

NCWSS • News

North Central Weed Science Society

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If you are a member of the NCWSS and have material you would like to submit to the Newsletter, please send it to:

Vince Davis at Vince.davis@basf.com



John Hinz President 2015

I want to thank you all for giving me the opportunity to be your 2015 president. I look forward to serving you. There are many people that make this society run. Please consider serving on a committee or running for an office when you are asked. If there is anything that you see that we are not doing or could do better, please contact me at john.hinz@bayer.com.

It is hard to believe that our meeting was the first week of December. It seems so much longer ago than that. Serving as program chair, it amazed me as to how many moving pieces there are and how much work goes into our meeting. I want to thank Eric Spandl and his local arrangements committee for making everything run smoothly. I also want to thank the hotel staff for everything they did to make our meeting a success. Program Chair Anita Dille and Local Arrangements Chair Ryan Lee are already hard at work organizing the 2015 meeting in Indianapolis. The meeting will be December 7-10. If you have ideas for a symposium, please contact Anita.

Our next big event is the Weed Science Contest. This will be held July 20-22 at the Ohio State University research farm near Columbus, OH. The contest was originally scheduled to be a joint contest with the Northeast Weed Science Society. The Southern Weed Science Society had difficulties finding a host for their contest. The North Central and Northeastern Weed Science Societies invited the Southern Weed Science Society and the Western Society of Weed Science to attend. They have both agreed to attend. With all the regional societies invited to attend, there will be a need for a large number of volunteers to run the contest. Please volunteer to help if asked. A group of people from each society will determine the rules for the contest. Bruce Ackley, 2015 contest host, Dave Johnson, 2014 contest host and Mark Bernards will represent the NCWSS on this committee. I hope to see you all in Columbus.

The Board of Directors approve a redesign of our current web page. David Kruger is working on this effort. The new webpage should be ready early this summer.

Continued on Next Page

President 2015 - Continued

The committee assignments have been posted to the webpage. You can always volunteer to join a committee. If you see a committee that you would like to work on, send me an email and I can add you to that committee.

Reflections for the 2014 meeting.

The meeting started with a tour for the graduate students hosted by Winfield Solutions. Greg Dahl and Rodrigo Werle organized this tour. The students toured the Winfield Solutions Product Development and Spray Analysis facilities in River Falls, WI. Students were broke into 2 groups and were shown the Winfield Solutions wind tunnel and talked about research programs, ag issues and discussed adjuvants. The tour was attended by 49 guests and greatly appreciated. After the tour, the student mixer/quiz bowl was hosted by BASF. A team from Purdue University won the Quiz bowl.

We had a very successful meeting in 2014. 405 people attended the Minneapolis meeting. This included 90 graduate and undergraduate students. There were 205 papers and posters presented at the meeting. There were 87 graduate students entered in the paper and poster contests and 16 undergraduates entered in the poster contest. There were so many poster entrants, that we had to purchase more poster boards so they could all be displayed. There were 3 symposia in 2014. All three symposia were well attended and had excellent presentations with lively discussions. Devin Wirth

and the extension committee organized a Cover Crops symposium. Mike Owen organized the Roadmap to Success: The Human Dimension of Managing Herbicide Resistance symposium. Mike Meyer organized the *What's New in Industry* symposium. I want to thank Mike Owen, Devin Wirth and Mike Meyer for organizing the symposia.

Anita Dille organized the Women in Weed Science Networking Breakfast. It was attended by 44 women. I heard very good feedback from this event and it will be held again in the future. I want to thank Anita for organizing this event.

At the Awards Luncheon, we recognized the Student Paper and Poster contest winners. We also recognized our Service Award winners. We welcomed David Stoltenberg and Adrian Moses as our newest Fellows. Congratulations to all our award winners. We also recognized Bob Hartzler and Harlene Hatterman-Valenti for their years of service as Abstract Editor and Communication Editor, respectively. We are very happy to welcome Vince Davis and Greg Kruger to replace Bob and Harlene. We also are excited to have Greg Dahl as our new Vice President. I also want to thank Mark Bernards as he completed his office as WSSA representative. Reid Smeda was elected as the new WSSA representative. I look forward to working with all our new Board of Directors members. Finally, I want to thank J.D. Green for his outstanding leadership as 2014 President. I know J.D. will do a wonderful job in his Past President role. ♦

Past President — J.D. Green



During the past year it has been a pleasure and honor to serve the North Central Weed Science Society as your president. Executive Secretary, Phil Banks reported that 405 people registered for the 2014 annual meeting, which was up from the 375 NCWSS members who attended last year. Our meeting in Minneapolis was a success and I would like to personally thank John Hinz, our new NCWSS President, for his leadership in developing the program. The rest of the Program Committee is to be applauded,

particularly Devin Wirth, Mike Owen, and Mike Meyer who organized the symposia. We offer a special thank you to Eric Spandl and his Local Arrangements Committee and Phil Banks Executive Secretary for all their efforts preparing and hosting the annual meeting. A special thanks is also extended to Greg Dahl and Rodrigo Werle for planning and hosting a preconference tour for several students and their advisors at the Winfield Solutions research facilities.

Past President - Continued

I also want to thank and acknowledge all those members who served on committees and devoted their time and efforts on behalf of the NCWSS. The NCWSS is fortunate to have a number of members who are dedicated to the functions of the society and who help to guide the NCWSS throughout the year. We also appreciate our Sustaining members who continue to provide financial support. Several of these members also sponsored the student mixer/quiz bowl, student luncheon, society breaks, and social events at our annual meeting. One of the changes during the past year was to better define and acknowledge the financial levels that sustaining members contribute to the society.

One of our society's main functions is to share information among our members and educate the public about weed science issues. In addition, we provide opportunities for our students by hosting the paper and poster contests at our annual meeting and sponsoring the summer weed contest. Congratulations to all our student participants and the award winners of the various activities.

My key priority during 2015 will be to solicit nominations for the Distinguished Achievement Awards, Outstanding Graduate Student, and Fellow Awards. You can be of assistance by beginning to think of individuals who are worthy nominees for these special awards. The process is easy and instructions for each award are listed in the NCWSS Manual of Operating Procedures which begins on page 24 [current MOP is posted on the NCWSS website]. It is important that we take time to recognize our outstanding members for their contributions to the NCWSS and our weed science discipline.

