

# NCWSS • News

North Central Weed Science Society

Vol 33, Number 2, Summer 2016

[www.ncwss.org](http://www.ncwss.org)

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## Anita Dille President's Message

Every NCWSS President's message for the summer newsletter seems to start with a chat about the weather! No matter what year, there always seems to be challenges for either planting, applying weed control, or harvesting ... and this year is no different. And in Kansas, you just need to wait a few minutes for the weather to change again! No matter, I hope that you will have a productive summer!

I enjoyed seeing many of you at our recent NCWSS Collegiate Weed Science Contest held July 27 and 28, 2016 at the Purdue Diagnostic Training Center near West Lafayette, IN. Bill Johnson, Bryan Young, and other colleagues from Purdue University hosted an excellent event for students in the NCWSS region for another excellent professional development and networking opportunity. Thank you to all the volunteers that made the Weed Science Contest such a success.

The NCWSS Board of Directors also held our summer board meeting on Wednesday, July 27 in West Lafayette, IN. We summarized activities since the last annual meeting, discussed new initiatives, and reviewed plans for the upcoming annual meeting. As always, I invite you to contact me, anyone on the Board, or a specific committee member, if you have any questions or suggestions that will continue to make the NCWSS a great organization.

Greg Dahl, 2016 Program Chair, and Mike Owen, Local Arrangements Chair, are busy preparing for our 71st Annual Meeting at the Des Moines Marriott Downtown in Des Moines, IA on December 12 to 15, 2016. Please find detailed information in this newsletter about submitting your paper or poster titles and abstracts. I am already looking forward to this year's annual meeting and learning about the exciting weed science work that is going on in the north central region.

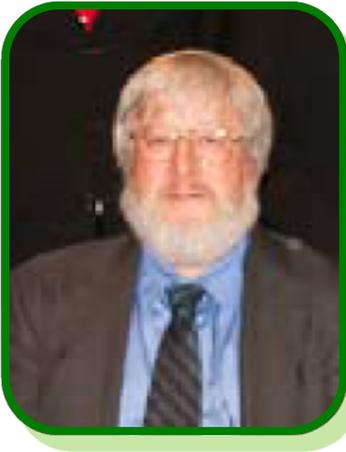
As your NCWSS President and representative to the WSSA Science Policy Committee, I have been asked to review, comment, support and endorse several letters and comments initiated by the WSSA, the Science Policy committee, and Lee Van Wychen, the Director of Science Policy. There are many issues being raised in Washington that influence the weed science and management activities that we are involved in. I really appreciate the thoughtful feedback from the NCWSS Exec Board and other experts in order to respond to these issues. Please read through Lee's Washington Report to get a sense of these important and impactful issues that we are addressing.

Sincerely, Anita Dille; President [dieleman@ksu.edu](mailto:dieleman@ksu.edu), 785-532-7240



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](mailto:Vince.davis@basf.com)



## Message from the 2016 Program Chair

Greg Dahl

This is the Call for Papers and Posters for the 2016 Annual Meeting of the North Central Weed Science Society. This is the only notice you will receive so mark your calendar and submit

the titles of your presentations **by Friday, September 9, 2016**. Submissions received after September 9th may be placed in alternate sections, switched to the poster session or rejected depending on the availability of space in the sections. The web-based title and abstract submission process that has been used by NCWSS the past few years will be used again in 2016. The Title/Abstract Submission website will be available around August 3, 2016 through the NCWSS website ([www.ncwss.org](http://www.ncwss.org)) or by going directly to the submission website hosted through WSSA ([wssaabstracts.com](http://wssaabstracts.com)).

The NCWSS annual meeting program begins Monday December 12, 2016 and concludes Thursday December 15, 2016. The program committee is working to put together the program that will include the general session featuring the Presidential Address by Anita Dille, a keynote presentation and other presentations. We are putting together several symposia and are working on featuring a technology session on Thursday morning. The popular "What's New in Industry" section should be filled with new information. I am eager to see the information you will be presenting at the meeting. The volunteer paper and poster sections are listed below and directions are included for submission of papers and posters into these sections.

There will be recording of paper and poster presentations again in 2016 for future viewing by NCWSS members via the NCWSS website. *This recording and posting will be **strictly voluntary** on the part of the paper and poster authors, and authors must "opt-in" to have their presentations and posters recorded.* See the following article for more details on this feature.

The 2016 program will feature the traditional graduate student paper and poster contests and an undergraduate poster contest. Guidelines for these contests may be found at the NCWSS website under Society / About NCWSS – Link to NCWSS Operating Procedures. The guidelines are found on pages 24 – 29. We eagerly anticipate the top-quality presentations given by the students.

All oral presentation authors should upload their presentation to the Submission website 1 week / seven (7) days before the meeting. This allows the section chairs to ensure that your presentation will work on their computer, have all talks preloaded before the conference, and by using the Submission website, this helps to prevent clogging up e-mail accounts with large file attachments. If this is not possible, you must contact your section chair 1 week prior to the meeting to make other arrangements.

Please consider giving one or more presentations at our annual meeting. We are interested in what you are working on. In addition to research, thought provoking or critical assessments of our discipline are also welcome. Also, please pass along any suggestions on ways to make the meeting even more valuable to you and others. I look forward to an interesting and exciting conference in December.

Greg Dahl, Program Chair  
[gkdahl@landolakes.com](mailto:gkdahl@landolakes.com) (651)-261-1817

**See you in Des Moines, Iowa**



# Recording and Posting of Papers and Posters to the NCWSS

Greg Dahl, 2016 Program Chair and  
Neha Rana, Presentation Recording Special Committee

The NCWSS Presentation Recording Special Committee has worked hard to develop a procedure to allow the recording and posting of papers and posters to the NCWSS website. The voluntary recording of individual papers and papers was initiated in 2012 and will be an option again for the 2016 annual meeting. This will allow those who couldn't make it to the meeting to see papers and posters of interest, and also allow the chance to see a paper in cases of conflict where two papers of interest were presented at the same time.

