WSSA
WEED SCIENCE SOCIETY OF AMERICA
Newsletter

Volume 51, No. 3
October, 2023

President's Message

The weather has taken a turn here in North Carolina as we begin to head into harvest. The cooler temperatures are a relief from our July and August heat! I hope everyone had a great summer season and your efforts to advance Weed Science have been very productive. I look forward to updates on research at our Annual Meeting in San Antonio, Texas.

The fourth week in July, many in the Society enjoyed spending some time at the National Weed Contest on the Bayer farm in Union City, Tennessee. Thanks to all the volunteers at the contest and especially the support from Bayer and BASF running the contest. Congratulations to the University of Arkansas and the University of Guelph for getting first place team honors in the graduate and undergraduate competitions, respectively. This event is an incredible experience for the students and the amount of work needed to make it a National Contest was on display. This was a tremendous learning opportunity for the students and all volunteers/participants.

Greg Dahl and Todd Baughman, Program Co-Chairs, have been working to have a great program for us coming up in San Antonio. These teams meet monthly to help prepare us for the Annual Meeting. Our keynote speaker will be Wyman Meinzer, Official State Photographer of Texas. Search on his name when surfing YouTube and you can see some great photography.

Local arrangement co-chairs Luke Etheredge and Gary Schwarzlose have been working to line up tours on Sunday and Monday. Sunday's tour will be to the Natural Bridge Caverns about 30-45 minutes away from the hotel and Monday's tour will be at the San Antonio Botanical Gardens, a short 15 minutes from the hotel. The Board will meet starting Sunday morning and go until time to head out for the Sunday afternoon tour. Further details will be forthcoming. After the Sunday tour, a Topgolf event is planned for Sunday night to support the Southern Weed Science Society Student Endowment. This will be a great opportunity to meet new folks and mingle with those that you may have not seen in a while. Further information will be coming relative to this event. This is a golf event for

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Research Priority Survey Results

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all skill levels — make sure you don't miss this great cause! If your committee needs to have a face-to-face meeting in San Antonio, make sure you catch up with Eric Gustafson on meeting room needs. If you do not need to have an FTF meeting, please have your committee meeting before January 19, 2024, if at all possible. I encourage committee chairs to set those meetings up soon.

The January meeting program will include four great symposia:

- New Approaches to Herbicide and Bioherbicide Discovery
- Herbicide Resistant Weeds: Identification, Documentation, and Regulation
- Adjuvants Matter: How New Technology and a Changing Marketplace are Creating New Opportunities
- Pesticide Registration, Current Standards and Regulations for the Assessment of Environmental Impacts of Pesticide Use in the US

There will be a 15-minute paper contest for SWSS students, a poster and 3-MT contest for WSSA and SWSS students. The SWSS will host their annual quiz bowl for both SWSS and WSSA students. There will be a grad student mixer after the quiz bowl. Thanks to Pamela Carvalho Moore, Graduate Student Representative, for helping and providing direction on grad student activities. We look forward to all the posters and papers to be presented in the various Sections at our Annual Meeting.

Our liaisons have also been hard at work with USDA (Jim Kells), CAST (Jill Schroeder), and EPA (Mark Van Gessel). J. Kells has been meeting monthly with his advisory committee and you will see more info around research priorities in the future. J. Schroeder works with the CAST Plant Working Group and is involved in a paper relative to invasive plants along with other activities. CAST has also welcomed in Chris Boomsma as its new Executive Vice President. M. VanGessel has worked with EPA on multiple tours, the latest occurring at the University of Maryland Wye Farm.