In closing, I would like to thank my fellow officers for their contributions and feedback throughout the past year on NCWSS matters. I want to again express my appreciation to Bob Hartzler and Harlene Hatterman-Valenti for their roles as Editors during the past several years, and Mark Bernards who completed his term as our WSSA Representative. We are particularly indebted to Dave Johnson who has served the society in various capacities including the presidential rotation during the past 4 years. I am confident that our new board leadership lead by John Hinz will serve us well during the upcoming year. ♦

NCWS Distinguished Awards NCWS

69th Awards Luncheon



**Young Scientist
Greg R. Kruger**

YOUNG SCIENTIST

This award is to be given to members who fulfill the requirements to qualify in the above education, research, and service award categories and who must have received a terminal degree no more than 10 years before receiving the award at the annual meeting.

Greg R. Kruger

Dr. Kruger received his B.S. degree in Agribusiness and Applied Economics with a minor in Crop Science from Ohio State University in 2004 and his M.S. and Ph.D. in 2006 and 2010 from Purdue University in Plant Pathology and Weed Science, respectively. Dr. Kruger joined the faculty at the University of Nebraska-Lincoln in January 2010 as a Cropping Systems Specialist focusing on issues related to corn, soybean and wheat production. He has developed the “Ground Spray” app, a droplet size calculator for pesticide applicators, and has been integral in Herbicide-Resistance Management Field Days and other resistance management Extension efforts in Nebraska.

Young Scientist Greg Kruger

In 2014, Dr. Kruger changed positions to Weed Science and Pesticide Application Technology Specialist at the University of Nebraska-Lincoln. The position responsibilities are 50% research and 50% Extension. Dr. Kruger's research and Extension efforts focus heavily on understanding pesticide applications and making recommendations on maximizing pesticide application and mitigating off-target movement. Additionally, the program has a strong emphasis on managing kochia, horseweed, waterhemp and Palmer amaranth problems in the state. Dr. Kruger has built the Pesticide Application Technology laboratory which host two wind tunnels for better understanding nozzle by pressure by spray solution interactions on droplet size. Additionally, the program is striving to marry the engineering of droplet size to the biology of drift and efficacy. This work has led Dr. Kruger to helping consult with EPA on the release of the DRT program and has helped to foster global collaboration in the area of pesticide applications.

Dr. Kruger has authored or coauthored 28 refereed manuscripts since joining the University of Nebraska-Lincoln in 2010. Additionally, he has trained 4 M.S. students and is currently advising 8 other M.S. and Ph.D. students in addition to 15 international interns from Brazil, France, India and Serbia. Dr. Kruger has been an author or coauthor on over 100 professional meeting abstracts and has given invited presentations on pesticide applications or resistance in over 12 states in addition to Australia, Brazil, New Zealand and Argentina.

Dr. Kruger has been an active member of the NCWSS since 2006. He has organized a Statistic Symposium, actively participated and coached teams at the NCWSS annual weed contest, and is the incoming Proceedings Editor on the board. Dr. Kruger has served on the NCWSS Finance, Steering and Public Policy Committee, served as a poster judge at the annual meetings and has served on the Local Arrangements Committee. He has been active in WSSA, ASTM, and ASA. Dr. Kruger has been awarded the UNL:IANR Young Researcher Award and the Omtvedt Innovation Award for the development of the wind tunnels and associated research on pesticide application technology.

Ryan Lins



**Young Scientist
Ryan Lins**

Ryan Lins is a Research and Development Scientist with Syngenta in Minnesota. His present responsibilities include delivering results from a field research program designed to evaluate crop protection and trait technology, leading herbicide development projects, providing outreach and technical training to the Syngenta sales organization and serving as the primary Syngenta liaison to University of Minnesota cooperators. Prior to his current position, he was a Research Agronomist in Iowa and a Research and Development Scientist in the Mid-Atlantic region, both with Syngenta. Since joining Syngenta, Ryan has contributed to the development of over 32 commercial products, most recently playing a large role in the development of Acuron herbicide. Ryan received his B.S. at the University of Wisconsin-River Falls in 2000, his M.S. from the University of Wisconsin-Madison in 2002, and his Ph.D. from Oregon State University in 2005.

Ryan has been an active member of the NCWSS since 2000, chairing poster/paper sessions, serving on committees and volunteering for several student activities (poster/paper judge, Weeds contest). He has

Young Scientist Ryan Lins

also presented numerous papers at the NCWSS, NEWSS, WSWs and WSSA annual meetings.

Ryan was raised on a dairy and crop farm in south central Wisconsin. He currently resides near Rochester, MN with his wife and three children.

INDUSTRY

Awards in this category are given to representatives of industry who meet the basic guidelines in the above education, research, or service categories. For these individuals, it is important to include the contributions this individual has made to weed science within the industry. Examples might be: patents, development of unique formulations, development of research techniques, discovery of unique uses for a product, or service to NCWSS or to agriculture in general.

Dawn Refsell



Industry
Dawn Refsell

Dawn Refsell was raised on a grain and livestock farm in Northwest Iowa. Dawn received her B.S. and M.S. degrees from Iowa State University with research focused on common milkweed and waterhemp. She then accepted a position with the University of Illinois as an Extension Specialist in Weed Science IPM in 2003. During this time, Dawn worked with regional extension staff and the Illinois Soybean Association and on various research projects and developing weed management strategies and publications for Illinois farmers. She enjoyed assisting at the UI Plant Clinic and being on the panel for Mid-American Gardner.

Dawn accepted her current position as a Field Market Development Specialist with Valent in 2009. Her responsibilities include technical support for herbicides, insecticides, fungicides and PGR's as well as development of new chemistries for each of these disciplines. Dawn also supports Valent's international effort to manage herbicide resistance by lecturing and offering advice to dealers, growers and universities personnel in Brazil and Argentina. Dawn has also hosted weed scientist from Argentina, Brazil and Chile in the US to teach herbicide-resistant management strategies. Although a Weed Scientist by training, Dawn has played a pivotal role in the development of PGR's for use in Midwestern crop production. While employed with Valent, Dawn enrolled as a student at Kansas State University and completed her Ph.D. in Agronomy in 2013. Dawn continues to enjoy the interaction with University specialists and researchers, crop consultants, retailers, and Midwest growers.

Dawn represents Valent and Sumitomo Chemical Co. on NAHRAC and Global HRAC, respectively. Within the NCWSS, she has served as Extension and Industry chair, session moderator, poster judge, Weeds Contest volunteer, and is the current Central Region Director. Dawn has also served on the professional development committee for WSSA for the past 8 years.