The recording and posting of paper and poster presentations is strictly voluntary, and members must "opt-in" to have them recorded and posted to the NCWSS website. No one will be required to have their presentations recorded or posted. Presentations will be available to NCWSS members only (password protected) through the NCWSS website for a period of one year following the annual meeting, and are intended for personal learning by NCWSS members only. Posters will be submitted as PDF files for posting, and papers will have the PowerPoint and, optionally, voice recorded, plus a PDF version of the PowerPoint posted. There will be no videotaping of the presenter, just the slides. They can indicate their preference when submitting their title, and have the opportunity to change their minds at any time, including during their session, immediately after the presentation is made, or at any time during the one-year period of posting.

When the author enters the on-line submission website, he or she can choose the following options:

**Posters:** each poster presenter will choose whether or not to upload a PDF file of their poster (default is no). Uploading to the website will occur just prior to or after the meeting date.

**Papers:** Each paper presenter will choose one of the following:

- Presentation will NOT be recorded or posted (default)
- PPT and voice recorded (plus PDF of PPT can be posted also)
- PDF version of PPT only (no voice)

Section chairs will be instructed as to which presentations are to be recorded, and only those to which the presenter consents will be recorded.

Paper presenters who chose options 2 or 3 above may change their mind and choose not to be recorded at any time, including at the time of presentation by letting the section moderator know not to record it. Also, a presenter can choose not to have his or her recorded presentation posted to the website after the presentation or have it removed from the website at any time during the one year period of website posting. Posters that are posted to the website may also be removed by author instruction at any time.



Poster presenters choosing to allow their poster to be posted and paper presenters who choose options 2 or 3 above will be required to check a box indicating that he or she accepts the following conditions:

"It is the intent of the NCWSS that recorded presentations are provided solely for personal viewing by NCWSS members. If anyone wants to use the information for other purposes, they must request permission from the author. Presenters are responsible to make co-authors aware that the presentation will be recorded or posted on the NCWSS website. The presentations will be available for viewing for one year. Authors may request that their presentation be removed from the website at any time. The NCWSS agrees to not change any data or edit the presentation in any way that would change the interpretation of the data or presentation. The NCWSS agrees to not sell or market the presentation for monetary purposes or distribute it in any form."

If they do not agree to these terms the presentation or poster will not be recorded and posted to the website.

Any questions regarding this process can be sent to Neha Rana (636-288-2609) [neha.rana@monsanto.com](mailto:neha.rana@monsanto.com)

# Process for On-line Submission of Papers and Posters

Greg Dahl, 2016 Program Chair

Please follow these directions below, closely heed the deadlines, and please contact Greg Dahl ([gkdahl@landolakes.com](mailto:gkdahl@landolakes.com) or (651-261-1817) if you have any questions.

## **SIGN-IN to Title / Abstract submission site (open Friday, July 31, 2016):**

Go to the home page of the NCWSS website ([www.ncwss.org](http://www.ncwss.org)) and connect to the site through the link found there **OR** go directly to the submission website hosted through WSSA ([wssaabstracts.com](http://wssaabstracts.com)).

You will need your login and password for your account or create your own new account if you have not done so previously.

## **SUBMIT TITLE (deadline Friday, September 9, 2016):**

Follow the site's instructions for submission.

Select your top two choices (1<sup>st</sup> and 2<sup>nd</sup> preference) for topic section (e.g., Horticulture and Ornamentals, Invasive Weeds, etc.).

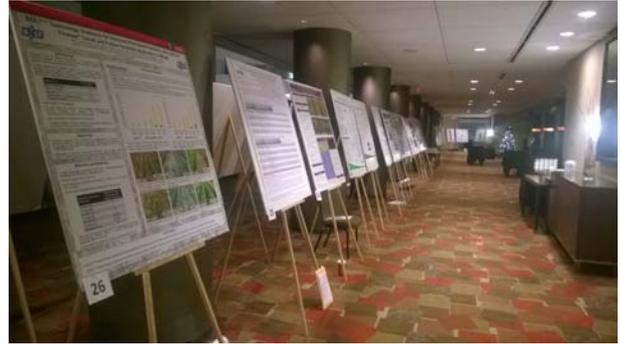
Enter the title and authors' names in the spaces provided. **Capitalize only the major words in the title as indicated in the instructions.** Do not include any quote marks or punctuation in the title.

Be sure to use the pull-down menus at the right to indicate member status and to indicate if an author is the presenter or not.

**Indicate if this paper or poster will be in the graduate or undergraduate student contest. It is critical that we know which papers and posters will be competing in the student contests, so please be sure to indicate this with your title submission.**

Please indicate if you choose to allow your paper or poster to be recorded for posting to the NCWSS website for future viewing by NCWSS members. Please be sure to get approval from your co-authors. Note: to have your paper or presentation recorded, you must "opt-in" by indicating your choice. The default is that the presentation NOT be recorded. You can change your mind later by contacting me ([gkdahl@landolakes.com](mailto:gkdahl@landolakes.com) (651-261-1817)). See further details in the separate article in this newsletter.

All titles need to be submitted by **September 9, 2016** so please fill in the title, authors and



affiliations (type in as it would appear in the final abstract). Try to make sure you have everything as you want it before submitting. Click on the "Submit" button when you have entered all the information.

## **SUBMIT ABSTRACT (deadline Friday, November 11, 2016):**

Sign in to your account as you did previously for the title submission. Click on the link to submit an abstract.

Scroll down to the abstract part of the window and click anywhere in the area designated to hold the abstract.

