WASHINGTON REPORT
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Trump Administration Starting to Take Shape

Washington DC is abuzz with all the activities that come about with a change in the office of the President and leadership among all the federal government agencies. As I write this, President-elect Trump has nominated most of his agency heads except for USDA and Veteran's Affairs. We'll take a more in depth look at Trump's cabinet members in the next newsletter, but here's a quick look at his cabinet nominees for EPA and Interior.

Scott Pruitt, Oklahoma Attorney General, has been nominated to lead **EPA**. The 49 year old Pruitt was born and raised in Kentucky where he graduated from Georgetown College in 1990. After that, he moved to Oklahoma where he earned his law degree at the University of Tulsa specializing in constitutional law. More info about Scott can be found at: https://en.wikipedia.org/wiki/Scott_Pruitt and http://scottpruitt.com/meet-scott/

Ryan Zinke, Montana's sole Representative in the U.S. House, was nominated for the position of **Interior Secretary**. The 55 year old former Navy Seal has a B.S. in Geology from Oregon and a Masters in Business Finance and Masters in Global Leadership from the University of San Diego. More info about Ryan can be found at: https://en.wikipedia.org/wiki/Ryan_Zinke and http://www.ryanzinke.com/

Senate Ag Committee Members Set

There will be 11 Republicans and 10 Democrats on the Senate Committee on Agriculture, Nutrition and Forestry in the 115th Congress. The official roster for the House Ag Committee has not been finalized yet. The chairman of the Senate Ag Committee, Pat Roberts from Kansas, and ranking member, Debbie Stabenow from Michigan, will remain in their same roles as the 114th Congress. Here is a list of members, in order of seniority on the committee:

Republicans (11)	
Pat Roberts	KS
Thad Cochran	MS
Mitch McConnell	KY
John Boozman	AR
John Hoeven	ND
Joni Ernst	IA
Charles E. Grassley	IA
Jeff Sessions	AL
John Thune	SD
Steve Daines	MT
David Perdue	GA

Democrats (10)	
Debbie Stabenow	MI
Patrick Leahy	VT
Sherrod Brown	OH
Amy Klobuchar	MN
Michael Bennett	CO
Kirsten Gillibrand	NY
Joe Donnelly	IN
Heidi Heitkamp	ND
Bob Casey	PA
Chris Van Hollen	MD

Federal Government Funded on CR Through April 28.

Congress passed a continuing resolution (CR) just before midnight on Dec. 9, funding the government at FY 2016 levels through April 28, 2017. The new 115th Congress of the United States will have to deal with the remainder of FY 2017 funding as well as start on FY 2018 federal funding where sequestration will kick back in for discretionary spending. There will be much debate over how those recessions will be distributed between defense and non-defense programs or if there will be another budget deal to "raise the caps". Most federal research dollars depend on non-defense discretionary funding.

Most Common and Troublesome Weeds in Broadleaf Crops, Fruits and Vegetables

In 2016, the National and Regional Weed Science Societies conducted a survey of the most common and troublesome weeds in the following broadleaf crop categories: 1) alfalfa, 2) canola, 3) cotton, 4) fruits & nuts, 5) peanuts, 6) pulse crops, 7) soybean, 8) sugar beets, 9) vegetables-cole crops, 10) vegetables-cucurbits, 11) vegetables-fruiting, and 12) vegetables-other.

Common weeds refer to those weeds you most frequently see, while **troublesome weeds** are those that are most difficult to control (but may not be widespread). There were approximately 200 responses from weed scientists across the U.S. and Canada. The "top 10" lists below are an aggregation of their responses, based on my interpretation of the 2016 data. For example, I chose to combine the morningglory species (ivyleaf, pitted, tall, & sharppod) into one category since their biology and management is fairly similar.