Away from work, Dawn enjoys riding her Harley, cheering on the Cyclones, and watching baseball games with her husband, Doug. She also assists with the Make-A-Wish Foundation of Greater Kansas City, Missouri Special Olympics, and the Missouri Patriot Express.



Professional Staff
Jeff Golus

PROFESSIONAL STAFF

This award recognizes outstanding and sustained contributions in support of weed science activities in the North Central region. Nominees will be restricted to individuals that work under the direction of university, federal, or industry scientists. These individuals may have titles such as researcher, research associate, technician, support scientist, or specialist. The nominee must have been involved in weed science research, extension, or resident education for at least five years at the time of nomination.

Jeff Golus

Jeff Golus grew up on a small farm in central Nebraska. He attended the University of Nebraska – Lincoln and graduated with a BS degree in Agribusiness. Upon graduation, Jeff accepted a research technologist position at the University of Nebraska’s West Central Research and Extension Center at North Platte, NE in 1996. While employed there, he has managed field research projects including herbicide and adjuvant efficacy trials, spray nozzle evaluation for drift management and herbicide efficacy, and aided in resistant weed screens. In 2003 he helped implement usage of a laser based system to analyze spray particle distributions, and managed laboratory trials evaluating different nozzles, operating pressures and spray solution components with the goal of managing spray drift while maintaining adequate weed control. He also manages projects in variety testing, crop water use, crop rotation, rainfed cropping systems, growth modeling, fungicide and growth regulators, and advises and assists graduate students in completing projects. He has incorporated new technology to complete projects, including GPS based systems.

Jeff has co-authored many articles, papers, abstracts and posters for North Central and Western Weed Science Societies, Weed Science Society of America, American Society of Agronomy and International Conference on Precision Agriculture, and has given presentations at conferences, clinics and field days. He has also received the UNL Outstanding Employee Award and was selected as a team member of a Rotary International Group Study Exchange to northern India.

Collin Auwarter



Professional Staff
Collin Auwarter

Collin Auwarter was raised in a rural town in West Central MN. He grew up in sunflower fields working for his father at SIGCO Research, who obtained his M.S. at NDSU under the direction of Dr. John Nalewaja. In 2004, Collin obtained his B.S. in Ag Business and Applied Economics at NDSU. Following graduation, he was hired as a research specialist for the high-value crops project in the Plant Sciences department at NDSU under the direction of Dr. Harlene Hatterman-Valenti.

For the past 10 years he’s been conducting a wide variety of research as Dr. Hatterman-Valenti works on a diverse number of crops and the research opportunities are endless. A typical day could start by cutting seed potatoes, going to the field to plant onions, followed by going to a vineyard to put on pre-emergence herbicides and ending the day by cultivating the junberries. Collin is always willing to accept a new

**Professional Staff
Collin Aurwater**

challenge, especially as new products and methods of weed control emerge. He works closely with graduate students and is always prepared to take on additional tasks or trials to ensure the success of a project.

Collin has enjoyed the camaraderie of the North Central Weed Science Society since 2005, where he's attended and presented a poster every year and recently served as section chair of the Horticulture, Ornamentals, and Turf papers.

OUTSTANDING GRADUATE STUDENT AWARD

The North Central Weed Science Society Outstanding Graduate Student Award recognizes one outstanding graduate student who is a NCWSS student member. This award will be given to a graduate student who is actively involved in the Society, as well as contributor to the field of weed science through extension, research, and teaching.

Jessica Bugg



**Outstanding Graduate
Student
Jessica Bugg**

Jessica Bugg was raised on a farm in Northern Ohio where she was actively involved in the local 4-H club and FFA chapter. She received her B.S. from The Ohio State University in Plant Pathology, completing an undergraduate thesis project investigating the effectiveness of disinfectants on tobacco mosaic virus contaminated tools used in the greenhouse industry. While pursuing her undergraduate degree she spent time studying sustainable agriculture in Brazil, Uganda, and Tanzania. The best advice Jessica received when exploring graduate school was to diversify her agricultural expertise, which led to her joining the Weed Science Judging Team as an undergraduate, participating in the NCWSS Weed Science Contest. This experience sparked an interest in the physiology of weeds and herbicides, and unknowingly opened doors to a career in weed science.

Jessica continued her education at Purdue University completing a Ph.D. under Drs. Bill Johnson and Steve Hallett. Jessica's doctoral research focused on the role of soil microorganisms in the evolution of glyphosate resistance in three problematic weeds in Indiana: giant ragweed, horseweed, and common lambsquarters. Her research has addressed glyphosate resistance from a unique, multi-disciplinary approach, by investigating the interaction between weeds and soil microorganisms.

Jessica has authored several peer reviews-papers in Weed Science and has presented 11 poster and paper presentations at 5 regional and 2 national WSSA meetings, placing 1st in both the Graduate Student Poster and Paper Competition at NCWSS in 2010. Throughout graduate school Jessica was involved in the NCWSS Weed Science Contests and contributed as a manuscript reviewer for Weed Technology. In addition, she was also teaching assistant and treasurer for the Purdue Botany and Plant Pathology Graduate Student Organization.

Currently, Jessica is a Field Development Technical Consultant with DuPont Crop Protection residing in Ohio with her husband Mark.

FELLOW AWARDS

Fellow is the highest honor that the Society can confer to an individual member. Only individuals who have made outstanding contributions to weed science (no more than 0.5% of the membership) receive the award each year. Fellows are considered life-time members of the NCWSS.

Adrian Moses

Since completing his education at North Dakota State University in 1985, Dr. Moses has been a productive scientist and contributor to the NCWSS.

Dr. Moses began his career as a field research representative for Ciba Geigy Corporation, progressing to research scientist with Ciba Geigy and Novartis, and into his current position as a Senior Scientist with Syngenta. In 2006 he was named a Syngenta Global Winner for “Achieving Excellence: The U.S. Corn Story”. In 2009, the NCWSS recognized his contributions as a weed scientist, presenting him the *NCWSS Distinguished Achievement Award for Industry*. He has led or co-led the development of numerous herbicide products, fungicides, and seed traits. Many of these products continue to be widely used by crop producers.