Cut and paste your abstract into the box provided. Develop abstract in a word processing program. There is no need to include the title and authors in the "cut and paste" portion since the correct information has already been entered in the boxes at the top of the page. We recommend that you make all changes prior to pasting into the submission form. NOTE: If you have changed authors (added or deleted) or made a title change, please send an email to both your section chair and me ([gkdahl@landolakes.com](mailto:gkdahl@landolakes.com)) to alert us about the change.

## **ACTION SUMMARY:**

Titles will be due on **Friday, September 9, 2016. By this date**, please enter the site and type in your title, authors' information, section preference, indicate if you are in the student contest, and submit.

Abstracts will be due **Friday, November 11, 2016. By this date**, please enter the author information as indicated to get to your presentation or poster, cut and paste abstract, select keywords, and submit.

*Continued on Next Page*

## Process for On-line Submission of Papers and Posters continued

### Preparing to Submit Titles

Please follow these instructions when preparing your title(s):

1. Decide whether the presentation is a poster, paper or invited symposia paper.
2. Select your first and second choices for the section in which you want to make your presentation. Any questions pertaining to the appropriateness of your presentation in these sections can be answered by contacting the Program Chair or the respective Section Chair.
3. Connect to the NCWSS website ([www.ncwss.org](http://www.ncwss.org)) and use the link to connect to the Title/Abstract Submission website or go directly to the submission website ([wssaabstracts.com](http://wssaabstracts.com)). Follow the directions previously listed in this article.
4. Important Note: Type the title, authors, affiliation (institution, agency or company) and location exactly the way they are to be printed in the program.

**Capitalize major words in the title.** Include the full first name and middle initial of the authors rather than just initials. Place a checkmark in the box next to the author's name to designate who will present the paper or poster. Do not include departments or division, zip codes or the name of the state if it is a part of the institution's name. Use the common names of weeds, herbicides and crops.

**Please follow the capitalization, punctuation and formatting as shown in these examples, especially the listing of affiliations.**

### **Single institution or company**

Weed Control Feasibility in Large-scale Organic Snap Bean and Sweet Corn Production. Jed B. Colquhoun\*, Heidi J. Kraiss, and Richard A. Rittmeyer, University of Wisconsin, Madison.

### **Multiple institutions or companies**

Potential of Saflufenacil for Preharvest Desiccation of Sunflower. Kirk A. Howatt\*, Brian M. Jenks, Phillip W. Stahlman, and Michael J. Moechnig, North Dakota State University, Fargo and Minot; Kansas State University, Hays; South Dakota State University, Brookings.

## Paper and Poster Section Chairs

### **Agronomic Crops I**

**(Corn, Sorghum, Cereals)**

Curtis Thompson (785) 532-5776  
[cthompson@ksu.edu](mailto:cthompson@ksu.edu)

### **Agronomic Crops II**

**(Soybeans, Dry Beans/Sugar Beets)**

Jeff Ellis (913) 217-0097  
[jmellis2@dow.com](mailto:jmellis2@dow.com)

### **Equipment and Application Methods**

Travis Legleiter (765) 496-2121  
[tlegleit@purdue.com](mailto:tlegleit@purdue.com)

### **Extension**

Amit Jhala (402) 840-2259  
[amit.jhala@unl.edu](mailto:amit.jhala@unl.edu)

### **Herbicide Physiology**

Rong (Rachel) Ma (217) 418-6938  
[rongma2@illinois.edu](mailto:rongma2@illinois.edu)

### **Invasive Weeds**

Reid Smeda (573) 882-1329  
[smedar@missouri.edu](mailto:smedar@missouri.edu)

### **Specialty/Minor Crops**

Doug Doohan (330) 202-3593  
[doohan.1@osu.edu](mailto:doohan.1@osu.edu)

### **Rangeland, Pasture, and Industrial Vegetation Management**

Roger Becker (612) 625-5753  
[becker003@umn.edu](mailto:becker003@umn.edu)

### **Weed Biology, Ecology and Management**

Erin Haramoto (859) 218-0745  
[erin.haramoto@uky.edu](mailto:erin.haramoto@uky.edu)

### **Poster Session**

David Hillger (317) 504-6130  
[dehillger@dow.com](mailto:dehillger@dow.com)

### **Program Chair**

Greg Dahl (651-261-1817)  
[gkdahl@landolakes.com](mailto:gkdahl@landolakes.com)

## Paper Presentations and Presentation Format

All papers will be presented with PowerPoint files through an LCD projector. Electronic presentations will be limited to Power Point programs and need to be uploaded to the Submission website 1 week / 7 days prior to the meeting. Presentations are approximately 12 minutes long followed by one to two minutes for questions or comments to fit a 15 minute schedule. Contact the Program Chair if more time is needed. Abstracts of the paper and poster presentations will be published on the NCWSS website ([www.ncwss.org](http://www.ncwss.org)). Abstracts should be submitted electronically via the Title/Abstract Submission website prior to the meeting (by **November 11**). A Call for Abstracts and Instructions for Submitting the Abstracts will be sent to the corresponding authors by the Proceedings Editor after titles are submitted.

## Poster Presentation Format

Posters will be set up on Monday and available for viewing on Tuesday and Wednesday. All posters should be removed by 5:00 p.m. on Wednesday. One poster mounting board, approximately 48 by 48 inches, supported on an easel will be provided by the NCWSS. Posters will be arranged according to subject, so please indicate your section preference in the Title/Abstract Submission system linked to the NCWSS website. Additional details will be mailed to each poster session participant following title submission.

## Call for Sustaining Member and Sustaining Member Displays

Contact the chair of the Industry Committee, Paul Marquardt (541) 602-0905 [paul.marquardt@dupont.com](mailto:paul.marquardt@dupont.com) for information on how to become a Sustaining Member of the NCWSS. Sustaining member displays can be set up Monday afternoon and should be removed by 4:00 p.m. Wednesday.



