chemical and Physical Defense in Relation to Seedbank Persistence. A. S. Davis*, J. Iannuzzi, and K. A. Renner, USDA-ARS Invasive Weed Management Unit, Urbana, IL and Michigan State University, East Lansing, MI. (43)

****The Effects of Crop Canopy Light Interception on Weed Emergence.** Rutendo P. Nyamusamba*, Michael Moechnig, and Darrell Deneke, South Dakota State University, Brookings, SD. (44)

****Effect of Transgenes from Sorghum on the Fitness of Shattercane \times Sorghum Hybrids.** Lilyrani Sahoo*, John L. Lindquist, and Donald J. Lee, University of Nebraska, Lincoln, NE and Jeffrey F. Pedersen, USDA, ARS, Lincoln, NE. (45)

Changes in Weed Seed Bank Composition and Density During Transition to Organic Production. Isabel Rosa and John Masiunas*, University of Illinois, Urbana, IL. (46)

****Feedback Response of Common Sunflower and Giant Ragweed Growth in Kansas's Soil.** Analiza Henedina M. Ramirez* and Anita Dille, Kansas State University, Manhattan KS. (47)

Effect of Glyphosate-Resistant Volunteer Corn on Glyphosate-Resistant Corn. Lizabeth A.B. Stahl*, Milton J. Haar, Jodie K. Getting, Ryan P. Miller, and Thomas R. Hoverstad, University of Minnesota, St. Paul, MN. (48)

****Determining Glyphosate Resistance through Pollen Using an Assay.** Johnathan P. Dierking* and Reid J. Smeda, University of Missouri, Columbia, MO. (49)

****Influence of No-till Management Practices and Herbicide Application Timing on Winter Annual Weeds.** Vince M. Davis*, Kevin D. Gibson, and William G. Johnson, Purdue University, West Lafayette, IN. (50)

Horticulture and Ornamental Posters

Simulated Glyphosate Drift to Irrigated Potato. Collin P. Auwarter* and Harlene M. Hatterman-Valenti, North Dakota State University, Fargo, ND. (51)

****Assessment of Current Herbicide Options in Double Cropped Pumpkins Following Wheat in Southern Illinois.** Robert J. Britenstine*, Bryan G. Young, and S. Alan Walters, Southern Illinois University, Carbondale, IL. (52)

Weed Control in Transplanted Cabbage. Harlene M. Hatterman-Valenti* and Collin Auwarter, North Dakota State University, Fargo, ND. (53)

Methyl Bromide Alternatives for Nursery Production. Michael W. Marshall*, Daniel A. Little, Robert J. Richardson, and Bernard H. Zandstra, Michigan State University, East Lansing, MI. (54)

Invasive Weeds, Forage and Rangeland Posters

****Detection and Management of Cut-leaved Teasel Using Digital Images.** Diego J Bentivegna*, Reid J. Smeda, Cuizhen Wang, and Harlan L. Palm, University of Missouri, Columbia, MO. (55)

Weed Management in Glyphosate Tolerant Alfalfa in Kentucky: Four Years of Observations. Sara K. Carter*, Charles H. Slack, Bernard F. Hicks and Glen P. Murphy, University of Kentucky, Lexington, KY and Monsanto Company, Coss Creek, KY. (56)

****Tall Ironweed Control in Cool Season Grass Pastures.** Daisy M. Fryman* and William W. Witt, University of Kentucky, Lexington, KY. (57)

Saltcedar Control in the Cimarron River Basin. Walter H. Fick* and Wayne A. Geyer, Kansas State University, Manhattan, KS. (58)

****Response of Poison Hemlock (*Conium maculatum* L.) to Herbicides.** Carl A. Woodard* and Reid J. Smeda, University of Missouri, Columbia, MO. (59)

Weed Management Strategies to Increase Forage Productivity of Permanent Pasture. J. D. Green* and David Appelman, University of Kentucky, Lexington KY. (60)

Undergraduate Poster Contest Posters

*****Seed Bank Management Using Buckwheat (*Fagopyrum esculentum*) Cover Cropping in Tomato.** John E. McMillan*, Rachel Nodurft, Steve Weller, and Kevin Gibson, Purdue University, West Lafayette, IN. (61)

*****Corn and Velvetleaf Transpiration in Response to Drying Soil.** Jared J. Schmidt* and John L. Lindquist, University of Nebraska, Lincoln, NE. (62)

*****Response of Selected Southern Illinois Horseweed Populations to Burndown Herbicides with Different Modes of Action.** Brock S. Waggoner*, Bryan G. Young, Julie M. Young, and Joseph L. Matthews, Southern Illinois University, Carbondale, IL. (63)

*****Turfgrass Establishment and Large Crabgrass Control Using Cellulosic Seed and Fertilizer Blankets.** Brandon Drzewicki*, Jan Michael, and Donald Penner, Michigan State University, East Lansing, MI. (64)

*****A Simple Continuous Assay for EPSPS Synthase in Plant Tissue.** Christopher Parrish*, Julie Meyer, and Doug Sammons, Monsanto Company, St. Louis, MO. (65)

Gene Flow Symposium Posters

*Posters will be displayed at the Wednesday NCWSS Poster Session in *Grand Ballroom DEF* from 8:00 am to 9:15 am and then moved to *Grand Ballroom B* through Thursday at noon.

Identifying Maize Diversity Areas and Implications Regarding Biosafety Measures. Francisca Acevedo*, José Sarukhán, Jorge Larson, Elleli Huerta, Patricia Koleff, Claudia Aguilar, Alejandra Barrios and Oswaldo Oliveros, National Commission for the Knowledge and Use of Biodiversity, CONABIO, Mexico City, Mexico and Ministry of the Environment and Natural Resources, Mexico City, Mexico (66)

Seed-Mediated Gene Flow in Certified and Farm-Saved Seed Lots. Todd A. Gaines*, Christopher Preston, Patrick F. Byrne, W. Brien Henry, and Philip Westra, Colorado State University, Fort Collins; University of Adelaide, Australia; and USDA-ARS, Akron, CO. (67)

Interloper's Legacy: Invasive, Hybrid-Derived California Wild Radish (*Raphanus sativus*) Evolves to Outperform its Immigrant Parents. Caroline E. Ridley*, Rosamond F. Tsao and Norman C. Ellstrand, University of California, Riverside, CA. (68)

Sympatry and Hybridization of Canola and Bird Rape (*Brassica rapa*) in Quebec. Marie-Josée Simard, Anne Légère, and Suzanne I. Warwick*, Agriculture and Agri-Food Canada (AAFC) Québec, QC; Saskatoon, SK; and Ottawa, ON, Canada. (69)

Do Escaped Transgenes Persist in Nature? The Case of an Herbicide Resistance Transgene in Weedy Population of *Brassica rapa*. Suzanne I. Warwick*, Anne Légère, Marie-Josée Simard, and Tracey James, Agriculture and Agri-Food Canada (AAFC) Ottawa, ON; Saskatoon, SK; Québec, QC; and Ottawa, ON, Canada. (70)

Measuring the Effects of Crop Genetic Load on Productivity and Fitness in Weedy *Brassica rapa* (wild turnip) × *Brassica napus* (oilseed rape) Hybrid Populations. Reginald J. Millwood*, Christy W. Rose*, and C. Neal Stewart, Jr., University of Tennessee, Knoxville, TN. (71)

Strategies to Reduce Transgene Movement and Persistence. Hong S. Moon*, Jason N. Burris*, Reginald J. Millwood, Christy W. Rose, and C. Neal Stewart, Jr., University of Tennessee, Knoxville, TN. (72)

Gene Flow Symposium Posters Continued

Estimating Pollen-Mediated Gene Flow in Colorado Corn Fields with the Blue Kernel Trait. Patrick F. Byrne*, Todd A. Gaines, Ron F. Meyer, and Rob Alexander, Colorado State University, Fort Collins, CO; Colorado State University, Burlington, CO; Boulder County Parks and Open Space Department, Longmont, CO. (73)

Assessment of Potential Impact of Hybridization between Teosinte (*Zea ssp.*) and Maize (*Zea mays ssp. mays*) on Dormancy Characteristics of Teosinte. Baltazar M. Baltazar*, William J. Duncan, Daniel L. Kendrick and Michael J. Horak, Monsanto Company, St. Louis, MO. (74)

Regulation of Diurnal Pollen Release. Brian Viner*, Ray Arritt and Mark Westgate, Iowa State University, Ames, IA. (75)

Variation in ALS Herbicide Resistance of Diverse Crop-Wild Sunflower Hybrids. Kristin L. Mercer*, Kevin Betts, Ruth G. Shaw, and Donald L. Wyse, The Ohio State University, Columbus, OH and University of Minnesota, St. Paul, MN. (76)

Lifetime Fecundity of F1 Crop-Wild Sorghum Hybrids: Implications for Gene Flow from Transgenic Sorghum in Africa. Allison A. Snow, Patricia M. Sweeney*, Cécile Grenier, Tesfaye Tesso, Issoufrou Kapran, Gurling Bothma, Gebisa Ejeta, and Jeffrey F. Pedersen, The Ohio State University, Columbus, OH; Purdue University, West Lafayette, IN; Ethiopian Institute of Agricultural Research, Nazareth, Ethiopia; Institut National de la Recherche Agronomique du Niger, Niamey, République du Niger; ARC-Roodeplaat, Pretoria, South Africa; and USDA, ARS, University of Nebraska, Lincoln, NE. (77)

Crop-Wild Hybridization and the Rate of Evolution in Weeds. Lesley G. Campbell*, Allison A. Snow, and Patricia M. Sweeney, University of Maryland, College Park, MD and The Ohio State University, Columbus, OH. (78)

Modeling Pollen Dispersal between Fields of White Clover – Co-existence with GM-White Clover? Christina L. Løjtant*, Christian F. Damgaard and Rikke B. Jørgensen, Risø National Laboratory; Technical University of Denmark, DK-4000 Roskilde, DMU; and University of Århus, DK-8600 Silkeborg, Denmark. (79)