TOP 10 WEEDS in BROADLEAF CROPS, FRUITS & VEGETABLES in 2016					
Rank	**Most Troublesome**	***Times Listed**	**Rank**	**Most Common**	**Times Listed**
1	Palmer amaranth	66	1	common lambsquarters	80
2	common lambsquarters	60	2	foxtail spp.	62
3	horseweed (marestail)	55	3	morningglory spp.	55
4	morningglory spp.	54	4	Palmer amaranth	53
5	waterhemp	49	5	redroot pigweed	49
6	nutsedge spp.	46	6	waterhemp	40
7	nightshade spp.	39	7	horseweed (marestail)	38
8	kochia	35	8	common ragweed	33
T9	common ragweed	33	9	barnyardgrass	31
T9	giant ragweed	33	10	velvetleaf	30

*"Times Listed" is the number of survey respondents who listed that weed as one of their top five weed species in any of the 12 broadleaf crop categories in the U.S. or Canada.

Six weed species appeared on both the "most troublesome" and "most common" lists, including Palmer amaranth, common lambsquarters, horseweed, morningglory spp., waterhemp and common ragweed. All of those weed species have documented herbicide resistance to at least two mechanisms of action in the United States, except the morningglories which have no reported herbicide resistance. Finally, as you would expect, there were no grass weed species listed as "troublesome" in the top 10 weeds in broadleaf crops. The 2016 data set is available at: http://wssa.net/wssa/weed/surveys/

Please stay tuned later this winter when I will be circulating the **2017 survey** for the most common and troublesome weeds in **grass crops, pastures, and turf**.

New Paraquat Risk Mitigation Measures Final, EPA Grants Research Exemption

As part of the registration review process for paraquat, EPA proposed additional mitigation measures last year, such as paraquat-specific applicator training material and prohibiting backpack applications, in order to minimize human health incidents from paraquat. These proposals were open for a 60 day comment period that closed last May. The WSSA Science Policy Committee had several concerns related to the costs and requirements of some of the proposed mitigation measures, but our **greatest concern** was that prohibiting paraquat applications from hand-held equipment would essentially eliminate the weed science community's ability to do small plot research with paraquat. WSSA's comments are at: http://wssa.net/wp-content/uploads/WSSA-comments-on-paraquat-mitigation_FINAL.pdf

On Dec. 15, 2016, EPA finalized its mitigation decisions and implementation plan which can be found at: https://www.regulations.gov/document?D=EPA-HQ-OPP-2011-0855-0112

I am happy to report that EPA addressed many of our concerns with their final decision. Most importantly, they included the following provision:

f. RESEARCH EXEMPTION

The Agency recognizes that paraquat is widely used in agricultural research as a standard burndown and desiccant treatment, to which other herbicides and desiccants are compared. Because of its use as a standard treatment, it has high benefits for use in small scale research trials. Based on these facts and the comments received regarding the importance of paraquat for research purposes, EPA will grant a ***research exemption from the closed system requirement and the 'certified applicator only' requirement****.*

In order to allow researchers to use paraquat while ensuring the overall safe use of the pesticide, EPA will consider, on a case-by-case basis, applications for products which are specific for research use. These products should contain appropriate labeling, be of an appropriate size, and should include registrant assurance of controlled distribution.
This decision does not preclude research uses of paraquat consistent with existing regulations at 40 CFR 172.3.

Other key provisions in the paraquat mitigation decisions include:

- All paraquat non-bulk (less than 120 gallon) end use product containers must comply with EPA-approved **closed system** standards (e.g Lock and Load type systems). Registrants must comply with these standards by **March, 30 2019**.

- Paraquat products are **only to be used by certified applicators** who have met the applicator competency standards established by states, tribal, and federal agencies to use or handle paraquat. They are not to be used by uncertified individuals working under the supervision of a certified applicator.

- EPA is permitting the **continued use of handheld and backpack application equipment**, so long as it complies with EPA-approved closed system technology. Additionally, paraquat products intended for handheld and backpack equipment should contain an indicator dye to aid in early detection of paraquat leaks and spills, effective **March 30, 2019**.