Adrian has demonstrated leadership skills serving on the NCWSS executive board and as president of the society in 2007. As the 2006 NCWSS program chair, he was instrumental in coordinating a joint meeting of the NCWSS in Milwaukee with the Midwest Invasive Plant Network and the Invasive Plants Association of Wisconsin.

In addition to his four years of NCWSS presidential rotation, Dr. Moses has been extremely active and willing to serve in several other capacities on behalf of the NCWSS. He was elected to the NCWSS Board of Directors representing Missouri in 1991-1994. He served as chair of the Distinguished Achievement Awards Committee, Local Arrangements, Public Relations, and Research and Development Committees. He has served on additional committees and been the chair of several sessions and has volunteered many years as a judge for student paper and poster contests and for the summer weed science contest.

Dr. Moses is involved in the Western Weed Science Society, North Central Entomology Society, American Society of Agronomy, American Pathology Society, CAST, and Weed Science Society of America.

In his down time, Adrian and his wife enjoy travel, gardening, and camping with their dog, Ten 9er Bravo.



**Fellow Award
Adrian Moses**

Dave Stoltenberg



**Fellow Award
Dave Stoltenberg**

Dave Stoltenberg grew up in Waseca, Minnesota, home of the University of Minnesota Southern Experiment Station (now the Southern Research and Outreach Center) where he worked several summers during his high school and college years for soil scientist Dr. Gyles Randall. This exposure to agricultural research had a great influence on Dr. Stoltenberg, who after completing a B.S. degree in Biology from the University of Minnesota in 1980, pursued graduate work in Weed Science under the guidance of Dr. Don Wyse at the University of Minnesota, receiving M.S. and Ph.D. degrees in Agronomy (Weed Science) in 1985 and 1988, respectively.

Dr. Stoltenberg began his professional career as Assistant Professor in the Agronomy Department at Iowa State University in 1988 with a 100% extension appointment in integrated weed management and water quality. In 1990 he accepted a position at the University of Wisconsin-Madison, Department of Agronomy, with 75% research and 25% teaching responsibilities. Since that time, his research program has focused on crop-weed interactions, the effects of cropping system factors on weed community dynamics, and characterization of herbicide-resistant weeds in Wisconsin, including mechanisms of herbicide resistance and factors that affect persistence and spread of resistance. Dr. Stoltenberg has taught a Cropping Systems course annually since 1990, and has contributed to several other undergraduate- and graduate-level courses. Dr. Stoltenberg was promoted to Associate Professor in 1997 and to Professor in 2003. He has served as Associate Chair and Interim Chair of the Department of Agronomy, and has also served on numerous departmental, college, and university committees. Dr. Stoltenberg has co-authored more than 50 peer-reviewed papers, 36 conference proceedings, 115 abstracts, and 41 outreach/extension publications.

He has been a member of the NCWSS for over 30 years and has been active in numerous capacities throughout this tenure. Notably, he has served the society as a director, and chair of several committees. He has made numerous oral and poster presentations at NCWSS meetings including several invited symposium presentations. Dr. Stoltenberg received the NCWSS Young Scientist Distinguished Achievement Award in 1997 and the NCWSS Distinguished Achievement Award for Research in 2004.

Dr. Stoltenberg has also provided service to the Weed Science Society of America in several roles. He has served on the Editorial Board for *Weed Science* as well as several other committees. He served as Chair of the Outstanding Paper in *Weed Technology* Selection Committee from 2005-2008 and has served as a member of the Outstanding Paper in *Weed Science* Selection Committee since 2009. Dr. Stoltenberg has participated in WSSA educational activities by coauthoring and presenting many papers and posters. He is also a member of the American Society of Agronomy and Crop Science Society of America. ◇

The NCWSS Student Awards

There was excellent student participation in all of the contests this year. Education of new members highlights one of our core purposes as a society. This also requires a commitment by some of our more experienced members in volunteering to work as judges, so many thanks goes to all paper and poster judges. As a reward, first place winners received \$200 and second place \$100. Thanks again to everyone who participated in the contests.

There were 43 participants in this year's Graduate Student Paper Contest. The entries were separated into 5 groups based on subject matter and scheduling. All papers were evaluated on their content, development, analysis and presentation.

Graduate Student Paper Contest (Chair Doug Nord)

Group 1: Agronomic Crops



Influence of Various Cover Crop Species on Winter and Summer Annual Weed Emergence.
Cody Cornelius, University of Missouri.



Current Status of Herbicide Resistance in Shattercane and Johnsongrass Populations from Northern Kansas, Eastern Missouri, and Southern Nebraska.
Rodrigo Werle, University of Nebraska.

Group 2: Agronomic Crops/ Weed Biology, Ecology, and Management



Seed Bank Depletion and Emergence Patterns of Giant Ragweed in Various Crop Rotations.
Jared J. Goplen, University of Minnesota.



Light Interception in Soybean Determined Through Digital Imagery Analysis Affects Soybean and Weed Suppression.
Thomas Butts, University of Wisconsin.

Graduate Paper - Continued

Group 3: Weed Biology, Ecology, and Management



1st

Mechanism of Resistance in 2,4-D Resistant Waterhemp.

Lacy J Leibhart, Univeristy of Nebraska.



2nd

Influence of Tillage Methods on Management of Amaranthus Species in Soybean.

Jaime Farmer, University of Missouri.

Group 4: Herbicide Physiology



1st

Relationship Between EPSPS Copies, Expression, and Level of Resistance to Glyphosate in Common Waterhemp (*Amaranthus rudis*) from Kansas.

Andrew Dillon, Kansas State University.



2nd

Metabolism in Enlist Crops.

Joshua J Skelton, University of Illinois.

Group 5: Equipment and Application Methods



1st

Validation of Immunoassay Kit to Detect Glyphosate Residue Within red Norland Potato Tubers.

Amanda Crook, North Dakota State University.



2nd

Influence of Spray Nozzle Design on Spray Solution Deposition on Palmer Amaranth (*Amaranthus Palmeri*) and Common Waterhemp (*Amaranthus rudis*).

Travis R Legleiter, Purdue University.

Graduate Student Poster Contest (Mark Bernards Chair)

Application Efficacy and Cover Crops



1st

Carryover of Common Corn and Soybean Herbicides to Various Cover Crop Species in Missouri.

Cody D Cornelius, Jaime Farmer, Mandy Bish, Alex Long, Meghan Biggs, and Kevin Bradley; University of Missouri.