Gene Flow Symposium Posters Continued

Biosafety Assessment and Benefits for Co-existence of Biological Contained Plants – Regulatory Assessment in the EU-project “TransContainer”. Christiane Koziolk* and Detlef Bartsch, Federal Office of Food Safety and Consumer Protection, Berlin, Germany. (80)

Addressing Gene Flow Issues in Cowpea for West Africa. Remy Pasquet, ICIPE, IRD Nairobi, Kenya; Barry Pittendrigh, Purdue University, West Lafayette, IN; Mohammad Ishiyaku, Ahmadu Bello University, Zaria, Nigeria; Ibrahim Baoua, INRAN, Maradi, Niger; Clementine Dabiré, INERA Ouagadougou, Burkina Faso; Malik Ba, INERA, Ouagadougou, Burkina Faso; Manuele Tamò, IITA Cotonou, Benin; Larry Murdock, Purdue University, West Lafayette, IN; and Joseph Huesing*, Monsanto Company, St. Louis, MO. (81)

General Session - NCWSS 2007 62nd Annual Meeting

Room: *Regency Ballroom ABC*

Chairperson and Moderator: Bill Johnson

Time: Tuesday, 10:00 am

- 10:10 **Welcome to St. Louis.** Greg Elmore, Local Arrangements Chair, St. Louis, MO.
- 10:20 **Biofuels – U.S. Department of Energy Perspective.** James Fischer*, US Department of Energy, Washington, DC. (82)
- 10:50 **Biofuels – CAST Perspective.** John Bonner*, Council for Agricultural Science and Technology, Ames, IA. (83)
- 11:20 **Washington Report.** Lee Van Wychen*, Director of Science Policy, Washington, DC. (84)
- 11:35 **President’s Address.** Adrian Moses*, Syngenta Crop Protection, Ames, IA. (85)
- 11:55 **Announcements.** Bill Johnson, Program Chair, Purdue University, West Lafayette, IN.

Agronomic Crops I PapersRoom: *Grand Ballroom ABC*

Moderator: Mike Edwards

- 1:00 **Effect of Fungicides on Efficacy of Glyphosate in Sugar Beet.** Darren E. Robinson*, University of Guelph, Ridgetown, ON and Rob Nurse, AgCanada, Harrow, ON. (86)
- 1:15 **Weed Control in Glyphosate Resistant Sugar Beet.** Aaron L. Carlson*, John L. Luecke and Alan G. Dexter, North Dakota State University, Fargo, ND and University of Minnesota, St. Paul, MN. (87)
- 1:30 ****Propoxycarbazone Injury to Subsequent Crops by Soil Residues.** Angela J. Kazmierczak* and Kirk A. Howatt, North Dakota State University and Alan G. Dexter, Fargo, ND. (88)
- 1:45 ****Pyroxsulam Efficacy to Wild Oat Influenced by Application Timing or Adjuvants.** Lindsey K. Hanson* and Kirk A. Howatt, North Dakota State University, Fargo, ND. (89)
- 2:00 **Introduction to Huskie Herbicide - A New Broadleaf Herbicide for Use in Northern Plains Cereals.** Kevin B. Thorsness*, Dean W. Maruska, Mary D. Paulsgrove, Michael C. Smith, George S. Simkins, Thomas W. Kleven, and Mark Wrucke, Bayer CropScience, Research Triangle Park, NC. (90)
- 2:15 **Huskie Herbicide - Efficacy in Northern Plains Cereals.** Dean W. Maruska*, Kevin B. Thorsness, Mary D. Paulsgrove, Michael C. Smith, George S. Simkins, Thomas Kleven, and Mark Wrucke, Bayer CropScience, Research Triangle Park, NC. (91)
- 2:30 **Grass and Broadleaf Weed Management in Winter Wheat.** Ronald F. Krausz* and Bryan G. Young, Southern Illinois University, Carbondale, IL. (92)
- 2:45 **DE-742 Compared to Standards for Bromus Control in Winter Wheat.** Patrick W. Geier*, Phillip W. Stahlman, Kansas State University, Hays, KS; Dallas E. Peterson, Kansas State University, Manhattan, KS; and Mark M. Claassen, Kansas State University, Hesston, KS. (93)
- 3:00 **Break**

**Agronomic Crops I Papers
Continued**

- 3:15 **Orion™: New Broadleaf Herbicide for Wheat and Barley.** Peter C. Forster*, Donald J. Porter and Jason C. Sanders, Syngenta Crop Protection Inc., Eaton, CO. (94)
- 3:30 **Axial XL: The New Standard for Grass Control in Barley and Wheat.** Scott Cully*, Jason Sanders, and Marty Schraer, Syngenta Crop Protection, Marion, IL. (95)
- 3:45 **Rotational Crop Response Following Application of Pyroxsulam in Wheat.** Monte R. Weimer*, Brett Oemichen, Roger Gast, and Mark Peterson, Dow AgroSciences, Indianapolis, IN. (96)
- 4:00 **Tolerance of Several Crops to KIH-485.** Rich K. Zollinger*, Kirk A. Howatt, and Brian M. Jenks, North Dakota State University, Fargo, ND and Minot, ND. (97)
- 4:15 **Weed Control in ExpressSun Sunflower, Pro's and Con's.** Curtis R. Thompson* and Brian Olson, Southwest and Northwest Area Extension, Kansas State University, Garden City and Colby, KS. (98)
- 4:30 **Comparison of Desiccant Timing and Harvest Method in Canola.** Brian M. Jenks*, Gary P. Willoughby, and Shanna A. Mazurek, North Dakota State University, Minot, ND; John R. Lukach, North Dakota State University, Langdon, ND; and Fabian D. Menalled and Edward S. Davis, Montana State University, Bozeman, ND. (99)
- 4:45 **Agronomic Crops I Business Meeting**

Herbicide Physiology Papers

Room: *Regency Ballroom AB*

Moderator: Jeff Bunting

- 1:00 **Investigating the Heritability of Variable Glyphosate-Resistance Levels in Horseweed (*Conyza canadensis*).** Vince M. Davis*, Greg R. Kruger, Stephen C. Weller and William G. Johnson, Purdue University, West Lafayette, IN. (100)
- 1:15 ****Investigating Indiana Horseweed (*Conyza canadensis*) Populations for Response to 2,4-D.** Greg R. Kruger*, Vince M. Davis, Stephen C. Weller and William G. Johnson, Purdue University, West Lafayette, IN. (101)
- 1:30 **Prevalence of the Unique Resistance Mechanism for PPO Inhibitors in Waterhemp.** Ryan M. Lee*, Aaron G. Hagar and Patrick J. Tranel, University of Illinois, Urbana, IL. (102)
- 1:45 **Sustainable Management of Glyphosate-Resistant Weeds in Roundup Ready Cropping Systems.** David I Gustafson*, R. Douglas Sammons and Brett H. Bussler, Monsanto Company, St. Louis, MO. (103)
- 2:00 **Importance of the P106S Target Site Mutation in Conferring Resistance to Glyphosate in an *Eleusine indica* Biotype from the Philippines.** Shiv S. Kaundun, Ian A. Zelaya*, Richard R. Dale, Amy Lycett, Patrice Carter, Kate Sharples and Eddie McIndoe, Syngenta Ltd., Jealott's Hill International Research Centre, Bracknell, Berkshire, UK. (104)
- 2:15 **Herbicide Physiology Business Meeting**

Weed Biology, Ecology and Management Papers

Room: *Regency Ballroom C*

Moderator: Ed Luschei

- 1:00 **Effects of Root Segmentation on Canada Thistle Suppression.** Richard Crow* and Ed Luschei, University of Wisconsin, Madison, WI. (105)
- 1:15 **Suppression of Canada Thistle with Summer Annual Cover Crops and Mowing - Year 2.** Abram Bicksler* and John Masiunas, University of Illinois, Urbana, IL. (106)
- 1:30 **Response of Corn to Palmer amaranth, Water, and Nitrogen Stresses.** J. Anita Dille*, Ella K. Ruf, and Dwain M. Rule, Kansas State University, Manhattan, KS. (107)
- 1:45 **Influence of Seed Burial by Earthworms and Seed Predation by Vertebrates on Seedling Recruitment in Giant Ragweed.** Jianyang Liu*, Emilie Regnier and Kent Harrison, The Ohio State University, Columbus, OH. (108)
- 2:00 **Assessing Organic Seed Treatments for Enhanced Corn Establishment.** Nicholas J. Goeser*, Janet L. Hedtcke, Edward C. Luschei and Erin M. Silva, University of Wisconsin-Madison, WI. (109)
- 2:15 ****The Management of Glyphosate Resistance Through Pollen in Common Ragweed (*Ambrosia artemisiifolia* L.)** Johnathan P. Dierking* and Reid J. Smeda, University of Missouri, Columbia, MO. (110)
- 2:30 ****Genetics of Glyphosate Resistance in a Missouri Waterhemp Population.** Michael S. Bell*, Kevin W. Bradley and Patrick J. Tranel, University of Illinois at Urbana-Champaign, IL and University of Missouri, Columbia, MO. (111)
- 2:45 ****Seed Ecology and Biomass Production of Poison Hemlock (*Conium maculatum* L.).** Carl A. Woodard* and Reid J. Smeda, University of Missouri, Columbia, MO. (112)
- 3:00 **Break**

Weed Biology, Ecology and Management Papers Continued

- 3:15 ****First Indication of Adaptive Evolution in North American Microbes as a Result of Garlic Mustard Invasion.** Rachel N. Nodurft*, Kevin D. Gibson and Steven G. Hallett, Purdue University, West Lafayette, IN. (113)
- 3:30 ****Response of Soybean Cyst Nematode to Winter Annual Weed Removal Timings.** Valerie A. Mock*, Purdue University, West Lafayette, IN; J. Earl Creech, University of Nevada Cooperative Extension, Fallon, NV; and William G. Johnson, Purdue University, West Lafayette, IN. (114)
- 3:45 ****Competition of Annual Morningglory (Ipomoea spp.) in Corn and Soybean.** Phillip J. Parrish*, Dawn E. Nordby and Emerson D. Nafziger, University of Illinois, Urbana, IL. (115)
- 4:00 ****The Effects of Variable Water Supply on Corn and Velvetleaf.** Logan G. Vaughn*, John L. Lindquist and Mark L. Bernards, University of Nebraska-Lincoln, Lincoln, NE. (116)
- 4:15 ****Relationships Among Sweet Corn Canopy Traits and Competitive Ability.** Yim So*, Martin M. Williams II, Jerald. K. Pataky and Adam Davis, University of Illinois, Urbana, IL and Invasive Weed Management Unit, USDA-ARS, Urbana, IL. (117)
- 4:30 ****Influence of Selected Herbicide Treatments on Goldenrod Control, Total Forage Yield, and Total Forage Quality in Tall Fescue Pastures.** Kristin K. Payne*, Travis R. Legleiter, Jimmy D. Wait and Kevin W. Bradley, University of Missouri, Columbia, MO. (118)
- 4:45 **Weed Biology, Ecology and Management Business Meeting**

What's New in the Industry?