## Calling all Students

2015 Graduate Student Chair  
– Doug Spaunhorst

**DuPont Crop Protection and DuPont Pioneer will be hosting a tour of the Pioneer research facilities in Johnston, IA on Monday, December 12, 2016, prior to the start of the NCWSS annual meeting.** The tour is open to all students. The plan is to bus students from the Marriott to the Pioneer site in the morning, tour the facilities, and return to the Marriott in the afternoon, in plenty of time to set up posters and be ready for the mixer. Students will have the opportunity to tour DuPont Pioneer's automated greenhouse and seed treatment facilities and learn about the role DuPont and Pioneer have in advancing crop genetics research. There will also be an opportunity for students to interact with DuPont and Pioneer employees in crop protection and discuss career opportunities. The tour is limited to 70 attendees. More information, including a schedule of events and instructions to register will be sent at a later date.

## Call for Distinguished Achievement Awards

Past President — John Hinz

The North Central Weed Science Society has dedicated and successful members and students who make significant contributions to our society and discipline. Each year at the Awards Banquet, we recognize some of these outstanding members. Please consider nominating one of your fellow colleagues for an award. There are

many deserving individuals who could be recognized. It only takes a few minutes to nominate them for a Distinguished Achievement Award. If you are unsure if a person has received an award in the past, please look at the list of past award winners on the NCWSS website (<http://ncwss.org/wp-content/uploads/2015/03/NCWSS-Distinguished-Achievement-Award-List-2014.pdf>).

Nomination guidelines for the Distinguished Achievement categories are similar and can be found at: <http://ncwss.org/wp-content/uploads/2015/03/NCWSS-DAA-RulesMOP-Jan2015.pdf>. You can also go to the NCWSS website and click on Society, About NCWSS and scroll down to Achievements and click on “Distinguished Achievement Award Rules and Instructions Jan2015”. Please use the format listed on pages 4 and 5 of this document to submit nominations. Nominators should initiate the process early to procure letters of support prior to the application deadline. **Submissions of nomination materials are due September 30, 2016.**

Exceptional students can be nominated for the NCWSS Outstanding Graduate Student Award. The qualifications and eligibility requirements for this award can be found at: <http://ncwss.org/wp-content/uploads/2015/03/NCWSS-GradStudentAward-RulesMOP-Jan2015.pdf>. The awards committee will review the applicants to identify the graduate student who has been most actively involved in the society and provided the greatest contribution to the field of weed science through research, extension or teaching and other activities. **The deadline for the graduate student nominations is September 30, 2016.**

Email nominations (PDF preferred) to [john.hinz@bayer.com](mailto:john.hinz@bayer.com) by September 30. Please make sure to have nominations and supporting letters in one package. Please call me at 515-290-4810 with any questions.

**The NCWSS can present up to 5 awards each year in the following categories:**

**Research, Young Scientist, Industry, Service, Education, Professional Staff**



## Student Video Contest

The North Central Weed Science Society will sponsor a video contest to provide students the opportunity to showcase their research or to create educational videos. The objective of the videos is to provide students an opportunity to present a synopsis of their research or to teach a weed related concept in an Extension-type format with the audience being a farmer, dealer, consultant, researcher, or the public. Videos will be separated into two categories: 1) Research or 2) Education. Videos should be prepared in a professional manner and approved by student's faculty advisor. Videos will be limited to 5 minutes and will be judged based on criteria similar to oral and poster presentations. Judging criteria will include Purpose/Introduction, visual quality, audio quality, flow/transition, voice quality/grammar, physical mannerisms, use of visual aids, conclusion/summary, creativity, and educational quality.

Videos should be submitted to the Chair of Extension Committee: Amit Jhala at [Amit.Jhala@unl.edu](mailto:Amit.Jhala@unl.edu) by November 1, 2016. Videos will be judged by a committee and winners will be recognized at the NCWSS annual meeting in December. Awards will be similar to those given for oral and poster presentations. If approved by the authors, videos will be placed on the NCWSS website to enhance the educational role of the NCWSS. Update will be available on NCWSS website.



# Washington Report

## Lee Van Wychen



### **National and Regional Weed Science Societies Comment on EPA's Proposed Herbicide Resistance Management Plan**

The Weed Science Society of America (WSSA), Aquatic Plant Management Society (APMS), Northeastern Weed Science Society (NEWSS), North Central Weed Science Society (NCWSS), Southern Weed Science Society (SWSS), and Western Society of Weed Science (WSWS) submitted comments on EPA's proposed herbicide resistance management plan, which was first proposed as part of the dicamba-tolerant cotton and soybean registrations. EPA's proposal presents a significant change in how resistance is monitored, mitigated and communicated to weed management stakeholders. One of our concerns was that this proposal was included as part of the proposed dicamba registration and not as a separate Pesticide Registration (PR) Notice by itself. However, just as the dicamba registration comment period was closing, EPA did issue a separate PR Notice for the Resistance Management Plan (see next story below).

While the National and Regional Weed Science Societies complimented EPA on these proactive resistance management measures, we provided many suggestions and recommendations on how to improve the plan. It will be important for EPA to communicate to the weed management community what their expectations are for the plan, how much it will cost to implement, and how will success (and failure) be measured. In addition, we consider the plan a first iteration that will need adaptation and evolution with our experience with it. The comments are at: <http://wssa.net/wp-content/uploads/Weed-Science-Societies-Comments-on-EPA-11-element-Resistance-Mgmt-Plan.pdf>

### **EPA's Issues Draft Guidance on Managing Pesticide Resistance**

On June 2, EPA made available for a 60-day comment period two draft Pesticide Registration Notices (PR Notices) that are aimed at combating pesticide resistance. The first PR Notice (PR Notice 2016-X) is titled "[Draft Guidance for Pesticide Registrants on Pesticide Resistance Management Labeling](#)" and the second PR Notice (PR Notice 2016-XX) is titled "[Draft Guidance for Herbicide Resistance Management Labeling, Education, Training, and Stewardship](#)."