Our Executive Director of Science Policy, Lee VanWychen, and Endangered Species Committee Chair, Bill Chism, have been very busy with comments and feedback dealing with EPA's Endangered Species Act mitigation proposals for their Vulnerable Species Pilot Project and their proposed "Herbicide Strategy." Comments are due October 22. Lee has also been tracking the Farm Bill and House and Senate Appropriations affecting weed science programs in four subcommittees: 1) Agriculture, 2) Interior, Environment, and Related Agencies, 3) Energy and Water, and 4) Transportation. He is coordinating two separate weeks of Congressional Visits in October and November for his Science Policy Fellows as well as Aquatic Plant Management Society leaders. He continues to raise awareness of the Invasive Plant Elimination Program that was authorized in the 2021 Infrastructure Law at $50 million per year through the U.S. DOT and gave a presentation at the National Roadside Vegetation Managers Association meeting, presided over by Dr. John Byrd, in Knoxville, TN. Finally, preparations continue for the 25th National Invasive Species Awareness Week in Washington, DC. These are just a few items that Lee has been spending time addressing. Thanks also to Bill Chism (ESA Chair) for all the travel activities and work associated with endangered species communications.

More recently, thanks to Sarah Ward for agreeing to serve on the USDA-TAG committee for WSSA. "TAG" is the Technical Advisory Group for Biological Control Agents of Weeds, an independent voluntary committee, that was first formed in 1957 to provide advice to researchers. Today, TAG members review petitions

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WSSA FUTURE MEETING SITES AND DATES

Jan. 22–25, 2024
WSSA-SWSS Joint Meeting
San Antonio, Texas
www.wssa.net and
www.newss.org

WSSA HOME PAGE ACCESSED AT:
www.wssa.net

THINK NEWSLETTER

Deadline for January issue
December 1, 2023

SEND NEWSLETTER MATERIAL TO:

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WSSA NEWSLETTER

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WSSA Research Priority Survey Results Published

In 2022, the Research and Competitive Grants (E6) Committee of WSSA conducted a survey of weed scientists with two main objectives: 1) to identify research topics perceived to be important for advancing weed science in the next 5-10 years, and 2) to gain insight into potential gaps in current expertise and funding needed to address those priorities. Respondents were asked to prioritize nine broad research categories along with five to ten sub-categories within each of the broad areas. A total of 475 weed scientists completed the survey with the majority affiliated with academic institutions (55%) and working in cash crop (agronomic or horticultural) study systems (69%).

Among the key results, the three broad research areas ranked as high priorities by the most respondents were 1) Cultural and Preventative Weed Management and 2) Precision Weed Management and Robotics and 3) Herbicides (Figure 1A/B). The highest ranked sub-categories under Cultural and Preventative Weed Management included 1) combining multiple tactics, 2) crop rotation and diversification strategies, and 3) cover cropping. The highest ranked sub-categories under Precision Weed Management and Robotics included development of 1) artificial intelligence for plant ID, 2) vision systems, and 3) precise actuators. High ranked sub-categories under Herbicides included 1) herbicide development and discovery and 2) evaluating efficacy.

The survey also identified four broad research areas where the research priority significantly exceeded the current expertise (Figure 1C). In other words, research areas where research capacity (researcher expertise and research funding) needs to be expanded. These areas were 1) Cultural and Preventative Weed Management, 2) Precision Weed Management and Robotics, 3) Weed Genomics, and 4) Social and Economic Issues.

A more detailed summary of survey results was published in the July 2023 issue of *Weed Science* and is available here:
https://www.cambridge.org/core/journals/weed-science/article/survey-of-weed-research-priorities-key-findings-and-future-directions/68F96D3CBDE0167EE711678266080EE3

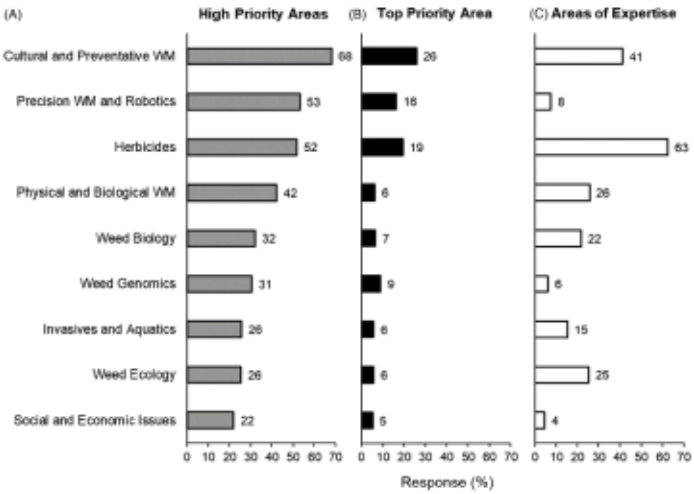

Figure 1. Percentage of respondents indicating broad areas of weed science as (A) high-priority research areas, (B) their top research priority area, and (C) their own area(s) of research expertise.
WM, Weed Management.