Room: *Regency Ballroom AB*

Moderator: Terence Carmody

Time: 3:00 pm

| | |
|--------------------------|----------------|
| Helena Chemical Co. | Bobby Alford |
| Valent USA Corp. | Trevor Dale |
| Winfield Solutions | Greg Dahl |
| AMVAC Chemical Corp. | Rich Porter |
| Bayer CropScience | Mark Wrucke |
| Syngenta Crop Protection | Don Porter |
| Dow AgroSciences | Mark Peterson |
| BASF Corporation | Duane Rathmann |
| Monsanto Company | Shea Murdock |
| DuPont Crop Protection | Dave Saunders |

The Science and Art of Wildlife Habitat Restoration Symposium

Room: *Grand Ballroom C*

Moderator: Robert Masters

- 10:00 **Introduction to the Wildlife Restoration Symposium.** Robert A. Masters and Daniel D. Beran, Dow AgroSciences, Indianapolis, IN and BASF Corporation, Des Moines, IA.
- 10:15 **Biology, Ecology and Management of Invasive Weeds in Missouri.** Kevin W. Bradley* and Reid J. Smeda, University of Missouri, Columbia, MO. (119)
- 10:45 **Invasive Species and the Missouri Department of Conservation.** Lia Bollmann*, Wildlife Biologist, Missouri Department of Conservation, St. Charles, MO. (120)
- 11:15 **Management of Invasive Plants and Algae in Aquatic Systems.** Carole A. Lembi*, Purdue University, West Lafayette, IN. (121)
- 11:45 **Discussion**
- 12:00 **Lunch Break**
- 1:00 **How to Select an Appropriate Plant.** Valerie Vartanian*, Horticulture and Landscape Professions Liaison, The Nature Conservancy and Missouri Botanical Garden, St. Louis, MO. (122)
- 1:30 **Integrating Restoration Techniques with Management Methods for Invasive Weeds.** Mark J. Renz*, University of Wisconsin, Madison, WI. (123)
- 2:00 **Managing Vegetation for Whitetail Deer Habitat Perspectives from the Quality Deer Management Association.** Kip Adams*, Certified Wildlife Biologist and Northern Director of Education and Outreach, QDMA, Knoxville, PA. (124)
- 2:30 **Discussion**
- 2:45 **Break**

The Science and Art of Wildlife Habitat Restoration Symposium Continued

- 3:00 **Managing Vegetation for Wild Turkey Perspectives from the National Wild Turkey Federation.** Loran Brinkmeier*, Biologist, National Wild Turkey Federation, Wyoming, IL. (125)
- 3:30 **Managing Vegetation for Quail and Upland Birds, Perspective from Quail Unlimited.** Jeff Hodges*, Wildlife Habitat Consultant, Clinton, MO. (126)
- 4:00 **Utility of Herbicide and Application Technologies in Wildlife Habitat Improvement Programs.** Daniel D. Beran*, Byron B. Sleugh and Robert A. Masters, BASF Corporation, Des Moines, IA and Dow AgroSciences, Indianapolis, IN. (127)
- 4:30 **Discussion**
- 5:00 **Adjourn**

Gene Flow Symposium

Room: *Grand Ballroom B*
 Moderator: Michael Horak

- 10:00 **Welcome and Introduction.** Michael Horak, Monsanto Company, St. Louis, MO.
- 10:15 **Seed Mediated Gene Flow in Canola.** Linda M. Hall* and Robert Gulden, University of Alberta, Edmonton, AB. (128)
- 11:15 **Pollen Mediated Gene Flow in Canola.** Hugh Beckie* and Linda Hall, Agriculture and Agri-Food Canada, Saskatoon, SK and University of Alberta, Edmonton, AB. (129)
- 12:15 **Lunch Break**
- 1:45 **Interspecific Gene Flow in Canola.** Suzanne I. Warwick*, Agriculture and Agri-Food Canada (AAFC), Ottawa, ON, Canada. (130)
- 2:45 **Impact of Distinct Insect Pollinators on Gene Flow.** Johanne Brunet* and Karsten G. Holmquist, USDA-ARS, University of Wisconsin, Madison. (131)
- 3:00 **Ecological Effects of Virus-Resistant Transgenic Squash on Wild Squash Population Dynamics.** Holly R. Prendeville* and Diana Pilson, University of Nebraska, Lincoln, NE. (132)
- 3:15 **Long-term Field Studies of the Evolution of Crop-Weed Hybrids in Radish: Implications for Invasiveness.** Allison A. Snow*, Lesley G. Campbell and Caroline E. Ridley, The Ohio State University, Columbus, OH; University of Maryland, College Park, MD; and University of California, Riverside, CA. (133)
- 3:30 **Discussion**
- 3:45 **Break**

Gene Flow Symposium Continued

- 4:00 **Weed-to-Weed Gene Flow – What is the Potential for Glyphosate Resistance Movement via Interspecific Hybridization?** Micheal D. K. Owen* and Ian A. Zelaya, Iowa State University, Ames, IA and Syngenta Ltd. Jealott's Hill International Research Centre, UK. (134)
- 4:15 **Gene Flow and Risk Assessment: Case by Case Considerations.** Michael J. Horak* and Thomas E. Nickson, Monsanto Company, St. Louis, MO. (135)
- 4:30 **Gene Flow Dynamics and Confinement: A Regulatory Perspective.** Subray Hegde*, Biotechnology Regulatory Services/APHIS/USDA, Riverdale, MD. (136)
- 4:45 **Introduction of a New Issue Paper from CAST, 'Implications of Gene Flow in the Scale-up and Commercial Use of Biotechnology-Derived Crops: Economic and Policy Considerations'.** David R. Gealy*, USDA-ARS, DBNRRRC, Stuttgart, AR. (137)
- 5:15 **Discussion**
- 5:30 **Adjourn**
- 6:45 **Banquet**

Agronomic Crops II PapersRoom: *Regency Ballroom B*

Moderator: Tony Dobbels

- 9:30 **Crop Tolerance to Flaming.** Stevan Z. Knezevic* and Santiago Ulloa, Haskell Agricultural Laboratory, University of Nebraska, Concord, NE. (138)
- 9:45 **Resistance to Acetolacate Synthase-Inhibiting Herbicides in Grain Sorghum.** Kassim Al-Khatib* and Mitch Tuinstra, Kansas State University, Manhattan, KS and Purdue University, West Lafayette, IN. (139)
- 10:00 **Tembotrione for Weed Control in Field, Seed, Sweet, and Popcorn.** John Cantwell*, Dave Lamore, Brent Philbrook, Daren Unland, John Hinz, John Wollam, and Mark Wrucke, Bayer CropScience, Research Triangle Park, NC. (140)
- 10:15 **Variability of Tembotrione Efficacy as Influenced by Commercial Adjuvant Products.** Bryan G. Young, Richard Zollinger, Mark Bernards*, Southern Illinois University, Carbondale, IL; North Dakota State University, Fargo, ND; and University of Nebraska-Lincoln, Lincoln, NE. (141)
- 10:30 ****Comparison of Grass Spectrum for AE 0172747, Mesotrione, and Topramezone as Influenced by Adjuvants.** Mark A. Waddington* and Bryan G. Young, Southern Illinois University, Carbondale, IL. (142)
- 10:45 ****Weed Management with Post Emergence Herbicide Tank Mixes in Acetolacate Synthase (ALS) Resistant Grain Sorghum.** D. Shane Hennigh*, Kassim Al-Khatib, and Mitch Tuinstra, Kansas State University, Manhattan, KS and Purdue University, West Lafayette, IN. (143)
- 11:00 ****Resistance to Acetyl-Coenzyme A Carboxylase-Inhibiting Herbicides in Sorghum Species.** Kellan S. Kershner*, Mitchel R. Tuinstra, and Kassim Al-Khatib, Kansas State University, Manhattan, KS. (144)

**Agronomic Crops II Papers
Continued**

- 11:15 ****Implications of Soil Residual Herbicides on the Consistency of Glyphosate Efficacy in Glyphosate-Resistant Corn.** Daniel D. Schnitker*, Bryan G. Young, William G. Johnson, and Mark M. Loux, Southern Illinois University, Carbondale, IL; Purdue University, West Lafayette, IN; and The Ohio State University, Columbus, OH. (145)
- 11:30 **Timing of Weed Removal in Roundup Ready Corn 2 Systems.** Tony White* and Dan Zinck, Monsanto Company, St. Louis, MO. (146)
- 11:45 **Weed Management Options in Glyphosate Tolerant Corn.** Peter H. Sikkema*, Nader Soltani, Robert E. Nurse, Laura L. Van Eerd and Richard Vyn, University of Guelph Ridgetown Campus, Ridgetown, Ontario, Canada, NOP 2C0 and Agriculture and Agri-Food Canada, Harrow, Ontario, Canada N0R 1G0. (147)
- 12:00 **Lunch Break**
- 1:00 **Halex GT: A New Postemergence Herbicide for Glyphosate Tolerant Corn.** Gordon D. Vail* and Carroll M. Moseley, Syngenta Crop Protection, Greensboro, NC. (148)
- 1:15 **Halex GT: Weed Control in Glyphosate Tolerant Corn.** Brett R. Miller*, Ryan D. Lins and B. David Black, Syngenta Crop Protection, Greensboro, NC. (149)
- 1:30 **Thiencarbazone-methyl: A New Molecule for Pre and Postemergence Weed Control in Corn.** Brent D. Philbrook* and Hans-Jochim Santel, Bayer CropScience, Research Triangle Park, NC. (150)
- 1:45 **Efficacy of Rimsulfuron and Isoxaflutole Mixtures for Weed Control in Field Corn.** Susan K. Rick*, Larry H. Hageman and Gregory R. Armel, DuPont Crop Protection, Wilmington, DE. (151)
- 2:00 **Field Performance of Mixtures of Rimsulfuron, Nicosulfuron, and Thifensulfuron with Isoxadifen in Corn.** Stephen D. Strachan* and Kevin L. Hahn, DuPont, Newark, DE. (152)