Education and Awareness of Auxin BMPs Will Be Critical

After the fallout from last summer's off label applications of dicamba, it is very clear that the weed science community will need to work extra hard on educating growers and applicators about appropriate best management practices (BMPs) for auxin herbicides. There is a lot of excellent work going on already in many states across the country, but we must continue to get those auxin herbicide BMPs out there anyway we can. By the time you read this, you may well have already seen WSSA press releases highlighting the auxin herbicide BMP's that were developed for www.TakeActionOnWeeds.com

At the North Central Weed Science Society (NCWSS) meeting in December, I listened to Dr. Kevin Bradley's experiences with off label dicamba applications in Missouri from this past summer. His 60 pages of slides from that presentation is available at: http://weedscience.missouri.edu/2017%20Dicamba%20Presentation.pdf. One of the biggest eye-opening pieces of information that I took away from his presentation is how often temperature inversions occurred in the evening hours of late spring and early summer in the Missouri Bootheel (see pg. 51).

Gil Gullickson, Crops Technology Editor for *Successful Farming*, was also at Kevin's presentation at the NCWSS meeting and wrote an excellent article titled "**10 Dicamba Damage Takeaways From Missouri**" that very nicely summarizes the main points, which I have adopted below:

1. Dicamba really does a number on fruits and vegetables.

A dicamba-damage hot spot was Missouri's Bootheel region. This southeastern section of Missouri produces a cornucopia of crops including corn, soybeans, vegetables, watermelons, and orchard crops.

If dicamba goes off-target, this is a bad place for it to happen. Off-target dicamba blitzed crops like tomatoes, watermelon, and peaches grown in this region. As of now, 120 cases of dicamba off-target movement in the Bootheel have been reported to the Missouri Department of Agriculture (MDA), notes Bradley.

2. It can happen in row-crop areas, too.

Bradley showed one north-central Missouri county where 10 official complaints were reported to MDA. This county grows 83,000 acres of corn, and 103,500 acres of soybeans. That's typical of most Midwestern counties, and shows the potential for this to occur in various areas of the Corn

Belt. Statewide, 45,000 acres of soybeans were reported as dicamba-damaged, according to MDA. Bradley, though, thinks the actual amount is probably closer to 100,000 acres.

"Farmers don't like to turn in other farmers," he says.

3. Rural homes are sensitive sites, too.
Even before dicamba came along, the palms of many pesticide applicators became sweaty as they sprayed near high-dollar crops like grapes and tomatoes. Obviously, these areas have and still are considered sensitive sites and are labeled as sensitive areas.

They aren't the only ones, though. Dicamba damage to homeowner gardens, trees, and ornamental bushes often doesn't show up in damage reports, but it happens. This can threaten future use of tools like dicamba-tolerant technology by restricting agriculture's social license. "Homeowners are not stupid," Bradley says. "If half of their tree is defoliated, they are going to ask, 'OK, what happened here?'"

4. All types of off-label dicamba can damage sensitive crops and other vegetation.
Both the dimethylamine (DMA) salt formulations (Banvel, Rifle, etc.) and diglycolamine (DGA) salt formulations (Clarity, Sterling Blue) of dicamba were involved in off-target cases. "The majority of cases were DMA," he says. "But there were cases were DGA salts were sprayed as well." All were illegal.

5. Just a little dicamba hurts a lot.
Ever notice the fizz that goes off a pop can when you open it?

*Well, that amount is akin to the amount — **1/20,000 of the labeled rate of dicamba** — that can injure soybeans, points out Aaron Hager, University of Illinois Extension weed specialist. "With these Missouri famers, there was no malicious intent, says Bradley. "The number one thing they did not get, and maybe it was my fault in educational presentations I gave, is just how little dicamba it takes to damage their neighbor's crop. There is data about what dicamba can do to soybeans dating back to the late 1970s, so we need to show it to make it clear to them."*

6. Illegal applications also had illegal rates.
Not only were off-label applications illegal, but rates for these applications often were illegal.

"Larry Steckel, University of Tennessee, Jason Norsworthy, University of Arkansas, and I have no idea where they got the information to apply the 24-, 28-, and 32-ounce-per-acre rates, but that is what they did," says Bradley. (In Clarity's case for example, label rates are 8 ounces per acre for coarse, low-organic-matter soils and 16 ounces per acre for fine soils.)

