

PESTICIDE REPORTS

Division of Agricultural Sciences and Natural Resources • Oklahoma State University
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JUNE TEST HELP WORKSHOPS SCHEDULED

The Oklahoma State University Pesticide Safety Education Program (PSEP) has scheduled a test help workshops for June 28 in Oklahoma City and June 30 in Tulsa.

The Oklahoma City workshop will be at the Oklahoma County Extension Center at 2500 N.E. 63rd St. in Oklahoma City. The Tulsa workshop will be at the Tulsa County Extension Office at 4116 E 15th in Tulsa.

Registration cost is \$50 for each location and will include a copy of Applying Pesticides Correctly. This is the study manual for the core and service technician exams. To register for this class please go to the Pesticide Safety Education Program (PSEP) website at <http://pested.okstate.edu/html/practical.htm> and click on the register online link. Class information and an agenda can also be found at that website.
(OSU PSEP)

EPA EXTENDS RESPIRATORY PROTECTION FLEXIBILITIES FOR AGRICULTURAL PESTICIDE HANDLERS DURING COVID-19

The U.S. Environmental Protection Agency (EPA) is committed to protecting the health and safety of Americans, especially during the COVID-19 public health emergency. In June 2020, EPA issued [temporary guidance regarding respiratory protection requirements for agricultural pesticide handlers](#) that offers flexibility during the COVID-19 public health emergency.

Due to the continued concerns regarding personal protective equipment shortages in the agricultural sector, EPA is extending the “annual fit test delay” to September 30, 2021 as part of the previously issued guidance on respiratory protection requirements for agricultural pesticide handlers. This revision is in alignment with Occupational Safety and Health Administration memos on respirators and addresses Agricultural Worker Protection Standard (WPS) requirements under the Federal Insecticide, Fungicide, and Rodenticide Act.

The remainder of the June 2020 guidance remains in effect. EPA will assess the continued need for and scope of the temporary guidance on a regular basis. To read the amended guidance, visit <https://www.epa.gov/enforcement/amended-statement-regarding-respiratory-protection-shortages-and-reduced-availability>.

(EPA May 7, 2021)

<https://www.epa.gov/pesticides/epa-extends-respiratory-protection-flexibilities-agricultural-pesticide-handlers-during>

EPA RELEASES DRAFT RISK ASSESSMENTS AND PROPOSES MITIGATION FOR RESIDENTIAL FUMIGATION USING SULFURYL FLUORIDE

Today, the U.S. Environmental Protection Agency (EPA) is taking the next step in the registration review process for the pesticide sulfuryl fluoride by releasing draft risk assessments for public comment. The agency is also proposing additional safety measures to better protect the public when this pesticide is used to fumigate homes. EPA is proactively taking this step to ensure the necessary human health protections are in place.

Sulfuryl fluoride is a fumigant used to control pests such as termites, powder post beetles, old house borers, bedbugs, carpet beetles, moths, cockroaches, rats, and mice. It is a restricted-use pesticide, meaning it can only be used by a certified applicator or someone under the certified applicator’s direct supervision.

For the registration review of sulfuryl fluoride, which includes all the uses of the pesticide, EPA is releasing sulfuryl fluoride draft risk assessments (DRAs), including the combined ecological draft risk assessment and drinking water assessment, and the occupational and residential risk assessment.

The DRAs are part of a multi-step process to identify risks as well as actions that can mitigate risks. After considering public comments, EPA will proceed with registration review by issuing the proposed interim decision, which will propose measures to reduce human health and ecological risks.

The [Sulfuryl Fluoride Draft Interim Re-entry Mitigation Measures Memorandum](#) released today outlines the new safety measures EPA is proposing for fumigation uses and is in response to the EPA Office of Inspector General’s December 2016 [Report No. 17-P-0053](#) that was conducted to assess which additional safety measures could be taken to prevent serious injuries from use of this

pesticide during residential fumigation. This report recommended EPA make changes to how this pesticide can be used and do an assessment of the clearance devices used to determine safe reentry levels in homes after fumigation.