Agronomic Crops II Papers Continued

- 2:15 **Weed Control in GAT Corn in Colorado.** Philip Westra*, Colorado State University, Ft. Collins, CO and Dale Shaner, USDA/ARS, Ft. Collins, CO. (153)
- 2:30 **Response of Specialty Corn to Conventional Herbicides.** Damian D. Franzenburg*, Micheal D.K. Owen, Dean Grossnickle and James F. Lux, Iowa State University, Ames, IA. (154)
- 2:45 **Effect of Preplant N Source on Weed Management in Corn.** Kelly A. Nelson*, University of Missouri, Novelty, MO. (155)
- 3:00 **Break**
- 3:15 **Impact of Corn Population, Irrigation Intensity and Hail on Palmer Amaranth in Irrigated Corn.** Randall S. Currie* and Norman L. Klocke, Kansas State University, Garden City, KS. (156)
- 3:30 **Evaluation of Best Management Practice Rates of Atrazine Tank Mixed with Several Broadleaf Herbicides in Field Corn at Rochester, Minnesota.** Lisa M. Behnken*, Ryan P. Miller, Fritz R. Breitenbach and Jeffery L. Gunsolus, University of Minnesota Extension, Rochester, MN. (157)
- 3:45 **Agronomic Crops II Business Meeting**

Horticulture and Ornamentals Papers

Room: *Grand Ballroom A*

Moderator: Darren Robinson

- 9:30 **Bentazon for Postemergence Weed Control in Onion.** Bernard H. Zandstra* and Eric J. Ott, Michigan State University, East Lansing, MI. (158)
- 9:45 ****Multiple Reduced Rate Herbicide Treatments for Weed Control in Onion (*Allium cepa* L.).** James R. Loken* and Harlene Hattermann-Valenti, North Dakota State University, Fargo, ND. (159)
- 10:00 ****Utility of Halosulfuron for Control of Volunteer Horseradish.** Nathan R. Johannng*, Bryan G. Young and S. Alan Walters, Southern Illinois University, Carbondale, IL. (160)
- 10:15 ****Sweet Corn Hybrid Tolerance: From Field Evaluations to Grower Recommendations.** Joseph D. Bollman* and Chris M. Boerboom, University of Wisconsin, Madison, WI; Roger L. Becker, University of Minnesota, St. Paul, MN; Mark J. VanGessel, University of Delaware, Georgetown, DE; Robin R. Bellinder, Cornell University, Ithaca, NY; and Ed Peachey, Oregon State University, Corvallis, OR. (161)
- 10:30 **Genetic Basis of Sweet Corn Sensitivity to AE0172747.** Martin M. Williams II* and Jerald K. Pataky, USDA-ARS and University of Illinois, Urbana, IL. (162)
- 10:45 **Evaluation of Dual Magnum and Callisto in Sweet Sorghum.** Joseph G. Masabni*, University of Kentucky, Princeton, KY and William Vencill, University of Georgia, Athens, GA. (163)
- 11:00 **Evaluation of Laudis in Sweet Corn.** Joseph G. Masabni*, University of Kentucky, Princeton, KY. (164)
- 11:15 **Weed Control Feasibility in Large-scale Organic Snap Bean and Sweet Corn Production.** Heidi J. Kraiss, Jed B. Colquhoun* and Richard A. Rittmeyer, University of Wisconsin, Madison, WI. (165)

Horticulture and Ornamentals Papers Continued

- 11:30 **Perennial Weed Control in a Juneberry Orchard.** Harlene M. Hatterman-Valenti* and Collin Auwarter, North Dakota State University, Fargo, ND. (166)
- 11:45 **The Use of Mesotrione for Weed Control in Minor Crops.** Ven Lengkeek* and Darren Lycan, Syngenta Crop Protection, St. Johns, MI. (167)
- 12:00 **Lunch Break**
- 1:00 **Pre- and Postemergence Weed Control in Culinary Herbs.** Eric J. Ott*, Chad M. Herrmann and Bernard H. Zandstra, Michigan State University, East Lansing, MI. (168)
- 1:15 **Development of a Cultivar Competitiveness Ranking System for Potatoes.** Christopher M. Konieczka, Jed B. Colquhoun* and Richard A. Rittmeyer, University of Wisconsin, Madison, WI. (169)
- 1:30 **Response of Commercial Processing Tomato Cultivars to Postemergence Applications of Thifensulfuron-methyl.** Douglas Doohan, The Ohio State University, Wooster, OH and Stephen C. Weller*, Purdue University, West Lafayette, IN. (170)
- 1:45 **Response of Processing Tomatoes to Simulated Drift of Dicamba and Glyphosate.** Stephen C. Weller*, Ben Alkire and Triston Tucker, Purdue University, West Lafayette, IN. (171)
- 2:00 **Weed Control in No-Till Pumpkins.** Elizabeth T. Maynard*, Purdue University, Westville, IN. (172)
- 2:15 **Evaluation of Herbicides under Plastic Mulch in Bell and Habanero Pepper.** Joseph G. Masabni*, University of Kentucky, Princeton, KY. (173)
- 2:30 **Does Phenological Development Rates Explain Differences in Chloroacetamide Injury to White and Red Oaks?** Jayesh Samtani and John Masiunas*, University of Illinois, Urbana, IL. (174)
- 2:45 **Horticulture and Ornamentals Business Meeting**

Agronomic Crops III Papers

Room: *Regency Ballroom C*

Moderator: Jeff Bunting

- 9:30 **Effect of Glyphosate on Infection of Soybean with Asian Rust.** Keith A. Kretzmer* and Frank Kohn, Monsanto Company, St. Louis, MO. (175)
- 9:45 ****Characterization of a Common Waterhemp Population with Multiple Herbicide Resistance across Three Modes of Action.** Travis R. Legleiter*, Eric B. Riley, Kristin K. Payne and Kevin W. Bradley, University of Missouri, Columbia MO. (176)
- 10:00 ****Management of Glyphosate-Resistant Horseweed for Southern Illinois.** Tracy G. Mellendorf*, Bryan G. Young and Joseph L. Matthews, Southern Illinois University, Carbondale, IL. (177)
- 10:15 **Glyphosate-Resistant Horseweed Control in Soybeans Tolerant to Both Dicamba and Glyphosate .** Larry E. Steckel* University of Tennessee, Jackson, TN and Robert F. Montgomery Monsanto Company, Union City, TN. (178)
- 10:30 **Giant Ragweed Biotypes with Resistance to Glyphosate and ALS Inhibitors.** Mark M. Loux* and Jeff M. Stachler, The Ohio State University, Columbus, OH. (179)
- 10:45 **Multiple Herbicide Resistance in Common Ragweed.** Jeff M. Stachler* and Mark M. Loux, The Ohio State University, Columbus, OH. (180)
- 11:00 **Preemergence Evaluations of Two New Chlorimuron-ethyl, Thifensulfuron-methyl plus Flumioxazin Blends in Comparison to Key Commercial Standards in Soybean.** Marsha J. Martin*, Gregory R. Armel, Helen A. Flanigan, and Susan K. Rick, DuPont Crop Protection, Wilmington, DE. (181)
- 11:15 **Utilization of Sequential Herbicide Applications and Herbicide Tank Mix Components to Improve Glyphosate Efficacy.** Ryan P. Miller*, Lisa M. Behnken, Fritz R. Breitenbach and Jeffery L. Gunsolus, University of Minnesota Extension, Rochester, MN. (182)

Agronomic Crops III Papers Continued

- 11:30 **Influence of Row Spacing and Application Timing on Weed Control in Glufosinate Resistant Soybeans.** Michael Weber* and Jayla Allen, Bayer CropScience, Research Triangle Park, NC. (183)
- 11:45 **Agronomic Crops III Business Meeting**

Extension Papers

Room: *Regency Ballroom C*

Moderator: Kevin Bradley

- 1:00 **2007 - A Season to Remember.** James R. Martin* and Jonathan D. Green, University of Kentucky, Princeton, KY. (184)
- 1:15 **50 Years of Weed Changes on the Home Farm.** Jerry D. Doll*, University of Wisconsin-Madison, Madison, WI. (185)
- 1:30 **The Selection of Spray Nozzle Tips to Maximize Efficacy While Managing Drift.** Robert N. Klein*, Jeffrey A Golus and Amanda S. Cox, University of Nebraska, WCREC, North Platte, NE. (186)
- 1:45 **Weed Management Affects the Maximum Return to Nitrogen in Field Corn.** Timothy L. Trower*, Chris M. Boerboom, Carrie A. M. Laboski and Todd W. Andraski, University of Wisconsin, Madison, WI. (187)
- 2:00 **Controlling Glyphosate Resistant Volunteer Corn.** Robert N. Klein*, Jeffrey A. Golus and Amanda S. Cox, University of Nebraska, WCREC, North Platte, NE. (188)
- 2:15 **Tank Mixes for Morningglory (*Ipomoea* spp.) Control in Glyphosate-Resistant Corn and Soybean.** Dawn E. Nordby*, Phillip J. Parrish and Emerson D. Nafziger, University of Illinois, Urbana, IL. (189)
- 2:30 **Continuing Research into Common Lambsquarters Control with Glyphosate.** Andrew R. Kniss*, University of Wyoming, Laramie, WY. (190)