2nd

The Impact of Fall-Planted Cover Crop Monocultures and Simple Mixtures on Weed Presence in Corn.

Victoria j Ackroyd, Christy L Sprague; Michigan State University.

Weed Competition and Growth



1st

Giant Ragweed Seed Production and Retention in Soybean and Field Margins.

Jared J Goplen, Jeffrey L Gunsolus, Craig C Sheaffer, Roger L Becker, Jeffrey A Coulter Fritz Breitenbach, Lisa Behnken, Gregg A Johnson; University of Minnesota.



2nd

Volunteer Corn Competes with Sugarbeet for Nitrogen.

Amanda C Harden, Christy L Sprague; Michigan State University.

Herbicide Efficacy



1st

Effect of Herbicide on Recovery and Pathogenicity of *Clavibacter michiganensis* subsp. *Nebraskensis*, Causal Agent of Goss's Wilt on Corn.

Joseph T Ikley, Kiersten A Wise, William G Johnson; Purdue University



2nd

Relating Dicamba Injury and Residue to Yield Reduction in Dry Beans.

Theresa A Reinhardt, Rich Zollinger; North Dakota State University.

Graduate Poster - Continued

Herbicide Resistance and Biological Characteristics



1st

2,4-D Uptake and Translocation in Enlist Crops.
Joshua J Skelton, David M Simpson, Mark A Peterson, Dean E Reichers; University of Illinois and Dow AgroSciences.



2nd

The EPSPS Pro106Ser Substitution Solely Accounts for Glyphosate Resistance in a Goosegrass Population from Tennessee.
Janel L Huffman, Chance W Riggins, Lawrence E Steckel, Patrick J Tranel; University of Illinois and University of Tennessee.

Herbicide Resistance and Response to Herbicides



1st

ALS-Inhibiting Herbicides Dose and Plant Size Influence the Control of ALS-Resistant Shattercane Populations.
Rodrigo Werle, Roberto L Martins, Lowell D Sandell, John L Linqvist; University of Nebraska, Sao Paulo State Univeristy, Brazil and Valent USA Corporation.



2nd

Characterization of Wisconsin Giant Ragweed Resistance to Choransulam-Methyl.
Stacey M Marion, Vince M Davis, David E Stoltenberg; University of Wisconsin.



Harlene Hatterman-Valenti
Newsletter Editor

Thanks to



Bob Hartzler
Proceedings Editor

Undergraduate Poster Contest (Tate Castillo Chair)

The Undergraduate Poster Contest is an event that continues to grow in popularity. This year we had 16 participants in the contest, which marks the first year that we had enough entries to break it into 2 judging groups.

Group 1. Agronomic Crops I and II



1st

Investigation of Fluridone as a Preemergent Herbicide in Soybean.

Austin Straatman; University of Missouri.



2nd

Summer Annual Weed Control as Affected by Fall, Preplant, and PRE Timing of Soybean Residual Herbicides.

Ryle Russell; Western Illinois University.

Group 2. Weed Biology, Ecology, Management / Equipment and Application Methods



1st

Control of Several Southern Illinois Palmer Amaranth Populations with Fomesafen and Lactofen.

Kayla Wiedau, Southern Illinois University



2nd

Identification and Determination of Glyphosate-Resistant Amaranthus spp. Using Molecular Markers

Brittany Janney, University of Illinois.

**The NCWSS Newsletter is edited by Vince Davis
Arranged by Glenn Nice
And Filled by the Members of NCWSS**

2014 Officers

J.D Green (President), John Hinz (President Elect), Anita Dille (Vice President), David Simpson (Secretary-Treasurer, Robert Hartzler (Editor - Proceedings), Harlene Hatterman-Valenti (Editor - Newsletter), Mark Bernards (WSSA Representative), Curtis Thompson (CAST Representative), Dave Johnson (Past President) and Phil Banks (Executive Secretary)

2014 Program

Jeff Gunsolus (Master of Ceremonies), Doug Nord (Graduate Student Paper Awards), Mark Bernards (Graduate Student Poster Awards), Tate Castillo (Undergraduate Student Poster Awards), Dave Johnson (Distinguished Achievement Awards), Dave Johnson (Distinguished Achievement Award and Outstanding Graduate student award), Duane Rathman (Fellows), J.D. Green (New Officers).

Top Left to Right:

Phil Banks ----- Executive Secretary
Greg Kruger ----- Proceedings Editor
Vince Davis ----- Newsletter Editor
Curtis Thompson ----- CAST
Representative
David Simpson ----- Secretary-Treasurer

Bottom Left to Right:

J.D. Green ----- Past President
Greg Dahl ----- Vice President
John Hinz ----- President
Anita Dille ----- President Elect
Reed Smeda ----- WSSA
Representative



Student Tour - Greg Dahl

Winfield Solutions, LLC was proud to present a tour of the Winfield Product Development Center at River Falls, WI on December 1, 2014 just prior to the NCWSS annual meeting. Winfield hosted over 55 guests including 48 NCWSS students from 12 Universities. Rodrigo Werle, 2014 NCWSS Graduate Student Chair did great at notifying the students about the tour and getting them registered to attend.

Students were picked up at the Meeting hotel and transported to the University of Wisconsin, River Falls Dairy Learning Center at River Falls Wisconsin. The group was split into two groups with one group proceeding to the Winfield Product Development Center and the other staying at the Dairy Learning Center for presentations. Lunch was provided at the River Falls Dairy Center for both groups. The two groups then switched places and each attended the other half of the tour. Following the program the guests were transported back the NCWSS meeting hotel prior to registration and Monday evening activities. The tour and topics consisted of:

Greg Dahl presented an introduction to Winfield Solutions, LLC and Land O'Lakes, the Winfield Product Development process and adjuvant information and demonstrations. Lillian Magidow presented Herbicide Application and the Spray Analysis System. Lillian and Andrea Clark conducted a demonstration of the Spray Analysis System. Solito Sumulong and Danny Brown made a presentation on Herbicide and Adjuvant Formulation. Todd Peterson presented Future Topics, Precision Agriculture, Big Data, and the "Farm to Market" the Alliance for Sustainable Agriculture. Rodney Tocco hosted the group with Rodrigo Werle. Jackie Mark made arrangements and coordinated the tour.

Winfield was pleased to host this tour and thanks the NCWSS students and guests for attending.