To address the growing issue of resistance and preserve the useful life of pesticides, EPA is beginning to embark on a more widespread effort that is aimed at combating and slowing the development of pesticide resistance. The release of these two PR Notices will allow EPA to communicate and seek comment on potential strategies to combat pesticide resistance.

Draft [PR Notice 2016-X](#), which revises and updates [PR Notice 2001-5](#), applies to all conventional agricultural pesticides (*i.e.*, herbicides, fungicides, bactericides, insecticides and acaricides). The updates in PR Notice 2016-X focus on pesticide labels and are aimed at improving information about how pesticide users can minimize and manage pest resistance. Updates fall into the following three categories: (1) additional guidance to registrants and a recommended format for resistance-management statements or information to place on labels; (2) references to external technical resources for guidance on resistance management; and (3) instructions on how to submit changes to existing labels in order to enhance resistance-management language.

Draft [PR Notice 2016-XX](#), which only applies to herbicides, communicates EPA's current thinking and approach to address herbicide-resistant weeds by providing guidance on labeling, education, training, and stewardship for herbicides undergoing registration review or registration (*i.e.*, new herbicide actives, new uses proposed for use on herbicide-resistant crops, or other case-specific registration actions). It is part of a more holistic, proactive approach to slow the development and spread of herbicide-resistant weeds and prolong the useful lifespan of herbicides and related technology.

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To view and provide comments on these draft Pesticide Registration Notices and any supporting material, please visit [EPA-HQ-OPP-2016-0242](#) for PRN 2016-X and [EPA-HQ-OPP-2016-0226](#) for PRN 2016-XX. **The comment period for each closes on August 2, 2016.** In the future, EPA plans to evaluate other types of pesticides (e.g., fungicides, bactericides, insecticides, and acaricides) to determine whether and what guidance may be appropriate for these types of pesticides.

### **Weed Science Societies' Opposed to EPA's Proposed Tank Mix Prohibitions**

The National and Regional Weed Science Societies also commented on the tank mix prohibitions proposed by EPA for two new herbicide registrations: 1) dicamba-tolerant cotton and soybean; and 2) halauxifen-methyl. The comment period for both those registrations closed at the end of May. EPA is considering whether they will continue to propose tank mix prohibitions on all new registrations and re-registrations going forward due to uncertainty about potential tank mix synergism effects on non-target organisms.

The National and Regional Weed Science Societies are opposed to the proposed tank mix prohibitions because the benefits of tank mixing outweigh any "uncertainty" about potential tank mix synergism effects on non-target organisms. EPA recognizes the benefits from tank mixes and states: *"The practice of tank mixing can result in **significant economic benefits to the grower** by allowing control of a wider variety of pests in a single application without incurring the expense of sequential applications. Additionally, by reducing the number of visits to the agricultural field, the grower is also **reducing fossil fuel use** and emissions from large agricultural equipment, **as well as the potential exposure to pesticides** that can result from multiple visits to the same area being treated. It is also widely accepted that the practice of **mixing products with different modes of action is essential to the management of weed resistance**. Because weed resistance is known to have a very costly impact to overall crop yields, which in turn negatively impacts growers' harvests and the price of commodities to the consumer, tools that aid in the prevention of resistance are considered to be a very important benefit to agriculture".*

Yet, despite these recognized benefits, EPA has

proposed a tank mix prohibitions for both dicamba and halauxifen-methyl. In addition, EPA's "uncertainty" about the effects of herbicide synergism on non-target organisms is a divergence from the [2013 National Academy of Sciences \(NAS\) report: "Assessing Risks to Endangered and Threatened Species from Pesticides"](#). The NAS report is the gold standard for how EPA and the Fish and Wildlife Service are supposed to make endangered species assessments. The NAS report recognizes that *"The toxicity of a chemical mixture probably will not be known, and it is not feasible to measure the toxicity of all pesticide formulations, tank mixtures, and environmental mixtures. Therefore, combined effects must be predicted on the basis of models that reflect known principles of the combined toxic action of chemicals"*. The 2013 NRC report emphasizes that the complexity of assessing the risk posed by chemical mixture (i.e. tank mixing herbicides) **"should not paralyze the process"**.

The National and Regional Weed Science Societies comments are at: <http://wssa.net/wp-content/uploads/Weed-Science-Societies-comments-on-dicamba.pdf> and <http://wssa.net/wp-content/uploads/Weed-Science-Societies-comments-on-Halaluxifen-methyl.pdf>

### **Supreme Court Says Landowners Can Challenge Feds in CWA Permit Determinations**

On May 30, the Supreme Court ruled unanimously against the government in a case deciding when landowners can challenge certain decisions about water permits in court. The case, *Army Corps of Engineers v. Hawkes Co. Inc.*, centers on a North Dakota peat mining company that wants to challenge a government determination that its mining plans would require costly Clean Water Act permits.

The broader issue in the case was whether the Army Corps of Engineers' "jurisdictional determinations" about whether permits are required represents "final agency actions" that can be challenged in court. Property rights advocates and industry contend that landowners should be able to contest those decisions in court; the government disagrees.

Chief Justice John Roberts wrote the court's opinion, finding that a jurisdictional determination approved by the corps is indeed a "final agency action" that is subject to judicial review. The justices seemed skeptical of the government's position when they heard oral arguments in the case in March.