Extension Papers Continued

- 2:45 **An Illinois Waterhemp Population Resistant to Glyphosate.** Aaron G. Hager*, Michael S. Bell, Patrick J. Tranel, Dean E. Riechers and Adam S. Davis, University of Illinois and USDA-ARS, Urbana, IL. (191)
- 3:00 **Break**
- 3:15 **The Status of Glyphosate-Resistant Waterhemp in Missouri.** Kevin W. Bradley*, Travis Legleiter, Leon Hunter, Craig Nichols and Chuck Foresman, University of Missouri, Columbia, MO. (192)
- 3:30 **Can Glyphosate-Resistant Horseweed be used as an Indicator for Other Species Difficult to Control with Glyphosate?** Andrew M. Westhoven*, Vince M. Davis, Greg R. Kruger, Valerie A. Mock and William G. Johnson, Purdue University, West Lafayette, IN. (193)
- 3:45 **Have We Become Resistant to Using the Term Tolerance?** Andrew R. Kniss*, University of Wyoming, Laramie, WY. (194)
- 4:00 **Grower Perceptions of Problem Weeds in Glyphosate-Resistant Crop Systems: Evolved Glyphosate Resistance and Weed Population Shifts.** Micheal D. K. Owen*, Iowa State University, Ames, IA; Greg Kruger, William G. Johnson and Stephen C. Weller, Purdue University, West Lafayette, IN; Robert G. Wilson, University of Nebraska, Scottsbluff, NE; David R. Shaw, Mississippi State University, Mississippi State, MS; John Wilcut, North Carolina State University, Raleigh, NC; and Bryan G. Young, Southern Illinois University, Carbondale, IL. (195)
- 4:15 **Assessing Long-Term Viability of Glyphosate-Resistant Technology as a Foundation for Cropping Systems - On-Farm Comparisons of Weed Management Program Efficacy.** Robert G. Wilson*, University of Nebraska, Scottsbluff, NE; William G. Johnson and Stephen C. Weller, Purdue University, West Lafayette, IN; Micheal D. K. Owen, Iowa State University, Ames, IA; David R. Shaw, Mississippi State University, Mississippi State, MS; John Wilcut, North Carolina State University, Raleigh, NC; and Bryan G. Young, Southern Illinois University, Carbondale, IL. (196)

Extension Papers Continued

- 4:30 **Grower Awareness of Glyphosate-Resistant Weeds and Resistance Management Strategies.** William G. Johnson, Greg Kruger and Stephen C. Weller*, Purdue University, West Lafayette, IN; Robert G. Wilson, University of Nebraska, Scottsbluff, NE; Micheal D. K. Owen, Iowa State University, Ames, IA; David R. Shaw, Mississippi State University, Mississippi State, MS; John Wilcut, North Carolina State University, Raleigh, NC; and Bryan G. Young, Southern Illinois University, Carbondale, IL. (197)
- 4:45 **Grower-Implemented Herbicide Strategies for Weed Management in Glyphosate-Resistant Crops.** Bryan G. Young*, Southern Illinois University, Carbondale, IL; Robert G. Wilson, University of Nebraska, Scottsbluff, NE; William G. Johnson and Stephen C. Weller, Purdue University, West Lafayette, IN; Micheal D. K. Owen, Iowa State University, Ames, IA; David R. Shaw, Mississippi State University, Mississippi State, MS; and John Wilcut, North Carolina State University, Raleigh, NC. (198)
- 5:00 **Extension Business Meeting and Committee Meeting**

Gene Flow Symposium Continued

Room: *Grand Ballroom B*

Moderator: Michael Horak

- 8:15 **Modeling the Biology of Out-Crossing by Adventitious Pollen.** Mark Westgate*, Juan Astini, Agustin Fonseca, Jon Lizaso, Craig Clark, and Ray Arritt, Iowa State University, Ames, IA. (199)
- 8:30 **Application of a 3D Windbreak Model to Compare Field Plot Designs for Limiting Pollen Dispersal.** Craig Clark, Juan Astini, Ray Arritt*, Mark Westgate and Susana Goggi, Iowa State University, Ames, IA. (200)
- 8:45 **Application of Large Eddy Simulation to Quantify Dispersal of Viable Maize Pollen.** Brian Viner*, Ray Arritt, Mark Westgate and Susana Goggi, Iowa State University, Ames, IA. (201)
- 9:00 **Pollen Flow in the Environment - Development of a Research Program.** John A. Glaser*, USEPA, Office of Research & Development, National Risk Management Research Laboratory, Cincinnati, OH. (202)
- 9:15 **Seed-to-Seed and Hay-to-Seed Pollen Mediated Gene Flow in Alfalfa.** Larry R. Teuber*, Shannon Mueller, Allen Van Deynze, Sharie Fitzpatrick, James R. Hagler and Jose Arias, University of California, Davis, Forage Genetics, Inc, West Salem, WI and ARS-USDA, Arid-Land Agricultural Research Center, Maricopa, AZ. (203)
- 9:30 **Alfalfa Gene Flow Research and Information: Applicability to Seed Production Systems.** Sharie Fitzpatrick*, Jose Arias, Mark McCaslin and Peter Reison, Forage Genetics, Inc., West Salem, WI. (204)
- 9:45 **Discussion**
- 10:00 **Break**
- 10:15 **Red Rice Diversity and Planting Date Effects on Risk of Gene Flow.** Nilda R. Burgos*, Vinod K. Shivrain, David R. Gealy, Kenneth L. Smith, and Robert C. Scott, University of Arkansas, Fayetteville, AK and USDA-ARS, DBNRR, Stuttgart, AK. (205)

Gene Flow Symposium Continued

- 10:30 **Gene Flow between Sugar Beet and Weed Beet: From Facts to Models.** Henri Darmency*, Nathalie Colbach, Mathilde Sester, Yann Tricault, Etienne Klein and Marc Richard-Molard, INRA, Dijon, France. (206)
- 10:45 **Discussion**
- 11:00 **Commercial-Scale Pollen-Mediated Gene Flow in Winter Wheat in the Central Western Great Plains.** Todd A. Gaines, Patrick F. Byrne*, Philip Westra, Scott J. Nissen and Phillip L. Chapman, Colorado State University, Fort Collins, CO; W. Brien Henry, USDA-ARS, Akron, CO; and Dale L. Shaner, USDA-ARS, Fort Collins, CO. (207)
- 11:30 **Hybridization between Jointed Goatgrass and Imidazolinone-Resistant Winter Wheat.** Todd A. Gaines,* W. Brien Henry, Patrick F. Byrne, Philip Westra, Scott J. Nissen and Dale L. Shaner, Colorado State University, Fort Collins, CO; USDA-ARS, Akron, CO; and USDA-ARS, Fort Collins, CO. (208)
- 11:45 **Tier 1 Evaluation of Pollen-Mediated Gene Flow between Triticale (X Triticosecale, Wittmack) and Common Wheat, Durum Wheat and Rye.** Melissa J. Hills*, Linda M. Hall and François Eudes, Agriculture and AgriFood Canada, Lethbridge, Alberta; Alberta Agriculture and Food/University of Alberta, Edmonton; and Grant MacEwan College, Edmonton, Alberta. (209)
- 12:00 **Discussion and Wrap up**

Communication Development: Message Delivery to Weed Science Colleagues and Clientele Symposium

Room: *Grand Ballroom C*

Moderator: Vince Davis

- 8:55 **Introduction and Purpose of Symposium.** Vince Davis, Purdue University, West Lafayette, IN.
- 9:00 **Blogging and Podcasting in a World of “New Media.”** Chuck Zimmerman*, ZimmComm New Media, LLC, Holts Summit, MO. (210)
- 9:20 **Scientific Writing: Meeting the Reader’s Needs.** Kent Harrison*, The Ohio State University, Columbus, OH. (211)
- 9:40 **Presenting Research to a Scientific Audience.** Karen Renner*, Michigan State University, East Lansing, MI. (212)
- 10:00 **Crafting the Perfect Poster: Catchy, Clear, and Concise.** Christy Sprague*, Michigan State University, East Lansing, MI. (213)
- 10:20 **Targeting a Certified Crop Advisor Audience: Is this Some Middle Ground?** Bryan G. Young*, Southern Illinois University, Carbondale, IL. (214)
- 10:40 **Delivering a Message to the Producer: Present the Facts, You are the Authority!** Fred Whitford*, Purdue University, West Lafayette, IN. (215)
- 11:00 **Interviewing with the Media: Be Careful Little Mouth What You Say.** Steve Leer*, Purdue University, West Lafayette, IN. (216)
- 11:20 **Open discussion with presenters**
- 11:40 **Adjourn**

Invasive Weeds, Forage and Rangeland Papers

Room: *Regency Ballroom B*

Moderator: Marc Renz

- 9:00 **Aquatic Weed Management Concerns of Illinois Pond Owners.** George F. Czapar*, University of Illinois, Springfield, IL. (217)
- 9:15 **Nicosulfuron Plus Metsulfuron Combinations for Johnsongrass Control in Bermudagrass.** Walter H. Fick*, Kansas State University, Manhattan, KS. (218)
- 9:30 **Scouringrush Control with Herbicides.** Kirk A. Howatt*, North Dakota State University, Fargo, ND. (219)
- 9:45 **Management of Key Noxious and Invasive Weeds with Aminopyralid.** Byron B. Sleugh*, Vanelle Peterson, Mary Halstvedt and Robert Masters, Dow AgroSciences, Indianapolis, IN. (220)
- 10:00 **Establishment of Forage Grasses and Legumes in the Spring Following a Fall Application of Aminopyralid.** Mark J. Renz*, University Wisconsin-Madison, Madison, WI. (221)
- 10:15 **Changes in Native Species and Canada thistle Dominated Plant Communities Following Aminopyralid Treatment.** Luke W. Samuel and Rodney G. Lym*, North Dakota State University, Fargo, ND. (222)
- 10:30 **Detecting Invasive Sericea Lespedeza in Missouri Pasturelands with Aerial Photos and Satellite Images.** Cuizhen Wang* and Palm L. Harlan, University of Missouri, Columbia, MO. (223)
- 10:45 **Invasive Weeds, Forage and Rangeland Business Meeting**