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for biological control of weeds and provide an exchange of views, information, and advice to researchers.

Also, after approximately 15 years+ of working with the WSSA Public Awareness Committee (PAC) and all Journal publications, Linda Edgerton (Independent Writer, Greensboro, NC) has decided to retire. Caren Schmidt (PAC chair) and I can attest to the fact that Linda has done a great job of making Weed Science information very enjoyable for multiple audiences. This is not easy to do! Gil Gullickson, retired Editor-in-Chief from Successful Farming, has now taken on this difficult task!

These are only a few activities that our Society members are involved in. Many of our committees have been very active throughout the year. We look forward to visiting with everyone in San Antonio to get updated on the latest research and happenings in weed management! Thanks to Eric Gustafson and the IMI staff for helping us to prepare for and pull off the January meeting!

Sincerely,
Carroll Moseley
WSSA President

WASHINGTON REPORT

by Lee Van Wychen, Director of Science Policy

WEED SCIENCE POLICY FELLOWS FOR 2023–2024

The Science Policy Fellow (SPF) is a position supported by WSSA that is designed to assist the Executive Director of Science Policy while providing the SPF with a short-term, robust experience in dealing with a broad array of weed science policy issues. The SPFs receive a stipend to help them cover their time and travel to Washington, DC, and their attendance at the WSSA annual meeting. This year's SPFs are Annu Kumari and Cynthia Sias.

ANNU KUMARI 2023–2024 WEED SCIENCE POLICY FELLOW

Annu is a third-year Ph.D. student at Auburn University, pursuing her doctorate degree with Dr. Andrew Price and co-advised by Dr. Steve Li. Annu's dissertation project is focused on integrating herbicides and cover crops in southeastern production systems to control troublesome weeds. While trained as a weed scientist, Annu is developing skills in cross-functional disciplines as she has a minor in Statistics and Plant Pathology. She received a B.S. in Agriculture, majoring in Agronomy, from CCS Haryana Agricultural University, India. Annu grew up on a small family farm in southern Haryana and engaged in integrated farming practices. She had keenly observed the struggle of small producers to grow a successful crop. Also, while being on a farm, she learned the importance of integrated pest management practices to deliver economically viable yield parameters in a sustainable manner. Her enthusiasm for pest management directed her to pursue her education in the agricultural field with a major in weed science. Annu aims to improve her research and communication abilities to make a meaningful impact in weed science, ultimately working towards sustainable agriculture to tackle the food demands of the growing population. The Science Policy Fellowship gave her a great opportunity to gain substantial leadership experience in public policy and advocacy on a wide array of weed science policy issues. Recently, Annu had a great opportunity to interact with U.S. representatives from Alabama to discuss the importance of research funding, funding for the U.S. Department of Agriculture, the Endangered Species Act, and other science policy topics. Annu is grateful to the WSSA and Science Policy Committee for providing her with this great learning opportunity.

CYNTHIA SIAS 2023–2024 WEED SCIENCE POLICY FELLOW

Cynthia is a third year Ph.D. student at Virgina Tech studying under the direction of Dr. Michael Flessner. Her dissertation research is focused primarily on using cover crops for weed management in soybeans and corn production systems. Prior to her Ph.D. work, she received a B.S. in Agriculture from Cornell University and an M.S. in Agronomy from Texas A&M University. Cynthia is passionate about educating the public about agriculture, and helping farmers overcome challenges year to year. She is grateful for the opportunity to learn how decisions are made in our government, and to understand how that directly impacts farmers. Cynthia is eager to apply what she has learned during this time with the Science Policy Fellowship in hopes of creating more opportunities for farmers to be heard and be a part of the decisions being made.