It's the latest wetlands case the Obama

administration has lost in recent years. In 2012, the high court ruled 9-0 against the government in another important case where property owners sought to challenge EPA enforcement actions in court. [Click here](#) to read the Supreme Court opinion.

### **“NPDES Fix” Bill Passes House, But Stripped Out of Zika Response Conference Agreement**

On May 24, the House passed H.R. 897, the Zika Vector Control Act (formerly the Reducing Regulatory Burdens Act- a.k.a. the “NPDES Fix” bill) [by a vote of 258-156](#). This is the 3<sup>rd</sup> time in five years the House has passed this bill. This version of H.R. 897 contains the same language as the original legislation, but included a 2 year sunset provision that we oppose. The Zika Vector Control Act (H.R. 897) was rolled into H.R. 2577, which also includes the Military Construction and Veterans Affairs Appropriations Bill as well as the Zika Response Funding bills.

The National and Regional Weed Societies joined over 100 other organizations to urge House and Senate Conferees to support the inclusion of H.R. 897 in the final conference agreement for H.R. 2577 and to remove the sunset provision. The good news is that part of the NPDES fix language made it into the House – Senate Conference Agreement that includes a \$1.1 billion Zika virus response package and the fiscal 2017 Military Construction-VA appropriations bill. The bad news is that there is only a waiver from NPDES permits for mosquito control, not aquatic weeds. Plus the waiver is only for 180 days, and then sunsets. The House did pass the conference agreement (H.R. 2577), but then it blew up in the Senate, plus the president promised to veto it. In other words, it's back to the drawing board.

### **FY 2017 Ag Appropriations**

The House and Senate Agriculture Appropriations Subcommittees released their proposed budgets for FY 2017. In both budgets, many of the USDA agencies that receive funding for weed research and management were proposed to receive modest increases compared to FY 2016. Agencies with proposed increases include: APHIS, ARS, NIFA, and NRCS. Within NIFA, the AFRI Competitive Grants program, both the House and Senate recommended an increase of \$25 million over the FY 2016 appropriation of \$350 million. However, most of the other NIFA line items relevant to weed science were held constant to the FY 2016 levels. This included Hatch Act, McIntire-Stennis, Smith Lever b & c, IR-4, SARE, and Crop Protection and Pest Management.

There are also various instructions and recommendations included in both the House and Senate Ag Appropriations bill related to weed science and pest management in general.

Here are five items that are mentioned in the House Ag Appropriations bill:

- 1) Office of Pest Management Policy.**— The Committee commends the Office of Pest Management Policy for its work providing the Department, federal agencies, producers, and other interested stakeholders scientifically sound analysis of pest management issues important to agriculture, especially methyl bromide transition, **pesticide resistance management**, and the development of antimicrobials to combat citrus greening. The Committee encourages the Under Secretary to better utilize this office and directs ARS to continue to support its vital work.
- 2) Invasive Species.**—The Committee recognizes the threats posed by invasive plant species and the need to protect, restore, and enhance native plants, including those that are endangered or threatened. The Committee encourages ARS, the Natural Resources Conservation Service (NRCS), and NIFA to support the research, education, and conservation of native plants.
- 3) Cheat Grass Eradication.**—The Committee encourages **NRCS** to continue to assist farmers and ranchers to eradicate, control, and reduce the fuel loads associated with cheat grass and to collaborate with ARS, as appropriate, on research related to cheat grass.
- 4) Herbicide Resistance.**—The Committee reminds **NRCS** of the challenges many producers are facing due to the spread of herbicide-resistant weeds and encourages it to ensure agency staff, partners, and producers are aware of conservation practice standards, conservation activity plans to address herbicide-resistant weeds, and financial assistance available through conservation programs to assist producers in their efforts to control these weeds.
- 5) Milkweed.**—The Committee is concerned about the rapid decline in milkweed for

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monarch butterfly habitat. The Committee encourages NRCS consider the increased benefits of restoring milkweed for monarch habitat in fiscal year 2017.

Here are four items that are mentioned in the Senate Ag Approps bill:

**Office of Pest Management Policy.** - The Committee recognizes the critical role that the Office of Pest Management Policy plays in fulfilling USDA's statutory role in the interagency consultative process under the Federal Insecticide, Fungicide, and Rodenticide Act. The importance of OPMP's mission has increased commensurately with the increased actions undertaken by EPA, and the

Committee provides \$3,000,000 for OPMP to fulfill its obligations on behalf of USDA.

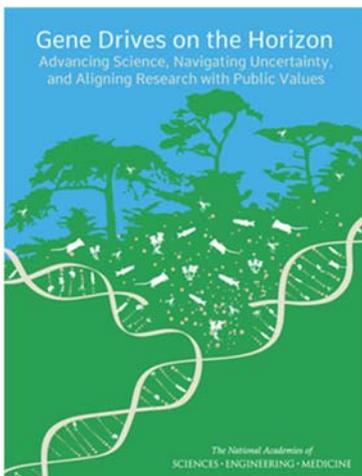
**Research Assistance.** - The Committee encourages the Agricultural Research Service to provide direct, place-based assistance to 1862 Institutions in States that do not have Agricultural Research Service facilities to address the research priorities of such States, such as invasive plant species and insects that cause significant impacts to agriculture, aquaculture, and communities in such States and to assist in the development of specialty and horticultural crops to increase food security and expand marketing opportunities for small farmers.