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Section Program Committees (Vice chairs elected at section business meetings)

General Program

| | | | |
|--------------|-------|--------------|----------------|
| Bill Johnson | Chair | 765-494-4656 | wgj@purdue.edu |
|--------------|-------|--------------|----------------|

Poster Session

| | | | |
|-------------------|------------|--------------|---------------------------------|
| Bill Johnson | Chair | 76-494-4656 | wgj@purdue.edu |
| Jerry Hora | | 563-662-5013 | jerry.hora@bayercropscience.com |
| Fritz Koppatschek | | 317-415-0553 | fkoppatschek@abgaservices.com |
| Brian Canaday | | 573-522-4115 | brian.canaday@mdc.mo.gov |
| Jeff Stachler | Past Chair | 614-292-1393 | stachler.1@osu.edu |

Grauate Student Paper Awards

| | | | |
|----------------|---------------------------------------|--------------|---------------------------------|
| Jess Spotanski | Chair | 402-643-9709 | jess_spotanski@mainstaycomm.net |
| | (1 st Vice Chair Res. Ed.) | | |
| Brett Miller | Past Chair | 320-848-2034 | brett.miller@syngenta.com |

Graduate Student Poster Awards

| | | | |
|--------------|--|--------------|--------------------------------|
| John Hinz | Chair | 515-733-9250 | john.hinz@bayercropscience.com |
| | (2 nd Vice Chair of Res. Edu) | | |
| Dave Nicolai | Past Chair | 320-583-3182 | nico0071@umn.edu |

Agronomic Crops I (Cereals, Sugar Beets, Dry Beans)

| | | | |
|-----------------|------------|--------------|--------------------------------|
| Mike Edwards | Chair | 303-280-3830 | michael.edwards@usa.dupont.com |
| Patrick Geier | Vice Chair | 785-625-3425 | pgeier@ksu.edu |
| Richard Schmenk | | 734-828-7048 | weedkln@aol.com |
| Kirk Howatt | Past Chair | 701-231-7209 | khowatt@ndsu.edu |

Agronomic Crops II (Corn, Sorghum)

| | | | |
|----------------|------------|--------------|---------------------------|
| Tony Dobbels | Chair | 614-292-1393 | dobbels.1@osu.edu |
| Troy Klingaman | Vice Chair | 217-586-6498 | troy.klingaman@basf.com |
| Jim Martin | | 207-365-7541 | jamartin@uky.edu |
| Leslie Lloyd | Past Chair | 641-792-3009 | leslie.lloyd@monsanto.com |

Agronomic Crops III (Soybeans)

| | | | |
|----------------|------------|--------------|---------------------------------|
| Jeff Bunting | Chair | 309-557-6315 | jbunting@growmark.com |
| Kevin Bradley | Vice Chair | 573-882-4039 | bradleyke@missouri.edu |
| Helen Flanigan | Past Chair | 317-862-0578 | helen.a.flanigan@usa.dupont.com |

North Central Weed Science Society Information

Equipment and Application Methods

| | | | |
|----------------|------------|--------------|------------------------|
| Teague Lottman | Chair | 800-642-8572 | tlotman@coopmutual.com |
| Robert Klein | Vice Chair | 308-696-6705 | rklein1@unl.edu |
| Gregory Dahl | | 651-451-4942 | gkdahl@agriliance.com |
| Leroy Cobia | Past Chair | 712-328-1928 | cobial@cox.net |

Extension

| | | | |
|----------------|------------|--------------|------------------------------|
| Kevin Bradley | Chair | 573-882-4039 | bradleyke@missouri.edu |
| Mike Moechnig | Vice Chair | 605-688-4591 | michael.moechnig@sdstate.edu |
| Lizabeth Stahl | Past Chair | 507-372-3900 | stah0012@umn.edu |

Herbicide Physiology

| | | | |
|----------------|------------|--------------|--------------------------------|
| Jeff Bunting | Chair | 309-557-6315 | jbunting@growmark.com |
| Dan Vollenberg | Vice Chair | 217-333-4723 | dsvolenb@uiuc.edu |
| John Hinz | Past Chair | 515-733-9250 | john.hinz@bayercropscience.com |

Invasive Weeds

| | | | |
|----------------|------------|--------------|--------------------|
| Marc Renz | Chair | | mrenz@wisc.edu |
| Robert Masters | Vice Chair | 402-488-1157 | ramasters@dow.com |
| Kevin Gibson | Past Chair | 765-496-2161 | kgibson@purdue.edu |

Forestry, Industrial, and Aquatics

| | | | |
|---------------|------------|--------------|-------------------|
| Mike Marshall | Chair | 517-335-5191 | mmarshall@msu.edu |
| Byron Sleugh | Vice Chair | 515-226-2165 | bbsleugh@dow.com |
| Joe Masabni | Past Chair | 270-365-7544 | jmasabni@uky.edu |

Forage and Range

| | | | |
|-----------------|------------|--------------|------------------------|
| Kevin Bradley | Chair | 573-882-4039 | bradleyke@missouri.edu |
| Steve King | Vice Chair | 314-348-3400 | sking@montana.edu |
| Paul Vassalotti | Past Chair | 608-798-4311 | vassalp@basf.com |

Horticulture, Turf and Ornamentals

| | | | |
|-----------------|------------|--------------|---------------------------------|
| Darren Robinson | Chair | 519-674-1604 | drobinso@ridgetownc.uoguelph.ca |
| Jed Colquhoun | Vice Chair | 608-890-0980 | colquhoun@wisc.edu |
| Martin Williams | Past Chair | 217-244-5476 | mmwilliams@uiuc.edu |

Weed Biology, Ecology and Management

| | | | |
|------------|------------|-----------------------|--------------------|
| Ed Luschei | Chair | 608-263-7436 | ecluschei@wisc.edu |
| Erin Hill | Vice Chair | 517-355-0271 ext. 233 | hill12@msu.edu |
| Adam Davis | Past Chair | 217-333-9654 | acdavis1@uiuc.edu |

Special Committees (appointed by president)

Long Range Planning and Organizational Affairs

| | | | |
|-----------------|------------|--------------|---------------------------------|
| Dirk Drost | Chair | 336-632-7510 | dirk.drost@syngenta.com |
| Bryan Young | Vice Chair | 618-453-7679 | bgyoung@siu.edu |
| Mike Owen | | 515-294-1923 | mdowen@iastate.edu |
| Helen Flanigan | | 317-862-0578 | helen.a.flanigan@usa.dupont.com |
| Jeff Stachler | | 614-292-1393 | stachler.1@osu.edu |
| Curt Thompson | | 620-275-9164 | cthompson@ksu.edu |
| Darren Robinson | | 519-674-1604 | drobinso@ridgetownc.uoguelph.ca |

North Central Weed Science Society Information

Honorary Members / Fellows¹

| | | | |
|------|------------------------|------|-------------------------|
| 1948 | L.W. Dephart* | 1986 | Elroy J. Peters |
| 1949 | A.H. Larson* | | Deane W. Finnerty* |
| 1950 | J.W. Zahnley * | | Oliver G. Russ |
| 1951 | R.W. Fuelleman* | 1987 | Ralph Althaus* |
| | T.R. Yost* | | William M. Phillips |
| 1952 | Henry E. Wood* | | Gerald R. Miller |
| 1953 | George Briggs * | 1988 | Robert Benson |
| | Walter C. Dutton* | | Calvin Messersmith |
| 1954 | A.L. Bakke* | | Edward Stoller |
| 1955 | C.J. Willard* | 1989 | Loyd M. Wax |
| 1956 | R.S. Dunham* | | Alan R. Putman |
| 1957 | P.J. Olson * | 1990 | Alan G. Dexter |
| 1958 | L.W. Melander | | Russel L. Nash |
| | T.K. Pavlychenko* | 1991 | George Kapusta |
| 1959 | E.A. Helgeson* | | Marshall McGlamery |
| 1960 | Oliver C. Lee * | | Russell Moomaw |
| 1962 | Sig Bjerken* | | Don Penner |
| 1964 | K.P. Buchholtz | 1992 | R. Gordon Harvey, Jr. * |
| | E.P. Sylwester* | | Larry K. Binning |
| 1966 | Robert C. Beatty* | | Alex R. Martin |
| | Clare Buskirk* | | Don Taylor |
| 1967 | J.K. Freeman | 1993 | Merrill A. Ross, Jr. |
| 1968 | E.K. Alban* | | Robert G. Wilson |
| | H.A. Friesen* | | Jerry D. Doll |
| 1969 | Lawrence Southwick | 1994 | Ted R. Warfield |
| | David W. Staniforth* | | William W. Witt |
| 1970 | Delbert D. Hemphill* | | |
| | G. Frederick Warren* | | |
| 1971 | Fred W. Slife* | | |
| 1972 | Thomas Victor Beck | | |
| | O. Hale Fletchall* | | |
| 1973 | Richard Behrens | | |
| | Lawrence H. Hannah | | |
| 1974 | William Lobay | | |
| 1975 | John D. Furrer | | |
| 1976 | Lyle A. Derscheid* | | |
| | LeRoy G. Holm | | |
| 1977 | James W. Divall | | |
| | James L. Williams, Jr. | | |
| 1978 | Melwin K. McCarty* | | |
| | Robert E. Nylund | | |
| 1979 | Ellery L. Knake | | |
| | Kenneth W. Bradfield* | | |
| 1980 | John D. Nalewaja | | |
| | O.C. Burnside | | |
| 1981 | Rodney J. Fink | | |
| | Juett C. Hogancamp* | | |
| | Larry W. Mitich* | | |
| 1982 | W.D. Carpenter | | |
| | James Herron* | | |
| | William E. Meggitt | | |
| 1983 | Robert N. Andersen | | |
| | Dale E. Bush | | |
| | Ronald E. Doersch | | |
| 1984 | Edward W. Stroube* | | |
| | Oliver E. Strand* | | |
| | Gail A. Wicks | | |
| 1985 | Robert Hiltibran | | |

* deceased

¹ Society members being honored were originally referred to as Honorary Members. The award was changed to Fellow in 1995.