WSSA COMMENTS ON EPA'S VULNERABLE SPECIES PILOT PROJECT

The EPA has identified 27 pilot species that are classified as either endangered or threatened based on documentation from the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS). EPA did not consult with FWS or NMFS to develop the list, but considers these species have a medium or high overall vulnerability to pesticides. Many thanks to Bill Chism, WSSA Endangered Species committee chair, for his extensive work on WSSA's comments for the vulnerable species pilot project.

EPA's initial set of priority species includes:

- Group of plant species in Lake Wales Ridge area of Florida (including Avon park harebells (*Crotalaria avonensis*), Garrett's mint (*Dicerandra christmanii*), wireweed (*Polygonella basiramea*), scrub blazingstar (*Liatris ohlingerae*), short-leaved rosemary (*Conradina brevifolia*), scrub mint (*Dicerandra frutescens*), Florida ziziphus (*Ziziphus celata*), and several other species that occur in this area)
- Leedy's roseroot (*Rhodiola integrifolia ssp. leedyi*)
- **Mead's milkweed (*Asclepias meadii*)**
- Okeechobee gourd (*Cucurbita okeechobeensis ssp. okeechobeensis*)

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- Palmate-bracted bird's beak (*Cordylanthus palmatus*)
- White bluffs bladderpod (*Physaria douglasii ssp. tuplashensis*)
- Madison cave isopod (*Antrolana lira*)
- Ouachita rock pocketbook (*Arkansia wheeleri*)
- Rayed bean (*Villosa fabalis; freshwater mussel*)
- Scaleshell mussel (*Leptodea leptodon*)
- Winged mapleleaf (*Quadrula fragosa*)
- Riverside fairy shrimp (*Streptocephalus woottoni*) and San diego fairy shrimp (*Branchinecta sandiegonensis*)
- **American burying beetle (*Nicrophorus americanus*)**
- Poweshiek skipperling (*Oarisma poweshiek*)
- Rusty patched bumble bee (*Bombus affinis*)
- **Taylor's checkerspot (*Euphydryas editha taylori*)**
- Ozark cavefish (*Amblyopsis rosae*)
- Attwater's prairie chicken (*Tympanuchus cupido attwateri*)
- Buena vista lake ornate shrew (*Sorex ornatus relictus*)
- Wyoming toad (*Bufo hemiophrys baxteri*)

In 2022, Enlist was banned in 11 Arkansas counties because of the American Burying Beetle. A similar "prevention" tactic will be tested next year in Washington and Oregon, but **with a major difference**. In Arkansas, **no critical habitat** had been designated, but it will be in Oregon and Washington for **Taylor's Checkerspot butterfly**. EPA has determined that the appropriate mitigation measure for Taylor's Checkerspot butterfly is to **prohibit all broadcast and aerial spraying of pesticides** in the areas where the butterfly is found. These will be referred to as "Pesticide Use Limitation Areas" or **PULAs**. This will essentially create large areas of Oregon and Washington where pesticides cannot be sprayed. The plan is slated to go into effect next year. Without any changes, it will have a massive impact on pest management in places like Oregon's Willamette Valley.

As part of WSSA's comments on the proposed vulnerable species pilot project, I also asked each of my Science Policy Fellows to research one of the 27 pilot species. Their reports can be found at Science Policy Reports.

EPA PROPOSES NEW AG HERBICIDE RULES: Q&A SIX-PACK: EPA DRAFT HERBICIDE STRATEGY

By Jason Jenkins, DTN Crops Editor. 9/19/2023. Copyright 2023 DTN, LLC.
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JEFFERSON CITY, Mo. (DTN) --- Use whatever idiom you want to describe it — jump through hoops, clear the bar, check the boxes — the cost of keeping tools in the herbicide toolbox is about to increase for U.S. farmers.

For nearly two years, the Environmental Protection Agency (EPA) has said it will no longer turn a blind eye toward the Endangered Species Act (ESA) and its legal obligation to ensure that pesticides don't jeopardize the continued existence of nearly 1,700 federally threatened or endangered species.

In July, EPA took what it believes is another step toward ESA compliance, releasing the "Draft Herbicide Strategy Framework." The 96-page proposal outlines how the agency intends to protect more than 900 listed species and their designated critical habitats (CH) from agricultural uses of conventional herbicides in the lower 48 states. The document is available for public comment until Oct. 22.