President-Elect - Anita Dille “Women in Weed Science” Networking Breakfast

The first ever “Women in Weed Science” networking breakfast was a resounding success. At least 44 female meeting attendees participated on Wednesday morning in round-table discussions over a wonderful breakfast. At least half were undergraduate and graduate students, many participating in their first NCWSS meeting. This networking event provided opportunities for the attendees to share their experiences in a weed science career as well as other interests, to help those earlier in their careers to hear from those further along, and to put names to faces. For the remainder of the meeting, it was great to see groups of women that met for the first time of breakfast, now greeting and visiting with each other, and continuing their conversations. Thank you to the NCWSS Board for supporting this activity. We look forward to another great networking event in Indianapolis in December 2015.

CAST Report - Curtis Thompson

Council for Agricultural Science and Technology (CAST) released a paper which affects all weed scientists. It’s titled “The Contributions of Pesticides to Pest Management in Meeting the Global need for Food Production by 2050”. This publication is free to download and can be attained at the following URL: <http://www.cast-science.org/publications> then click on the title. Check it out. If you haven’t yet, be sure to renew your membership or if you are not a member, this is a great time to become a member of CAST. Help CAST’s efforts to educate legislators and others with credible science. Becoming a member, you will receive Friday notes and notification of all released publications. We have many papers in process “Ag innovation series” relating to feeding this world in 2050.

Washington Report Lee Van Wychen February 20, 2015



Superweed Definition Approved

At the recent WSSA meeting in Lexington, KY, the Board of Directors unanimously approved the following definition for “superweed.”

Superweed: *Slang used to describe a weed that has evolved characteristics that make it more difficult to manage due to repeated use of the same management tactic. Over-dependence on a single tactic as opposed to using diverse approaches can lead to such adaptations.*

The most common use of the slang refers to a weed that has become resistant to one or more herbicide mechanisms of action (www.weedscience.org) due to their repeated use in the absence of more diverse

control measures. Dependence on a single mechanical, biological, or cultural management tactic has led to similar adaptations (e.g. hand-weeded barnyardgrass mimicking rice morphology, dandelion seed production in a regularly mowed lawn, knapweed resiliency to gall fly biocontrol).

Two common misconceptions about a superweed are that they are the result of gene transfer from genetically altered crops and that they have superior competitive characteristics. Both of these myths have been addressed by the Weed Science Society of America (WSSA) at www.wssa.net/weed/wssa-fact-sheets.

Washington Report - Continued

WSSA has created a variety of free educational materials and recommendations concerning herbicide resistance and how to avoid it, available at www.wssa.net/weed/resistance.

New Chairs for House and Senate Committees

The 114th United States Congress is now in full swing and committee leadership positions have been assigned. Due to the GOP's self-imposed rule that limits its committee chairs to three terms, nearly half of the chairs in the House had to step aside, including Ag Committee Chair Frank Lucas of Oklahoma. **Michael Conaway of Texas** take a over as new House Ag Committee chairman. He grew up in Odessa, TX and was a member of Odessa Permian High School football team that won a state championship in 1966 (which eventually led to the movie "Friday Night Lights"). He has a B.A. in accounting from Texas A & M. He worked at Price Waterhouse after serving in the army, and then was the chief financial officer for Bush Exploration. Rep. **Collin Peterson of Minnesota** will remain as the Ranking Member of the House Ag Committee.

The new chair of the House Natural Resources Committee is **Rob Bishop from Utah** who took over for the retiring Doc Hastings from Washington. Bishop grew up in Kaysville, UT, just north of Salt Lake City and has been a lifelong resident of the district that he will be representing for the 7th term in Congress. Bishop will seek to extend the expiring Payment in Lieu of Taxes (PILT) and Secure Rural Schools (SRS), two programs that provide critical funding to rural counties across the West, which includes funding for invasive weed management. Support for those programs is broad and bipartisan, but finding funding and agreeing how the money is spent will be a challenge. Rep. **Raul Grijalva (AZ)**, a strong proponent for invasive species management, is the new ranking member of the House Natural Resources Committee.

For the House Appropriations Committee, Rep. **Harold Rogers (KY)** remains the chair and Rep. **Nita Lowey (NY)** remains the ranking member of the full committee. The "cardinals" or subcommittee chairs for Agriculture and Rural Development, Energy and Water Development, and Interior and Environment also remain the same. They are **Robert Aderholt (AL)**, **Mike Simpson (ID)**, and **Ken Calvert (CA)**, respectively.

In the Senate, **Thad Cochran of Mississippi**, moved from the Ranking Member of the Senate Ag Committee, to one of the most powerful positions on Capitol Hill, Senate Appropriations Chairman, a position he occupied from 2005-2007. **Sen. Pat Roberts of Kansas** is the new Chair of the Senate Ag Committee. As House Ag Committee Chair in the 1990's, Roberts was a driving force behind the "freedom to farm" commodity policy in the 1996 Farm Bill. He is a fourth generation Kansan from Topeka, KS, has a journalism degree from Kansas State, and served four years in the Marine Corps. He was elected to the U.S. House of Representatives in 1980 and then to the Senate in 1996 where he has served since. Senator Roberts has been a proponent of research and technology and had led efforts in promoting food safety and biosecurity. **Sen. Deb Stabenow of Michigan** is now the Senate Ag Committee Ranking Member. Another **Kansas Senator, Jim Moran**, will chair the Senate Ag Appropriations committee with the ranking member being **Sen. Jeff Merkley from Oregon**.

Senator Lisa Murkowski of Alaska takes over as chair of the Senate Energy and Natural Resources Committee. She is a 3rd generation Alaskan and the first Alaskan-born Senator to serve the state, where she has served as Senator since 2002. It's no secret that Sen. Murkowski's top priority will be energy development. She unveiled her plan almost two years ago: [Energy 2020: a Vision for America's Energy Future](#), which calls for opening up federal lands for energy exploration among other initiatives. However, **Sen. Maria Cantwell from Washington**, the committee's new ranking member, will run strong opposition to the chair's proposals. Murkowski's committee also has jurisdiction over most of the federal land management agencies, but don't expect much camaraderie between her and Interior Secretary Sally Jewell as they have already disagreed on a proposed road through a remote Alaskan wildlife refuge that the Senator considers a life-and-death issue for local residents. Either way, Sen. Murkowski will play a huge role in shaping Energy and Natural Resource policy in the 114th Congress because not only is she the top authorizer, but she is also the top appropriator for land management issues as chair of Senate Appropriations Subcommittee for Interior-Environment.