	FY 2014	FY 2015	FY 2016	FY 2017 House	FY 2017 Senate
<b>USDA AGENCY</b>	----- \$ millions -----				
ARS	1,122.4	1,132.6	1,143.8	1,151.8	1,177.9
ERS	78.0	85.3	85.3	86.0	86.7
NASS	161.2	172.4	168.4	168.4	169.6
NIFA	1,277.1	1,289.5	1,326.4	1,341.1	1,363.7
APHIS	821.7	871.3	894.4	930.9	939.2
NRCS	812.9	846.4	850.8	855.2	864.4
<b>NIFA Programs</b>					
Research and Education Activities	772.5	786.8	819.6	832.8	851.4
-Hatch Act (Experiment Stations)	243.7	243.7	243.7	243.7	243.7
-Cooperative Forestry Research	33.9	33.9	33.9	33.9	33.9
-AFRI Grants Program	316.4	325.0	350.0	375.0	375.0
-Sustainable Ag Res. & Education	22.6	22.6	24.6	24.6	27.0
-IR-4 Program	11.9	11.9	11.9	11.9	11.9
Extension Activities	469.1	471.6	475.8	477.3	476.2
-Smith-Lever Act, Section (b) & (c)	300.0	300.0	300.0	300.0	300.0
Integrated Activities	35.3	30.9	30.9	30.9	36.0
-Crop Protection & Pest Mang't	17.1	17.2	17.2	17.2	20.0

**Sage Steppe Restoration Science.** - The Committee includes an increase of \$1,000,000 for ARS to advance sagebrush habitat restoration science in the Northern Great Basin including cooperative research, testing and deploying precision restoration methods to restore habitat Impacted by significant disturbance such as wildfire and invasive species.

### **Pollinator Health and Monarch**

**Recovery.** - The Committee reiterates its concern for the need to address threats posed to pollinator health, and urges the Department to continue to support the Fish and Wildlife Service's Monarch Conservation Strategy. The Committee directs NRCS to leverage resources, relationships and partnerships, including with non-governmental organizations that are perceived positively by the private land and agriculture communities and that possess experience working directly with agricultural producers and other conservation partners. The Committee recommends the Department continue to support monarch conversation on private lands in fiscal year 2017 and expects to see a multi-year recovery effort undertaken, focusing on the deployment of conservation practices.



### **NAS Gene Drive Report Urges Caution**

On June 9, the National Academies of Sciences, Engineering and Medicine issued a report titled: [Gene Drives on the Horizon: Advancing Science, Navigating Uncertainty, and Aligning Research with Public Values \(2016\)](#). The report

notes that the technology offers great promise for agriculture, conservation, and public health, but it stresses that the current regulatory system, which includes institutional review boards and environmental impact assessments, is not adequate to address the potentially great risks. It calls for a greater involvement of the public in the

early stages of the technology's development and approval of use.

To examine the questions surrounding gene drive research, the report explored seven plausible gene drive case studies that offer practical scenarios on which to base the report's analysis and recommendations. Two of those case studies involved weeds, *Centaurea maculosa* and *Amaranthus palmeri*, both of which I include below.

### **CASE STUDY 5: *Centaurea maculosa* - Plausibility of a Gene Drive Solution**

Spotted knapweed is obligately outcrossing (Harrod and Taylor, 1995), meaning that there is little or no self-fertilization and that gene drives would be able to spread throughout knapweed populations. Another factor that makes it potentially suitable for a gene drive is that the basis for its ability to outcompete native plants is thought to come from the production of a compound called catechin (Thelen et al., 2005), which it exudes from its the roots. Catechin inhibits the germination and growth of native plant species, thereby conferring a competitive advantage to spotted knapweed (Bais et al., 2003).

There are two possible gene-drive approaches to help limit the spread of spotted knapweed, which could potentially be employed together. The first option is to engineer a suppression gene drive by targeting sex-specific genes, thereby biasing gender ratios and facilitating a population crash. The second is to modify the population by targeting the catechin biosynthetic pathway, which in theory would negatively affect the knapweed's ability to compete against endemic plants, although this effect is still debated (Perry et al., 2005). In either case, the rate of spread of either of these gene drives is expected to be slow, because spotted knapweed is a perennial plant that lives for approximately nine years (Zouhar, 2001). In addition, the success of a suppression drive is likely to depend critically on the fertility advantages of sex-modified plants compared to hermaphrodites and also on features such as pollen availability and

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spatial structure (Hodgins et al., 2008).

### **CASE STUDY 6: *Amaranthus palmeri* - Plausibility of a Gene Drive Solution**

Palmer amaranth is a likely candidate for gene-drive technology, for five reasons. First, it is an annual plant, so it has yearly sexual reproduction and a rapid generation time. Second, Palmer amaranth and some other members of the genus are dioecious (male and female flowers occur on separate plants (Steckel, 2007), which ensures the outcrossing necessary to spread gene drives. Third, it does not have an extensive seed bank; studies suggest that most seeds do not persist in the soil, so that there is unlikely to be a seed repository that is immune to the gene drive. Fourth, an *Amaranthus* species has been transformed genetically (Pal et al., 2013), suggesting that it will be technologically feasible to insert gene drives into Palmer amaranth. Finally, Palmer amaranth is wind-pollinated, implying that the eradication of species will, at the very least, not harm insect pollinators.

In theory, Palmer amaranth could be subjected to two types of gene drive. In the first, a modification drive would target the genes that confer resistance to glyphosate and reestablish the population's susceptibility to glyphosate herbicides. The potential targets of this gene drive are known, because the glyphosate herbicide acts by interrupting the function of 5-enolpyruvylshikimate-3-phosphate synthase. In Palmer amaranth, this synthase gene has been duplicated extensively, leading to enzyme overexpression and glyphosate resistance (Gaines et al., 2010). Thus, a candidate gene drive would need to target multiple 5-enolpyruvylshikimate-3-phosphate synthase copies that are scattered throughout the genome. If the gene drive succeeded and susceptibility became fixed, glyphosate could then be used again as a tool to limit Palmer amaranth populations. A second approach would be to build a suppression drive. Although the target and content of such a drive is not yet clear, the fact that there are separate male and female plants implies that there are sex-specific genes that are suitable targets for biasing the sex ratio. Under this approach, the goal would be skew sex ratios until the entire population (or species) collapses.