"We would walk in these fields and the comment would be, 'But look at the weed control,'" says Bradley. "Well, yes, you can do lots of things if you are spraying (up to double) the label rate."

Nor were application parameters like boom height (no taller than 24 inches above the canopy) followed. That parameter will be challenging for on-label applications in 2017 and future years, believes Bradley. Maintaining a 24-inch height in the flat plains of the Missouri Bootheel is easier than in rolling fields, hills, and terraces that make up the topography of the rest of Missouri.

7. Be wary of applications in a 15-mph wind.
The label for Monsanto's Xtendimax with Vapor Grip Technology (the only low-volatile dicamba formulation in Monsanto's Roundup Ready Xtend Crop System approved by federal regulators so far) permits it to be applied in wind speeds up to 15 mph.

However, its label restricts applications when 10- to 15-mph winds are blowing toward nontarget sensitive crops. ***Optimal conditions for applications are when wind speeds are between 3 and 10 mph****, provided all other label application requirements are met. Applications are restricted at wind speeds below 3 mph.*

Even when conditions permit it, Bradley is wary of applications when wind speed approaches 15 mph. This wind level was rare in the Missouri Bootheel during peak dicamba application times in June and July in 2016, he notes. Still, off-target movement occurred. "Based on what I saw in 2016, I would not want to get anywhere close to 15 mph," he says.

8. Don't be a nighttime dicamba sneak (temperature inversions happen a lot).
Some illegal dicamba applications occurred under the cover of night. These applicators might have fooled some unsuspecting neighbors, but they couldn't fool Mother Nature. "If applicators spray at night, some of them spray right into a temperature inversion," says Bradley.

Temperature inversions often occur at night when cool air runs into warm air. During the day, soil warms as it absorbs soil radiation. At nighttime, though, this warm air rises while cooler air settles near the ground. This temperature inversion of warm air above cool air traps herbicide particles in a concentrated mass that can move and land off-target. This inversion often breaks at sunrise due to vertical air mixing.

Bradley, Mandy Bish, a Missouri senior research specialist, and Pat Guinan, Missouri state climatologist, tracked Missouri Bootheel temperature inversions for the past couple of years. ***In 2016 during the month of June, 24 temperature inversions occurred in southeastern Missouri, followed by 20 temperature inversions in July of 2016.*** *Typically, these started around 7 p.m. to 8 p.m., and lasted up to 10 hours.*

"I know there are applicators who don't have a clue what a temperature inversion is," Bradley says. Making applicators aware of temperature inversions is a goal of Missouri weed scientists in 2017.

9. Advertisements for the dicamba-tolerant system aggravated matters.
Manufacturers are not allowed to advertise pesticides pending registration by the EPA. However, Monsanto got around this rule by using the common name dicamba in summertime advertisements, rather than specifying the then unapproved dicamba formulations matching the Roundup Ready 2 Xtend soybeans.

The ad quoted farmers applying a low-volatile formulation of dicamba that accompany Roundup Ready 2 Xtend soybeans under an Experimental Use Permit (EUP). However, the ad did not state at the time that no dicamba products were registered for postemergence application in the Roundup Ready 2 Xtend soybeans, as pointed out by Bob Hartzler, Iowa State University, last October: http://crops.extension.iastate.edu/blog/bob-hartzler/ad-hall-shame-worthy