The draft herbicide strategy presents substantial change, requiring herbicide users to implement mitigation measures for potential impacts much earlier — even before EPA or the U.S. Fish and Wildlife Service (USFWS) determines definitely that a herbicide poses a risk.

Here are answers to six questions about EPA's Draft Herbicide Strategy Framework.

1. Why is EPA doing this?

In recent years, EPA has faced many lawsuits by not adequately meeting its ESA obligations. While the agency settled longstanding litigation known as the "megasuit" on Sept. 12, this ongoing legal vulnerability has created uncertainty for farmers and other pesticide users about their continued ability to use many pesticides.

"EPA is not going to dig itself out of this dilemma using a traditional pesticide-by-pesticide, species-by-species approach to complying with the ESA," said Jake Li, deputy assistant administrator for pesticide programs within EPA's Office of Chemical Safety and Pollution Prevention, during a webinar held last month. "Instead, EPA needs to work a lot, lot faster and more efficiently. That means we need to get early mitigations in place to protect endangered species so that even if we haven't fully met our ESA obligations yet, we still have some protections in place in the meantime.

"That's the main reason we created the draft herbicide strategy," he continued. "It's really our first attempt to identify protections for hundreds of endangered species at once and to do so much earlier in the pesticide regulatory process using an approach that's much more efficient for EPA to implement. By doing all of those things, we think we can provide more certainty to growers about what mitigations they should expect in the future and how we intend to bring herbicides that they use into full compliance with the law."

2. How would it work?

EPA proposes a three-step process.

STEP 1: Conduct an analysis to determine which groups of plant species are expected to have the potential for population-level impacts from direct exposure to herbicides, and which

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groups of animals could be affected because they rely on listed plants for their diet or habitat. If at least one group of listed species is potentially affected, proceed to STEP 2.

STEP 2: Identify the type and level of mitigation measures needed to reduce herbicide exposure via spray drift and/or runoff or soil erosion. Mitigation measures would be identified specific to a herbicide's active ingredient, formulations, use site, application parameters and maximum use rates.

STEP 3: Determine where mitigation measures would be applied. Spray drift and runoff/erosion mitigation measures could be included on the general product label if the mitigations would apply everywhere the product is used. In some situations, mitigations would target only areas where groups of listed species occur. In those situations, EPA expects to use the Bulletins Live! Two (BLT) website to post geographically specific mitigations for listed species.

3. How many mitigation measures will I need to implement to comply with the product label?

Instead of requiring a certain number of mitigation measures, the EPA herbicide strategy outlines a system where herbicide users need to achieve a minimum number of "efficacy points." EPA assigned one to three points to each option in its menu of mitigation measures. The number of points required will vary based on the herbicide and the field location. As many as nine points may be required of some products if the use occurs within a pesticide use limitation area (PULA).

4. Will there be any exemptions from the runoff/erosion mitigation requirements?

EPA is considering potential exemptions to the mitigation menu requirements. If a field is more than 1,000 feet away from a terrestrial or aquatic habitat for listed species, it may be exempt from mitigation. Fields with subsurface drainage or tile drains may be exempt, but runoff from the entire field would need to be controlled and directed into a retention pond or saturation zone.

Fields may also be exempt if they are managed with a site-specific runoff and/or erosion plan that has been implemented according to the recommendations of a recognized conservation program or appropriate conservation expert. EPA is still developing criteria for experts and conservation programs that would meet this exemption. With the draft herbicide strategy, the agency specifically requests feedback on the types of experts and programs that could be relied upon to ensure this exemption could be effective.

5. When will the EPA Herbicide Strategy go into effect?

In the "megasuit" legal settlement approved in federal court in California on Sept. 12, EPA committed to issuing a final Herbicide Strategy no later than May 30, 2024. Presently, the draft framework is available for public comment until October 22.

Implementation of the final strategy would occur as existing herbicides come up for registration review, at which time mitigation would be applied. EPA revised its registration review schedule to account for the timing of the final strategy. At present, herbicides including atrazine, dicamba and 2,4-D are all scheduled for Proposed Interim Decisions in 2024. New herbicide active ingredients would incorporate the herbicide strategy from the outset of the registration process.