### **Lack of Milkweed is Unlikely to be Driving Monarch Decline**

The *Oikos Journal* published a Cornell study online on April 27 titled "[Linking the continental migratory cycle of the monarch butterfly to understand its population decline](#)". **Abstract:** Threats to several of the world's great animal migrations necessitate a research agenda focused on identifying drivers of their population dynamics. The monarch butterfly is an iconic species whose continental migratory population in eastern North America has been declining precipitously. Recent analyses have linked the monarch decline to reduced abundance of milkweed host plants in the USA caused by increased use of genetically modified herbicide-resistant crops. To identify the most sensitive stages in the monarch's annual multi-generational migration, and to test the milkweed limitation hypothesis, we **analyzed 22 years of citizen science records from four monitoring programs across North America**. We analyzed the relationships between butterfly population indices at successive stages of the annual migratory cycle to assess demographic connections and to address the roles of migrant population size versus temporal trends that reflect changes in habitat or resource quality. We find a sharp annual population decline in the first breeding generation in the southern USA, driven by the progressively smaller numbers of spring migrants from the overwintering grounds in Mexico. Monarch populations then build regionally during the summer generations. **Contrary to the milkweed limitation hypothesis, we did not find statistically significant temporal trends in stage-to-stage population relationships in the mid-western or northeastern USA. In contrast, there are statistically significant negative temporal trends at the overwintering grounds in Mexico**, suggesting that monarch success during the fall migration and re-establishment strongly contributes to the butterfly decline. Lack of milkweed, the only host plant for monarch butterfly caterpillars, is unlikely to be driving the monarch's population decline. Conservation efforts therefore require additional focus on the later phases in the monarch's annual migratory cycle. We hypothesize that lack of nectar sources, habitat fragmentation, continued degradation at the overwintering sites, or other threats to successful fall migration are critical limiting factors for declining monarchs.

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### **Senate GMO Food Labeling Compromise Has a Chance to Become Law**

On June 23, Sen. Pat Roberts (R-KS) and Sen. Debbie Stabenow (D-MI), chair and ranking member of the Senate Ag Committee, unveiled a new bipartisan proposal to protect the use of agriculture biotechnology and to ensure consumers have access to the information they want. In a Senate press release, Roberts stated “Unless we act now, Vermont law denigrating biotechnology and causing confusion in the marketplace is the law of the land. Our marketplace – both consumers and producers – needs a national biotechnology standard to avoid chaos in interstate commerce. In negotiations with Ranking Member Stabenow, I fought to ensure this standard recognizes the 30-plus years of proven safety of biotechnology while ensuring consumer access to more information about their food.” [Click here](#) to read the legislative text. Key provisions of the bipartisan proposal include:

**Pre-emption:** immediately prohibits states or other entities from mandating labels of food or seed that is genetically engineered.

**National Uniform Standard:** the U.S. Department of Agriculture establishes through rulemaking a uniform national disclosure standard for human food that is or may be bioengineered.

**Disclosure:** requires mandatory disclosure with several options, including text on package, a symbol, or a link to a website (QR code or similar technology); small food manufacturers will be allowed to use websites or telephone numbers to satisfy disclosure requirements; very small manufacturers and restaurants are exempted.

**Meat:** foods where meat, poultry, and egg products are the main ingredient are exempted. The legislation prohibits the Secretary of Agriculture from considering any food product derived from an animal to be bioengineered solely because the animal may have eaten bioengineered feed.

On a June 28 procedural vote in the Senate, the compromise GMO labeling bill received a positive [vote of 68-29](#), laying the foundation for eventual passage. Votes to end debate on the bill and then move to final passage are scheduled after July 4. The final fate of the Roberts-Stabenow compromise remains to be seen as it would still have to be approved for adoption by the House or be reconciled with the House’s own voluntary

GMO labeling bill, H.R. 1599, which passed the chamber in 2015 by a [vote of 275-150](#). As it stands, the House bill is miles apart from the Roberts-Stabenow compromise bill and House Ag Committee Chair Michael Conaway (R-TX) has yet to publicly declare support or opposition to the compromise.

After July 5 there are only eight legislative days left before both houses of Congress adjourn for the rest of the summer, making it questionable as to whether or not a bill will reach the President’s desk before the next recess. As of July 1, Vermont’s GMO labeling law went into effect and there are reports that retailers have pulled over 3000 grocery products from the shelves.

### **\$286 Million- Cost to Bring a New Crop Protection Product to Market**

CropLife America (CLA) recently helped the market research firm, Phillips McDougall, develop a study that shows the overall cost to discover and advance a new crop protection product averages \$286 million – up 21% over the previous 5 years. (Link to CLA statement with imbedded report available here: <http://www.croplifeamerica.org/cost-of-crop-protection-innovation-increases-to-286-million-per-product/>) The biggest driver in that cost increase appears to be regulatory compliance. That statistic demonstrates why it is so important to be sure that US regulatory requirements are assessments of real science and safety advancements, not simply reactions to non-scientific political ideologies.

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## People and Places

David Vail will soon be departing Kansas State for a new position in the history department at the University of Nebraska at Kearney starting in Fall 2016. He will be teaching environmental and agricultural history as well as the histories of science and technology. His new e-mail address is [vaildd@unk.edu](mailto:vaildd@unk.edu).

Daniel Smith recently completed his M.S. in Weed Science/Agroecology from the University of Wisconsin-Madison under the direction of Dr. Vince Davis. He recently started a new position at UW-Madison as the Southwest Wisconsin state specialist in nutrient and pest management. His email address is [dsmith@wisc.edu](mailto:dsmith@wisc.edu).