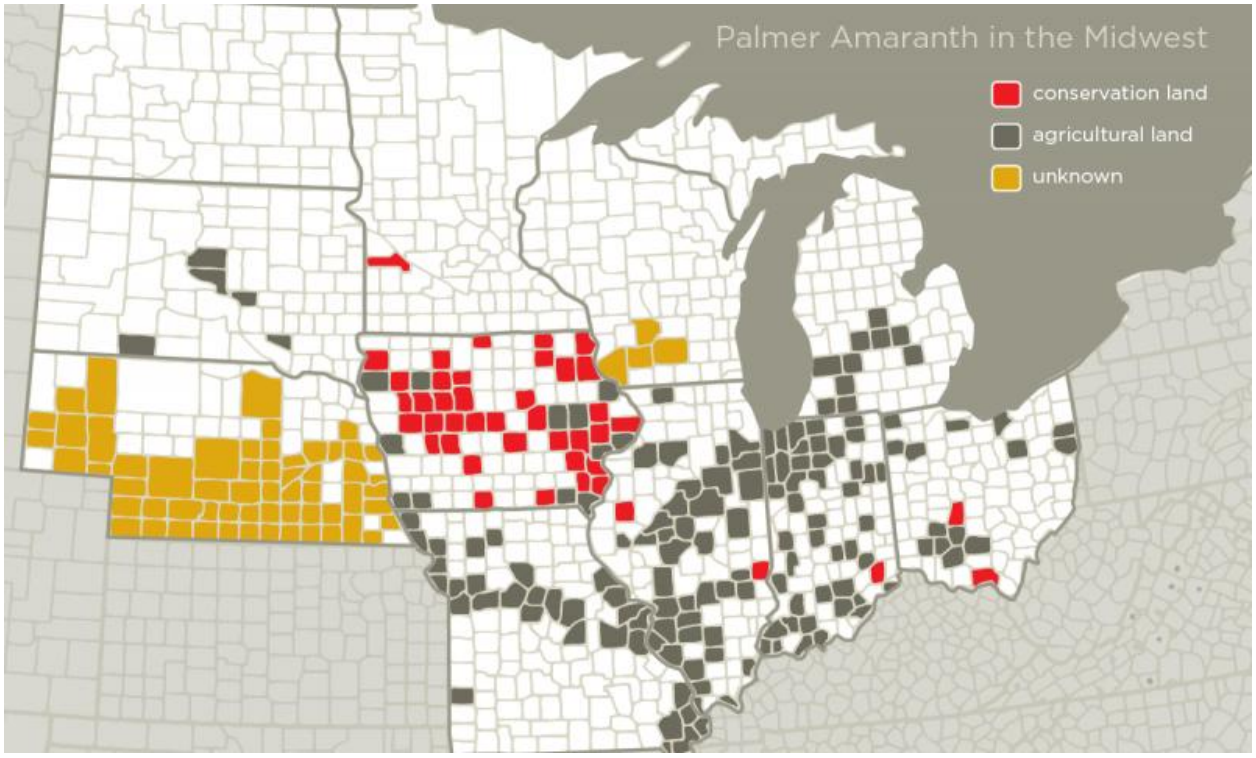
"This was a very poor (marketing) decision," says Bradley. "There has to be a point where science overrides the marketing."

10. Talk to your neighbors. Really talk.
Bradley advises famers to communicate with each other prior to this next growing season. "Ask who is planting what where," he says.

One tool Arkansas farmers have used for several years is a program called "Flag the Technology," where flags on field borders are color-coded to the type of herbicide-tolerant system used in the field.

*Besides economics, battles fought over off-target movement of herbicide can rip apart rural neighborhoods. "**The social impact cannot be underestimated**," he says. "You do not want to get into fights over this."*

"100% Weed-Free" Pollinator Habitat Seed Spreading Palmer Amaranth in CRP Land



Weed scientists are finding Palmer amaranth across the Midwest. Counties in black indicate Palmer amaranth was first found in an agricultural field, whereas red indicates it was first detected on conservation program land. Yellow signifies the source of introduction was not identified. Credit: Graphic by Julie McMahon, University of Illinois

Read more at: https://phys.org/news/2016-12-effort-seeds-destruction-midwest.html#jCp

Three Weed Scientists on First EPA Agricultural Science Committee

Pursuant to the 2014 Farm Bill, the EPA has established the first ever Agricultural Science Committee that will provide advice to EPA's chartered Science Advisory Board (SAB) on matters that have been determined to have a significant direct impact on farming and agriculture-related industries. Congratulations to the following weed scientists who were among the 19 members of the first Agricultural Science Committee:

- Dr. Stanley Culpepper, University of Georgia
- Dr. Peter Dotray, Texas Tech University
- Dr. Andrew Kniss, University of Wyoming

PSEP Stakeholder Team Funds Priority Resource Development Projects

The National Stakeholder Team for Pesticide Safety Education Program (PSEP) Funding announced projects that were funded to create additional priority educational resources to enhance the competency of pesticide applicators. The funds are meant to strengthen the EPA-recognized Land-Grant University Pesticide Safety Education Programs. More information about the National Stakeholder Team for PSEP Funding, co-chaired by Jim Burnette and Carol Somody, can be found at: www.psep.us. The three projects funded are:

1. Research on Using Modern Technology to Decontaminate Pesticide-Exposed Clothing

Colorado State University (Thia Walker) and University of Wyoming (Jeff Edwards)
Funding Amount: $104,942
Work products:

- Published Research Results
- Factsheet - Updated Guidelines for Decontaminating Pesticide-Exposed Clothing
- PowerPoint #1 - Updated Laundry Guidelines
- PowerPoint #2 - Audience Response Questions
- PowerPoint #3 - Summary of the Research and Results
- Video - How to Launder Pesticide Contaminated Clothing
- Presentations on research results at PACT and any regional meetings upon request

2. High Quality 5 Minute Videos for Pesticide Safety, in 4 languages

Auburn University (Sonja Thomas)
Funding Amount: $30,000
Work products:

- Video #1 - Personal Protective Equipment
- Video #2 - Routes of Entry
- Video #3 - Mode of Action
- Video #4 - Clean Up

3. Simplified, Easier to Understand Calibration/Proper Procedures for Calibration

University of Florida (Fred Fishel)
Funding Amount: $20,000
Work products:
Four modules with frame-by-frame written and audio-narrated scripts:

- PowerPoint #1 - Calibration of Aquatic Application Equipment

- PowerPoint #2 - Calibration of Turfgrass Application Equipment
- PowerPoint #3 - Chemigation through Microirrigation
- PowerPoint #4 - Calibration of Soil Fumigant Injection Equipment

National Academies Host Forum of Scientific Society Leaders on Genetically Engineered Crops Report

On December 7, representatives of 15 scientific societies, including WSSA, met to explore the findings, conclusions, and recommendations of the report, **Genetically Engineered Crops: Experiences and Prospects**, which was released earlier this year. The report has quickly become one of the most popular reports from the National Academies, having been downloaded more than 25,000 times since May. In addition to commenting on the reports' conclusions and recommendations, panelists explored how the report might be used in the societies' academic education and public communication activities. The forum panels focused on different sections of the report such as human health effects, social and economic effects, agronomic and environmental effects, and the promise of next generation biotechnology. I'd like to especially thank Dr. Carol Mallory-Smith who moderated the panel on "Agronomic and Environmental Effects of GE Crops" and Dr. Michael Barrett for representing WSSA on that panel. Both are past-presidents of WSSA. The entire forum was recorded and is available at: http://dels.nas.edu/Past-Events/Forum-Scientific-Society-Leaders/AUTO-5-80-52-G

National Invasive Species Awareness Week (NISAW)

NISAW will be held February 27 to March 3, 2017 in Washington DC. Please visit www.nisaw.org for information on invasive species webinars and lunch briefings as well as a Congressional Fair on March 1 on Capitol Hill.

Invasive Species Executive Order Amended

On December 5th, President Obama issued an Executive Order amending President Clinton's Executive Order 13112 issued in 1999. This new order:

- directs actions to continue coordinated Federal prevention and control efforts related to invasive species
- maintains the National Invasive Species Council (NISC) and the Invasive Species Advisory Committee (ISAC)
- expands the membership of NISC
- clarifies the operations of NISC
- incorporates considerations of human and environmental health, climate change, technological innovation, and other emerging priorities into Federal efforts to address invasive species; and
- strengthens coordinated, cost-efficient Federal action

For details, please see: https://www.whitehouse.gov/the-press-office/2016/12/05/executive-order-safeguarding-nation-impacts-invasive-species

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