North Central Weed Science Society Information

Presidents of the North Central Weed Science Society

| | | | |
|------|-----------------------|------|------------------------|
| 1944 | No President | 1976 | Fink, Rodney J. |
| 1945 | Yost, T. F. * | 1977 | Carpenter, Will D. |
| 1946 | Yost, T. F. * | 1978 | Doersch, Ronald E. |
| 1947 | Hanson, Noel S.* | 1979 | Nalewaja, John D. |
| 1948 | Willard, C. J.* | 1980 | Stroube, Edward W. |
| 1949 | Dunham, R. S.* | 1981 | Herron, James W. * |
| 1950 | Worzella, W. W.* | 1982 | Benson, Robert L. |
| 1951 | Sylwester, E. P.* | 1983 | DiVall, James W. |
| 1952 | Buchholtz, K. P.* | 1984 | Miller, Gerald R. |
| 1953 | Gilbert, C. J. * | 1985 | Messersmith, Calvin G. |
| 1954 | Lee, O. C. * | 1986 | Wax, Loyd M. |
| 1955 | Grigsby, Buford H. * | 1987 | Chamberlain, Earl |
| 1956 | Helgeson, Earl A.* | 1988 | Harvey, R. Gordon * |
| 1957 | Slife, Fred W.* | 1989 | Worthington, James P. |
| 1958 | Derscheid, Lyle A. * | 1990 | Martin, Alex R. |
| 1959 | Foster, J. Roe * | 1991 | Taylor, T. Don |
| 1960 | Holm, L. G. | 1992 | Stoller, Edward W. |
| 1961 | Alban, E. K.* | 1993 | Warfield, Ted R. |
| 1962 | Bjerken Sig. * | 1994 | Bauman, Thomas T. |
| 1963 | Hemphill, D. D. * | 1995 | Cobia, LeRoy R. |
| 1964 | Hemphill, D. D. * | 1996 | Dexter, Alan G. |
| 1965 | Furrer, John D. | 1997 | Miller, Bill |
| 1966 | Furrer, John D. | 1998 | Buhler, Douglas |
| 1967 | Warden, Robert L. * | 1999 | Orwick, Philip L. |
| 1968 | Flechthall, O. Hale* | 2000 | Kells, James J. |
| 1969 | Beck, T. V. | 2001 | Rathmann, Duane P. |
| 1970 | Hannah, L. H. | 2002 | Peterson, Dallas E. |
| 1971 | Knake, Ellery | 2003 | Horak, Michael J. |
| 1972 | Williams, Jr., J. L. | 2004 | Doll, Jerry D. |
| 1973 | Meggitt, William | 2005 | Peters, Tom |
| 1974 | Bradfield, Kenneth W. | 2006 | Miller, Stephen |
| 1975 | Burnside, Orvin C. | 2007 | Adrian Moses |

*deceased

North Central Weed Science Society Information

Distinguished Achievement Awards

| | |
|------|--|
| 1990 | Gail A. Wicks-Service Robert G. Wilson-Research Gerald W. Gogan-Education Jeffrey L. Gunsolus-Young Scientist |
| 1991 | Paul G. Mayland-Industry Patrick J. Shea-Research Jim F. Strizke-Education |
| 1992 | William W. Witt-Education Jerry D. Doll-Service James P. Worthington-Education Rex A. Liebl-Research |
| 1993 | Karen A. Renner-Young Scientist Robert G. Hartzler-Education Douglas D. Buhler-Research |
| 1994 | David A. Mortensen-Young Scientist Deane W. Finnerty-Industry Robert N. Andersen-Service David L. Regehr-Education |
| 1995 | Micheal D.K. Owen-Service Will D. Carpenter-Industry Phillip W. Stahlman-Research |
| 1996 | Beverly R. Durgan-Education Michael J. Horak-Young Scientist Charles L. Kern-Industry E. James Retzinger-Industry |
| 1997 | Charles H. Slack-Research Richard Zollinger-Service Roger Becker-Education David E. Stoltenberg-Young Scientists Joseph G. Vollmer-Industry |
| 1998 | Ronald F. Krausz-Research James R. Martin-Service Randy W. Lloyd-Industry |
| 1999 | Robert J. Kremer-Research J. D. Green-Service Thomas R. Hoverstad-Professional Staff Chris M. Boerboom-Young Scientist Reid J. Smeda-Young Scientist |
| 2000 | Harlan P. Palm-Industry James F. Lux-Professional Staff Gary E. Powell-Professional Staff David A. Vox-Professional Staff William G. Johnson-Young Scientist |
| 2001 | John B. Masiunas-Education Bernard H. Zandstra-Education Patrick W. Geier-Professional Staff Douglas J. Maxwell-Professional Staff Kassin Al-Khatib-Research |
| 2002 | Paul L. Sprankle-Industry Thomas B. Threewitt-Industry Monica Elmes-Professional Staff John L. Luecke-Professional Staff Bryan Young-Young Weed Scientist |

North Central Weed Science Society Information

Distinguished Achievement Awards (Cont'd)

| | |
|------|--|
| 2003 | Mark Loux-Education Kenneth Carlson-Industry Daniel E. Schroeder-Industry Andrew Chomas-Professional Staff Jeffrey Stachler-Professional Staff |
| 2004 | David Stoltenberg-Research Gordon Roskamp-Education Patrick J. Tranel-Young Scientist Robert N. Klein-Education Robert E. Wolf-Service |
| 2005 | Curtis R. Thompson-Service Chris Boerboom-Education Dennis Belcher-Industry Anthony F. Dobbels-Professional Staff Christy Sprague-Young Scientist |
| 2006 | Glenn Nice - Service Richard K. Zollinger - Education John R. Hinz - Industry Christy Shropshire - Professional Staff Dean E. Riechers - Young Scientist |

----- **Herbicide Index** -----

| Common Name | Trade Name(s) | Manufacturer/ Formulator |
|---------------------------------------|---|-------------------------------------|
| 2,4-D | Several | Several |
| 2,4-D + triclopyr | Crossbow | Dow AgroSciences |
| 2,4-DB | Butyrac | Albaugh |
| acetochlor | Harness | Monsanto |
| acetochlor | Surpass, Topnotch | Dow AgroSciences |
| acetochlor + atrazine | Harness Xtra | Monsanto |
| acetochlor + atrazine | Keystone | Dow AgroSciences |
| acetochlor + atrazine + glyphosate | Field Master | Monsanto |
| acetochlor + flumetsulam + clopyralid | SureStart | Dow AgroSciences |
| acifluorfen | Ultra Blazer | BASF |
| acifluorfen + bentazon | Storm | BASF |
| alachlor | Lasso, Micro Tech, Partner | Monsanto |
| ametryn | Evik | Syngenta |
| aminopyralid | Milestone | Dow AgroSciences |
| atrazine | Several | Several |
| atrazine + s-metolachlor | Bicep II, Bicep Lite II, Bicep II Magnum, Bicep Lite II Magnum | Syngenta |
| atrazine + s-metolachlor | Cinch, Cinch ATZ, Cinch ATZ Lite | DuPont |
| azafeniden | Milestone, Evolus | DuPont |
| benefin | Balan | UAP |
| bensulfuron-methyl | Londax | DuPont |
| bensulide | Prefar | Gowan |
| bentazon | Basagran | BASF, Micro Flow |
| bentazon + atrazine | Laddok S-12 | BASF, Micro Flow |
| bromacil | Hyvar | DuPont |
| bromoxynil | Buctril | Bayer CropSciences |
| bromoxynil + MCPA | Bronate Advanced | Bayer CropSciences |
| butachlor | Machete | Monsanto |
| butylate | Sutan+ | Cedar |
| carfentrazone-ethyl | Aim, Avalanche | FMC, Agriliance |
| chlorimuron-ethyl | Classic | DuPont |
| chlorimuron + metribuzin | Canopy | DuPont |
| chlorimuron + thifensulfuron | Synchrony XP | DuPont |
| chlorimuron-ethyl + sulfentrazone | Canopy XL | DuPont |
| chlorsulfuron | Glean, Telar | DuPont |
| clethodim | Select | Valent |
| clodinafop | Discover | Syngenta |
| clomazone | Command | FMC |

----- **Herbicide Index** -----

| Common Name | Trade Name(s) | Manufacturer/ Formulator |
|---|---------------------------------------|-------------------------------------|
| clopyralid | Stinger, and others | Dow AgroSciences |
| clopyralid + MCPA | Commando M | Albaugh |
| clopyralid + MCPA | Cutback M | Dow AgroSciences |
| cloransulam-methyl | FirstRate, Amplify | Dow AgroSciences |
| cloransulam-methyl + flumetsulam | Frontrow | Dow AgroSciences |
| cyanazine | Bladex | DuPont Ag Products |
| cycloate | Ro-Neet | Cedar |
| DCPA | Dacthal | Amvac Chemical Co. |
| DE-742 | | Dow AgroSciences |
| desmedipham | Betanex | Bayer CropSciences |
| desmedipham + phenmedipham + ethofumesate | Progress | Bayer Crop Science |
| dicamba | Banvel and others | Micro Flo |
| dicamba + atrazine | Marksman | BASF Ag Products |
| dicamba + diflufenzopyr | Distinct, Overdrive | BASF |
| dicamba + diflufenzopyr + nicosulfuron | Celebrity Plus | BASF |
| dicamba, DGA salt | Clarity | BASF Ag Products |
| dichlobenil | Casoron, Dyclomec | Crompton/Uniroyal, PBI Gordon |
| dichlorprop (2,4-DP) | Several | Several |
| diclofop | Hoelen | Bayer CropSciences |
| diclosulam | Strongarm | Dow AgroSciences |
| difenzoquat | Avenge | BASF Ag Products |
| diflufenzopyr | BAS 654 | BASF Ag Products |
| diflufenzopyr + dicamba | Distinct | BASF Ag Products |
| dimethenamid + dicamba | OpTill | BASF Ag Products |
| dimethenamid-P | Outlook | BASF Ag Products |
| dimethenamid-P + atrazine | Guardsman Max, Gmax Lite | BASF Ag Products |
| dimethipin | Harvade | Crompton/Uniroyal |
| diquat | Reglone | Syngenta |
| dithiopyr | Dimension | Dow AgroSciences |
| diuron | Several | Several |
| endothall | Several | Elf Atochem |
| EPTC | Eptam, Eradicane | Syngenta, Cedar |
| ethalfluralin | Curbit | UAP/Loveland |
| ethalfluralin | Sonalan, Edge | Dow AgroSciences |
| ethalfluralin + clomazone | Strategy | UAP |
| ethametsulfuron | Muster | DuPont |
| ethofumesate | Nortron | Bayer CropSciences |
| fenoxaprop | Whip, Acclaim, Option II, Excel, Puma | Bayer CropSciences |
| floransulum | Primus, Boxer | Dow AgroSciences |