Finally, the Senate Environment and Public Works Committee will have a 180 degree shift in its agenda as **Sen. Jim Inhofe from Oklahoma** took over the gavel from **Barbara Boxer of California**,

who slides down to the ranking member spot. However, Sen. Inhofe will only be chair for 2 years under GOP rules since he chaired the committee from 2003 – 2007. You can expect an array of oversight hearings on Obama administration environmental policies such as expanding the scope of the Clean Water Act and the science underpinning federal environmental rules. Sen's Inhofe and Boxer are about as far apart as you can get on the ideological spectrum and there will be no shortage of polarizing drama within this committee over the next two years.

FY 2015 USDA Appropriations

The last act of the 113th Congress before leaving town for the year was to pass the “Cromnibus”, which funds the federal government for FY 2015. Things look pretty good for USDA budget items overall with NIFA, ARS, APHIS, NRCS, the Economic Research Service (ERS), and National Ag Statistics Service (NASS) all receiving higher budgets compared to FY 2014. USDA-ERS received the largest increase among the aforementioned agencies with a 9.4 percent increase over last year to \$85.37 million. Within NIFA, the Agriculture and Food Research Initiative (AFRI) grants program increased 2.8% from \$316 million to \$325 million. Meanwhile, FY 2015 funding for the Hatch Act (\$244 million), Smith Lever 3b and 3c (\$300 million), and the IR-4 program (\$11.9 million) remain the same as last year. The Crop Protection and Pest Management line item, which includes funding for Extension IPM and the Regional IPM Centers among other things, received a small increase from \$17.14 million to \$17.2 million.

Congress Ditches WOTUS Interpretive Rule, But Administrative Rule Still Moving Forward

EPA and Army Corp of Engineers jointly published an “[administrative rule](#)” meant to clarify what are “Waters Of The United States” (WOTUS) and an “[interpretive rule](#)” meant to clarify which NRCS practices are exempt from Clean Water Act (CWA) permits for dredge and fill material under CWA 404 (f)(1)(A). The proposed administrative rule would greatly expand the “waters” covered under the Clean Water Act to almost all waters in the United States. This would subject thousands of streams, ditches, and other “small” waters to federal permitting and citizen lawsuits, including those on agricultural property. When Congress passed the CWA in 1972, their intent was for the CWA to cover “navigable waters of the United States”. The

expanded jurisdiction and the imprecision of the terms used by EPA and the Army Corp will result in significant added legal and regulatory costs. To try to minimize the potential effect on agriculture, EPA issued the “interpretive rule” at the same time as the “administrative rule” on WOTUS, which specifies 56 NRCS conservation practices that farmers must do to qualify for the CWA exemptions for dredge and fill permits. However, this “interpretive rule” only added confusion since agricultural storm water runoff and irrigation return flows are already except from CWA permitting. NRCS has more than a 160 approved conservation practices. Would the remaining 104 NRCS conservation practices still be considered normal farming practices? Or would they be subject to CWA citizen lawsuits under the administration's new WOTUS rule? Thankfully Congress “ditched” EPA's interpretive rule of NRCS approved conservation practices with a rider in the “Cromnibus” that was passed on Dec. 12. However, the “administrative rule” that greatly expands EPA's authority under the CWA is still moving forward. EPA Administrator McCarthy has said that the CWA exemptions for ag storm water runoff and irrigation return flow will be upheld. We'll see. The bottom line is that EPA and the Army Corp of Engineers will very likely move forward to finalize their “administrative rule” later this spring. However, the new 114th Congress will certainly have something to say about this, as well as the President's veto pen. Stay tuned.

How Much Milkweed Is Out There?

On December 31, the Fish and Wildlife Service (FWS) said it's considering increasing protections for the monarch butterfly under the Endangered Species Act (ESA). FWS was petitioned by three environmental groups last August that claim that extensive use of glyphosate on glyphosate resistant corn and soybeans in the Midwest has devastated native populations of milkweed, the sole source of food for monarch butterfly larvae. The petitioners claim that monarch butterfly populations have decreased 90 percent over the past 20 years. FWS will be accepting comments and data submissions on the state of the monarch butterfly until March 2, 2015. You can find the petition information and submit comments at www.Regulations.gov under Docket No. FWS-R3-ES-2014-0056.

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Tennessee Weed Science Short Course on Herbicide Modes of Action and Resistance in Weeds

of rooms has been reserved at the Courtyard Marriott, Knoxville West/Bearden, 250 Brookview Center Way, Knoxville, TN 37919. Hotel phone number is 865-690-7680.

A group of nationally known speakers has been selected, including Steve Duke, Dale Shaner, Jerry Green, Pat Tranel, Todd Gaines, Frank Dayan, Greg Armel, Larry Steckel, and Scott Senseman. The course includes > 26 hours of instruction, including 2 field trips. All students will receive a comprehensive workbook detailing all course content.

For more information, or to register, contact Coordinator Tom Mueller at Phone: 865-974-8805, email of tmueller@utk.edu or go to our website at www.tnwss.org. You can mail information directly to Tennessee Weed Science Society, P.O. Box 53141, Knoxville, TN 37950.

All interested parties are cordially invited to attend the first Tennessee short course on herbicide modes of action and weed resistance. Classes start on July 26 and run until July 30, 2015 in Knoxville, TN. A block



International Symposium on Adjuvants for Agrochemicals

International Symposium on Adjuvants for Agrochemicals (ISAA) is an international meeting about Agricultural Adjuvants that will be taking place on June 20 – 24, 2016 in Monterey California. If interested in learning more information,

visit: <http://events.isaa-online.org/page/269/welcome-to-isaa-2016.html>

Necrology

Srdjan Cirovic

Srdjan Ćirović, from Cacak, Serbia was fatally injured in a car accident on November 7, 2014, in the United States where he was studying. He was born on December 18, 1990 in Milanovac, where he finished elementary school. In 2005, he enrolled in medical high school in Cacak to be a pharmacy technician. In 2009 he decided to follow his agricultural roots by enrolling in the Agronomy department at the University of Belgrade focusing on pesticide applications in orchards, vegetable, and crop production. He graduated as one of the best students in his class and continued to pursue an M.S. degree. At the same time he was hired as a young leader by Delta Holding company—out of 1700 candidates he was selected in the top 20. In August 2014, he arrived in the United States to begin an internship at the University of Nebraska, working at the West Central Research and Extension Center in North Platte, Nebraska. In less than three months, he received an invitation to enroll at the University of Nebraska to begin doctoral studies. He volunteered in the local chapter of the Red Cross in Milanovac where he participated in various projects for children and young people. Also, he learned first aid and gained valuable experience in organizing groups, creating and implementing projects. He was successful in other areas of life as well; he was a great athlete and he played guitar. Most importantly, he valued and enjoyed life as he gathered many young, positive people (like himself) willing to make this world better, more beautiful, a more humane place to live, and that he would be there to confess it. He was a role model in everything.