It should be noted the agency extended the comment period by 30 days after receiving more than two dozen comments requesting 60- to 90-day extensions from various national and state commodity organizations, product registrants and other agriculture-related groups. This includes the American Farm Bureau Federation, the National Association of State Departments of Agriculture, the American Soybean Association, the National Corn Growers Association, the Agricultural Retailers Association, CropLife America, BASF, Bayer and Syngenta.

6. What about other pesticide categories beyond herbicides?

The same Sept. 12 court-approved agreement also outlined deadlines for rodenticides and insecticides.

EPA expects to issue a draft Rodenticide Biological Evaluation, which will assess the effects on all listed species, in November 2023. The final evaluation is expected no later than Nov. 12, 2024. At that time, should it be determined rodenticides do affect listed species or their critical habitats, EPA will initiate consultation with the USFWS and the rodenticide registrants to discuss possible mitigation options.

While a specific date was not given for issuing a draft Insecticide Strategy, EPA agreed to use its best efforts to issue a final Insecticide Strategy by no later than March 31, 2025.

No deadlines were set for the completion of a final Fungicide Strategy, but the determination of such a deadline is expected to take place no later than Aug. 31, 2024.

The EPA Draft Herbicide Strategy Framework and its supporting documents can be found here:
https://www.regulations.gov/docket/EPA-HQ-OPP-2023-0365

To submit a public comment, go here:
https://www.regulations.gov/commenton/EPA-HQ-OPP-2023-0365-0001

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FIFRA SAP MEETS AGAIN ON EPA'S USE OF 11 ATRAZINE MICROCOSM/MESOCOSM STUDIES

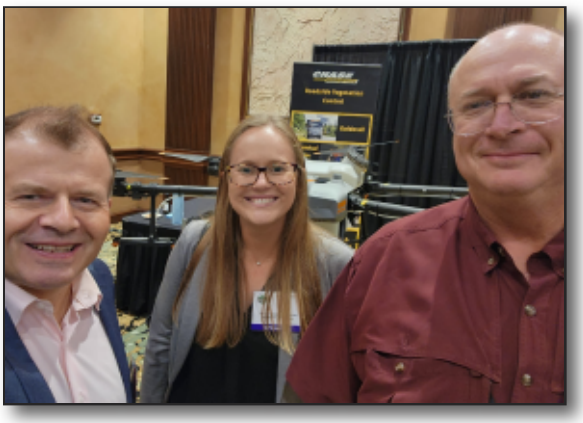
The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Scientific Advisory Panel (SAP) provides independent scientific advice to the EPA on health and safety issues related to pesticides. There are seven permanent positions on the SAP, which is augmented by additional experts who assist in reviews. The FIFRA SAP conducted on August 22-24, 2023 was titled: **"Examination of Microcosm/Mesocosm Studies for Evaluating the Effects of Atrazine on Aquatic Plant Communities."**

Four of the nine ad hoc members selected for this SAP included the following WSSA and/or APMS members: 1) Aaron Hagar, University of Illinois; 2) Jay Ferrell, University of Florida; 3) John Madsen, retired USDA-ARS; and 4) Kurt Getsinger, US Army Corps of Engineers. They provided excellent review of the 11 atrazine studies in questions.

There is an excellent white paper by EPA that presents EPA's reevaluation of 11 atrazine microcosm and mesocosm studies identified by the 2012 FIFRA SAP as warranting further review. These studies are part of EPA's Ecological Risk Assessment of atrazine and are specifically used in assessing the effects to aquatic plant communities. The use of cosm studies in the ecological assessment of atrazine has a long, 20-year history involving multiple SAPs and EPA reviews.

At issue is EPA's use of a 3.4 ppb concentration-equivalent level of concern (CE-LOC) that EPA issued in an interim atrazine registration decision last year. The CE-LOC for atrazine was previously 15 ppb. After EPA issued the 3.4 ppb CE-LOC last year, many stakeholder groups, including WSSA, asked the EPA to conduct this independent FIFRA SAP because they felt the science was not justified to have a CE-LOC that low. The CE-LOC is the atrazine concentration level that triggers required monitoring and/or mitigation to protect aquatic plant communities.