----- **Herbicide Index** -----

| Common Name | Trade Name(s) | Manufacturer/ Formulator |
|--------------------------------|------------------------------|-------------------------------------|
| florasulam + MCPA-Ester | Orion | Syngenta |
| floroxypyr + bromoxynil | Starane NXTcp | Dow AgroSciences |
| fluazifop + fenoxaprop | Fusion | Syngenta |
| fluazifop-P | Fusilade DX | Syngenta |
| fluazifop-P + fenoxaprop | Fusion | Syngenta |
| flucarbazone | Everest | Bayer CropSciences |
| flufenacet | Define | Bayer CropSciences |
| flufenacet + metribuzin | Axiom, Domain | Bayer CropSciences |
| flumetsulam | Python | Dow AgroSciences |
| flumetsulam + clopyralid | Hornet | Dow AgroSciences |
| flumeturon | Cotoran, Meturon | Syngenta, Griffin |
| flumiclorac | Resource | Valent |
| flumioxazon | Valor, Gangster | Valent |
| fluridone | Sonar | SePRO |
| fluroxypyr | Starane, Vista | Dow AgroSciences, UAP |
| fluroxypyr + 2,4-D | Starane + Salvo | Dow AgroSciences |
| fluroxypyr + aminopyralid | CleanWave | Dow AgroSciences |
| fluroxypyr + clopyralid | WideMatch | Dow AgroSciences |
| fluthiacet-methyl | Action | Syngenta |
| fomesafen | Flexstar, Reflex | Syngenta |
| foramsulfuron | Option | Bayer CropSciences |
| foramsulfuron + iodoflufenacet | Equip | Bayer CropSciences |
| fosamine | Krenite | DuPont |
| glufosinate | Liberty, Ignite, Finale Rely | Bayer CropSciences |
| glyphosate | Several | Several |
| glyphosate + 2,4-D | Landmaster BW | Monsanto |
| glyphosate + atrazine | Ready Master ATZ | Monsanto |
| halosulfuron | Permit, Manage, Semptra | Monsanto |
| halosulfuron + dicamba | Yukon | Monsanto |
| hexazinone | Velpar, Pronone | DuPont, Pro-Serve |
| imazamethabenz | Assert | Micro Flo |
| imazamox | Raptor, Beyond | BASF Ag Products |
| imazapic | Plateau | BASF Ag Products |
| imazapyr | Arsenal, Chopper, Contain | BASF Ag Products |
| imazapyr + imazethapyr | Lightning | BASF Ag Products |
| imazaquin | Scepter, Image | BASF Ag Products |
| imazethapyr | Pursuit | BASF Ag Products |
| imazethapyr + glyphosate | Extreme | BASF Ag Products |
| isoxaben | Gallery | Dow AgroSciences |

----- **Herbicide Index** -----

| Common Name | Trade Name(s) | Manufacturer/ Formulator |
|---|----------------------------|-------------------------------------|
| isoxadifen-ethyl | | DuPont Ag Products |
| isoxaflutole | Balance Pro | Bayer CropSciences |
| isoxaflutole + flufenacet | Epic | Bayer CropSciences |
| lactofen | Cobra, Phoenix | Valent |
| linuron | Lorox, Lines | DuPont, Griffin |
| MCPA | Several | Several |
| MCPB | Thistrol | NuFarm |
| mecoprop (MCPP) | Several | Several |
| mesosulfuron | Osprey, Silverado | Bayer CropSciences |
| mesosulfuron + propoxycarbazone | Olympus Flex | Bayer Crop Science |
| mesosulfuron-methyl | Osprey, Silverado Wild Oat | Bayer Crop Science |
| mesotrione | Callisto | Syngenta |
| mesotrione + s-metolachlor | Camix | Syngenta |
| mesotrione + s-metolachlor + atrazine | Lumax | Syngenta |
| mesotrione + s-metolachlor + glyphosate | Halex GT | Syngenta |
| metribuzin | Sencor | Bayer CropSciences |
| metsulfuron | Ally, Escort, Cimarron | DuPont |
| molinat | Ordram | Syngenta |
| MSMA | Several | Several |
| napropamide | Devrinol | Syngenta |
| naptalam | Alanap | Crompton/Uniroyal |
| nicosulfuron | Accent | DuPont |
| nicosulfuron + diflufenacet + dicamba | Celebrity Plus | BASF Ag Products |
| nicosulfuron + rimsulfuron + atrazine | Basis Gold | DuPont |
| nicosulfuron + rimsulfuron + clopyralid + flumetsulam | Accent Gold | DuPont |
| norflurazon | Zorial, Solicam | Syngenta |
| oryzalin | Surflan | Dow AgroSciences |
| oxadiazon | Ronstar | Bayer Crop Science |
| oxasulfuron | Expert | Syngenta |
| oxyfluorfen | Goal | Dow AgroSciences |
| paraquat | Gramoxone Max | Syngenta |
| pendimethalin | Prowl and others | BASF Ag Products |
| phenmedipham | Spin-aid | Bayer CropSciences |
| phenmedipham + desmedipham | Betamix | Bayer CropSciences |
| phenmedipham + desmedipham + ethofumesate | Progress | Bayer CropSciences |

----- **Herbicide Index** -----

| Common Name | Trade Name(s) | Manufacturer/ Formulator |
|-----------------------------------|------------------------------------|-------------------------------------|
| picloram | Tordon and others | Dow AgroSciences |
| pinoxaden | Axial XL | Syngenta |
| primisulfuron | Beacon | Syngenta |
| primisulfuron + dicamba | NorthStar | Syngenta |
| primisulfuron + prosulfuron (1:1) | Exceed | Syngenta |
| primisulfuron + prosulfuron (2:1) | Spirit | Syngenta |
| prodiamine | Barricade | Syngenta |
| prometon | Pramitol | Syngenta |
| prometryn | Caparol, Cotton-Pro | Syngenta, Griffin |
| pronamide | Kerb | Dow AgroSciences |
| propachlor | Ramrod | Monsanto |
| propanil | Stam, Strel, Stampede | Dow AgroSciences |
| propoxycarbazone | Olympus | Bayer CropSciences |
| prosulfuron | Peak | Syngenta |
| prosulfuron | Peak CustomPak | Syngenta |
| pyrasulfotole | Huskie | Bayer Crop Science |
| pyrazon | Pyramin | BASF Ag Products |
| pyrithiobac sodium | Staple | DuPont, Kumiai |
| pyroxasulfone | KIH-485 | Kumiai |
| pyroxsulam | | Dow AgroSciences |
| quinclorac | Facet, Drive, Paramount | BASF Ag Products |
| quizalofop | Assure II | DuPont Ag Products |
| quizalofop | Targa | Gowan |
| quizalofop-P | Assure II | DuPont |
| rimsulfuron | Matrix, Titus | DuPont |
| rimsulfuron + nicosulfuron | Steadfast | DuPont |
| rimsulfuron + thifensulfuron | Basis | DuPont |
| sethoxydim | Poast, Poast Plus | Micro Flo, BASF Ag Products |
| siduron | Tupersan | DuPont, Gowan, PBI-Gordon |
| simazine | Princep | Syngenta |
| s-metolachlor | Dual Magnum, Dual II Magnum, Cinch | Syngenta, DuPont |
| s-metolachlor + metribuzin | Boundary | Syngenta |
| sodium chlorate | Several | Several |
| sulfentrazone | Authority, Spartan, Guantlet | DuPont, FMC |
| sulfometuron-methyl | Oust | DuPont |
| sulfosulfuron | Maverick, Outrider | Monsanto |
| tebuthiuron | Spike | Dow AgroSciences |

----- **Herbicide Index** -----

| Common Name | Trade Name(s) | Manufacturer/ Formulator |
|---|--------------------------------------|-------------------------------------|
| tembotrione (AE 0172747) | Laudis | Bayer Crop Science |
| terbacil | Sinbar | DuPont |
| thiazopyr | Visor, Mandate | Rohm and Haas, Co. |
| thidiazuron | Dropp | Bayer CropSciences |
| thiocarbazone-methyl | | Bayer Crop Science |
| thifensulfuron-methyl | Harmony GT | DuPont |
| thifensulfuron-methyl | Harmony GT XP | DuPont Ag Products |
| thifensulfuron-methyl + tribenuron | Harmony Extra | DuPont |
| thifensulfuron-methyl + tribenuron-methyl | Affinity Broadspec, Affinity TankMix | DuPont |
| thiobencarb | Bolero | Valent |
| topramezone | Impact | AmVac |
| tralkoxydim | Achieve | Syngenta |
| triallate | Far-Go | Monsanto |
| triasulfuron | Amber | Syngenta |
| triasulfuron + dicamba | Rave | Syngenta |
| tribenuron-methyl | Express | DuPont |
| triclopyr | Garlon, Remedy and others | Dow AgroSciences |
| triclopyr + fluroxypyr | PastureGard | Dow AgroSciences |
| trifloxysulfuron | Envoke, Monument | Syngenta |
| trifluralin | Treflan and others | Dow AgroSciences and others |
| triflusulfuron-methyl | UpBeet | DuPont |

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