Richard D. Iverson

Richard “Rick” Iverson died suddenly on April 27th, 2014 doing what he loved, riding his carbon fiber racing road bicycle in the TarWheel Century ride that left from Elizabeth City, North Carolina. He leaves behind his wife, Kathy, two daughters, step-son, and grandson, his mother, sister, and two nephews. He was preceded in death by his father and sister.

Rick graduated with distinction in 1971 from the University of Minnesota with a B.S. in Forestry and from Oregon State University in 1976 with a M.S. in Forestry Management. Rick started his career as a Research Forester with International Paper Company in Lebanon, Oregon. There he met his wife Kathy at the local racquetball club. They were married in 1983 just before he transferred with International Paper to Natchez, Mississippi. Rick left International Paper in 1985 to accept a new position as Forest Weed Control Specialist with the University of Minnesota’s Cloquet Forestry Research Center. While there, Rick was offered a position with American Cyanamid in Forestry Product Research. Rick excelled in his role at American Cyanamid and was promoted to Head of Eastern US Field Research for new Agricultural products. After American Cyanamid was acquired by BASF, Rick became the Global Technical Strategy Manager where he monitored the safe execution of over 1,000 field research trials in support of new product development in a variety of markets. Rick was finishing his career managing the invasive plant division for the State of North Carolina’s Department of Agriculture.

Robert E. Mack

Robert E. Mack of Bartlett, Tennessee passed away October 11, 2014. He is survived by his wife, Mary; his brother; niece and nephews. Bob, born on April 24, 1954 in Gary, Indiana, he graduated from Merrillville High in 1972 with a track scholarship. Nicknamed “White Lightning,” he received a degree in History at Ball State, then obtained his Bachelor’s in Agricultural Science at Purdue University. He then earned his Master’s in Weed Science at Mississippi State University. While working on his PhD at University of Nebraska, he accepted a

Necrology Report - Continued

position with Helena Chemical in Memphis, working over 22 years becoming Manager of Research and Development until his retirement in 2012.

Dr. John D. Nalewaja

Dr. John D. Nalewaja of Fargo, North Dakota and Osakis, Minnesota, 84, passed away peacefully on November 11, 2014 from prostate and bone cancer in San Tan Valley, Arizona. John Dennis Nalewaja was born October 7, 1930 on a farm near Browerville, Minnesota. After high school, he graduated in Vocational Agriculture from the University of Minnesota, served in the US Army, taught Ag education at Boyd, Minnesota and obtained a PhD in Agronomy from the University of Minnesota. He married Donna Lou Speer on December 26th, 1959. They moved to Fargo in 1962 and raised four children. Dr. Nalewaja taught classes and conducted research in Weed Science at North Dakota State University until retirement in September 1998.

Dr. Nalewaja was major advisor to 24 Ph.D. and 34 Masters of Science students, major supervisor for 30 visiting scientists from various countries (mainly Poland) and post doctorate research associates. Dr. Nalewaja served as President of the North Central Weed Science Society in 1979 and was the 25th President of the Weed Science Society of America from 1985-1986. He was chairman and editor for American Standard Testing Method Symposium on Pesticide Formulations and Applications Systems and was a member of the National Pesticide Impact Assessment Program.

Dr. Nalewaja discovered and developed methylated seed oil as an adjuvant for herbicides now commonly used throughout the world. Also, he determined the chemical basis of salt antagonism of certain herbicides (like Roundup) and how to overcome the antagonism of many herbicides that helped many weed scientists focus in this new area of surfactants and adjuvants.

He received several awards including an Honorary Doctorate from Poznan Agriculture University in Poland, the Fargo Moorhead Chamber of Commerce Distinguished NDSU Professor Award, Honorary Member of the North Central Weed Science Society, Fellow of the WSSA, and received awards for Outstanding Teacher and Outstanding Researcher from the WSSA.

Dr. Earl C. Spurrier

Born on a dairy farm near Libertytown, Maryland on February 20, 1923, Dr. Earl C. Spurrier remained true to the study of science and agriculture throughout his life. He passed away on May 23, 2014. Leaving the farm at age 25, Earl completed his Bachelor and Masters studies in Agriculture at the University of Maryland. While at the University of Maryland, he was the president of Alpha Gamma Rho fraternity and sang in several university choral organizations. Upon completion of his Doctoral studies in Agriculture at the University of Illinois, Earl started a long and fruitful career with Monsanto Company in St. Louis, Missouri in 1958. His devotion to the development of safe and effective crop production chemicals propelled him to many positions of leadership culminating in his designation as the Director of Environmental Operations at Monsanto. Upon his retirement in 1982, he served as the Vice President for Regulatory Affairs and then State Affairs with the National Agricultural Chemical Association until 1991.

People and Places

Meaghan Bryan

Meaghan (Bryan) Anderson completed her M.S. under the direction of Bob Hartzler during the fall semester. She is now serving as a Field Agronomist for Iowa State University Extension and Outreach in East Central Iowa.

Becky Bailey

Becky Bailey completed her M.S. in Weed Science from the University of Wisconsin-Madison under the direction of Dr. Vince Davis. She has recently relocated to sunny California and is evaluating opportunities to serve the agriculture industry in more diverse production systems.

Dr. Vince M. Davis

Dr. Vince M. Davis recently started with BASF as a Technical Service Representative in Wisconsin and Northern Illinois. For the last four years Davis held the position of Extension Weed Scientist and Extension Specialist for the University of Wisconsin-Madison, and two years previous to that he was a Soybean Cropping Systems Extension Specialist for the Department of Crop Sciences at the University of Illinois. He is excited to continue providing crop production and protection information to agribusiness professionals and farmers in Wisconsin and Illinois as he has for the past six years.