The atrazine SAP is currently deliberating and writing their final recommendations for EPA. Based on the SAP's discussions, most of the 11 atrazine studies did suffer from various flaws and should not be used to calculate a CE-LOC for atrazine. This would likely lead EPA to establishing a higher CE-LOC, thus leading to less atrazine restrictions for corn, sorghum and sugarcane growers and other atrazine users. More info at: https://www.regulations.gov/search?filter=EPA-HQ-OPP-2023-0154



Left to right: Lee Van Wychen, Executive Director of Science Policy, WSSA; Taylor Randell Singleton, Assistant Professor, University of Georgia; and John Byrd, President, National Roadside Vegetation Management Association (NRVMA) and Professor, Mississippi State University. They gave presentations at NRVMA's annual meeting in Knoxville, TN on September 12-14, 2023 on a number of topics including EPA's proposed mitigation strategies for complying with the Endangered Species Act and a thorough discussion of the Invasive Plant Elimination Program authorized in the 2021 Infrastructure law.

49 STAKEHOLDERS SEEK FUNDING FOR U.S. DOT INVASIVE PLANT ELIMINATION PROGRAM

The six national and regional weed science societies joined 43 other signatories on a letter to Congress requesting $10 million to start a pilot program for the Invasive Plant Elimination Program authorized by the 2021 Infrastructure Law. The letter is addressed to the chairs and ranking members of the House and Senate Appropriations Subcommittees for Transportation. The Invasive Plant Elimination Program was authorized in the 2021 Infrastructure Law (P.L. 117-58) at $50 million annually from FY 2022–2026, but no money has been appropriated to date. If you are aware of organizations or groups that might support this effort, please email me. We will repeat this effort again next year.

NIFA LISTENS FY 2023–FY 2024 REPORT

The USDA National Institute of Food and Agriculture (NIFA) conducts a biennial stakeholder listening opportunity to collect input to understand key challenges, promising opportunities and recommended top priorities related to advancing agricultural research, education, and extension. You can read more about it on the NIFA Listens webpage.

Over 700 registered participants joined two 2.5-hour virtual Zoom sessions, where 49 preregistered speakers offered oral statements in five-minute slots. Written input from 59 stakeholders was also received via email. A total of 108 stakeholders from 87 distinct organizations, located in 36 US states and Washington, DC, provided input during NIFA Listens FY 2023–FY 2024. Dr. Jim Kells, our WSSA-NIFA Fellow, provided oral and written comments on behalf of WSSA based on the weed research priorities survey responses that was recently published in *Weed Science*. Also, Dr. Hilary Sandler, University of Massachusetts and Dr. Steve Fennimore, University of California - Davis, also provided oral comments supporting weed science research and precision weed management technologies.

The final report captures findings from this year's session. NIFA implemented text analytics workflows lever-

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aging the USDA EDAPT Data Science Workbench. New natural language processing (NLP) algorithms supported sentiment analysis and unbiased identification of top topics clusters and semantic relationships. New Tableau dashboards were designed to support further insight discovery. As reference, this report includes a qualitative analysis RRDC Stakeholder report, including a qualitative analysis comparing priorities identified. Click here to find the full report.

WHY GRASS IS A CULPRIT IN SOME OF THE WORLD'S WORST WILDFIRES

In Maui, abandoned pineapple and sugar-cane fields filled up with flammable invasive grasses.

By Daniela Hernandez, Wall Street Journal, Aug 22, 2023. 4 min, 7 sec. (best on Chrome)

https://www.wsj.com/video/series/daniela-hernandez/why-grass-is-a-culprit-in-some-of-the-worlds-worst-wildfires/0AF272ED-97BA-472C-8559-24171F997763

ANNUAL COST OF INVASIVE SPECIES PUT AT HALF-A-TRILLION DOLLARS

Invasive species cause more than $423 billion per year in damage to agriculture, fisheries, water supplies, and other ecosystem-dependent benefits worldwide, according to the summary of a comprehensive review by dozens of scientists, released Sep. 4, 2023. The monetary losses, adjusted for inflation, have quadrupled every decade since 1970, the study's baseline, the summary says. The report is the first on the topic from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, which has 143 member nations. The estimated financial loss is "a huge, huge underestimate," Helen Roy of the UK Centre for Ecology & Hydrology, who co-chaired the group that wrote the report, said in a media briefing; many costs such as weeding invasive plants have not been quantified, she said. More than 3500 species are known to have become invasive after people moved them, intentionally or unintentionally, to new locations where they have crowded out native plants and animals, some of which supported local economies. The number of invasive species is rising faster than ever because increases in global trade and travel help spread them, the summary says. But only 17% of countries have laws or regulations to prevent or manage invasions of these species.

FEDERAL AGENCY FUNDING OPPORTUNITIES

By Steve Young, Jim Kells and Vijay Nandula

Federal departments and agencies with expertise in weed and invasive plant science were brought together at a symposium held during the Weed Science Society of America 63rd Annual Meeting. Individuals from Animal and Plant Health Inspection Service (APHIS), Agricultural Research Service (ARS), National Institute of Food and Agriculture (NIFA), Office of Pest Management Policy (OPMP), Natural Resources Conservation Service (NRCS), US Forest Service (USFS), Bureau of Land Management (BLM), US Geological Survey (USGS), National Park Service (NPS), Department of Defense (DOD), Army Corps of Engineers (ACOE), National Aeronautics and Space Administration (NASA), and National Science Foundation (NSF) shared current research and management efforts and participated in a discussion focused on the identification of funding opportunities and other issues pertaining to research gaps and management needs among this society's membership.

Each federal department and agency gathered at the symposium support weed and invasive plant science research and/or management through grant funding, technical assistance, and scientific studies. They represent a diversity of stakeholders who may be separated geographically yet have a common focus on weeds and invasive plants in crop, terrestrial, and aquatic ecosystems.

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Agency	Program	Notes
ARS	Areawide Pest Management Program	This is an internally funded program at ARS
APHIS	Plant Protection Act Section 7721	Search website
DOD	Strategic Environmental Research & Development Program	Link to funding
	Environmental Security Technology Certification Program	Link to funding
EPA	EPA Grants	Search for weeds and/or invasive plants
NASA	Applied Sciences Program--Agriculture, Ecological Conservation	Browse practitioner resources, including opportunities that links to NSPIRES
NIFA	Agriculture & Food Research Initiative (AFRI)	Several programs, incl interdisciplinary, in plant health and production categories
	Crop Protection & Pest Management	Link to RFA
	Methyl Bromide Transition	Link to RFA
	IR-4	Link to RFA
	Organic Agriculture Research & Extension Initiative	Search program information
	Organic Transitions	Search program information
	Specialty Crop Research Initiative	Link to RFA
DOI	Funding Guide for Invasive Species Management	Search program information
NRCS	Conservation Innovation Grants	Has funded projects on weeds & invasive plants
NSF	Plant Biotic Interactions	Joint program w NIFA, focuses on agr species
USFS	Invasive Forest Plants	Requests for application thru Working with Us link

Table 1. Funding opportunities for select federal agencies that focus on weeds and invasive plants.

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CALENDAR OF UPCOMING EVENTS

DATE	EVENT	LOCATION	CONTACT
November 19–23, 2023	Canadian Weed Science Society (CWSS) Annual Meeting	Winnipeg, Manitoba	www.weedscience.ca
December 11–14, 2023	North Central Weed Science Society (NCWSS) Annual Meeting	Minneapolis, Minnesota	www.ncwss.org
January 8–11, 2024	Northeastern Weed Science Society (NEWSS) Annual Meeting	Boston, Massachusetts	www.news.org
January 22–25, 2024	Weed Science Society of America (WSSA) and Southern Weed Science Society (SWSS) Joint Annual Meeting	San Antonio, Texas	www.wssa.net and www.swss.ws
March 4–7, 2024	Western Society of Weed Science (WSWS) Annual Meeting	Denver, Colorado	www.wsweedscience.org

Additional Weed Science Meetings and Events can be found at http://wssa.net/meeting/calendar-of-meetings/

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