While EPA testing has called into question the accuracy of some of the clearance devices, the agency will continue to work with the device manufacturers to address the device calibration issue. Until the device calibration issue can be addressed by the device manufacturers, applicators in possession of those devices may choose to practice enhanced clearance actions including active aeration and increased aeration time. These clearance actions are being proposed by EPA to help ensure the clearance level of 1ppm, which the agency has determined is a safe level to re-enter residences and other structures following fumigation.

As EPA works to finalize these safety measures, the agency is allowing continued use of sulfuryl fluoride as a structural fumigant because it is the only fumigant approved for residential use. Consumers should follow guidance from the pesticide applicator on how to prepare their houses for fumigation and when to reenter the house following fumigation.

In the *Draft Interim Re-entry Mitigation Measures Memorandum*, EPA is proposing the following label revisions for all sulfuryl fluoride products:

- Require more posting of warning signs to be clearer that there is no admittance to fumigation tents during fumigation;
- Require a fumigant management plan for residential fumigations;
- Require additional registrant-sponsored applicator stewardship and training; and
- Only allow use of the clearance devices shown to be effective.

In addition, EPA is proposing to require remote fumigations and aeration from outside of the fumigated space, increase aeration time to 12 to 24 hours, require active aeration (e.g. use of fans), and require portable stacks, which aligns with

California's Aeration Plan that has yielded positive results.

These proposed mitigation measures as outlined in the *Draft Interim Re-entry Mitigation Measures Memorandum*, are designed to work together to provide better protections and promote safe reentry into fumigated homes. The agency will continue to partner with the National Pest Management Association on sulfuryl fluoride device education and outreach efforts.

After a thorough review of public comments, EPA will issue the *Final Interim Re-entry Mitigation Measures Memorandum*, including the label requirements for sulfuryl fluoride products. Registrants will then have 60 days to submit revised labels reflecting these new requirements to the agency.

The public comment period is now open for 60 days for the *Draft Interim Re-entry Mitigation Measures Memorandum* and DRAs. The documents are available in docket ID number [EPA-HQ-OPP-2009-0136](#) at www.regulations.gov.

EPA is continuing to work on the remaining dietary and aggregate sulfuryl fluoride DRAs and will issue for public comment at a later date.

[Additional information on sulfuryl fluoride can be found on EPA's website.](#)

(EPA, May 25, 2021)

<https://www.epa.gov/pesticides/epa-releases-draft-risk-assessments-and-proposes-mitigation-residential-fumigation-using>

FED WATCHDOG SLAMS EPA ON DICAMBA

Senior EPA officials deliberately mishandled the agency's 2018 registration decision for three dicamba herbicides -- FeXapan, XtendiMax, and Engenia -- according to the agency's Office of Inspector General (OIG).

The OIG, a federal agency tasked with reviewing EPA decisions and policy for abuse and errors, issued a scathing report Monday, outlining a number of mistakes made by the agency, including scuttled internal scientific reviews and deliberate manipulation of scientific documents by senior EPA officials under the Trump administration. Staff scientists at the agency told the OIG inspectors that they felt "muted" and "constrained" in their ability to voice problems with the registration and at least one feared retaliation within the agency if they did so.

The OIG report echoes many of the same problems first reported on by DTN in March, based on an internal memo from a Biden EPA official condemning the dicamba registration as one of several EPA actions tainted by political interference.

Read DTN's report here: <https://www.dtnpf.com/...>

The OIG report specifically called out the involvement of three senior administrative officials, identified only by their position, at the EPA's Office of Chemical Safety and Pollution Prevention. DTN's research shows the following individuals held those named positions at the time of the 2018 dicamba registration: Charlotte Bertrand, former acting principal deputy assistant administrator, Nancy Beck, former deputy assistant administrator and Erik Baptist, former deputy assistant administrator for Law and Policy.

Staff scientists at the agency told OIG investigators that these individuals "were more involved in the dicamba decision than in other pesticide registration decisions."

"This led to senior-level changes to or omissions from scientific documents, including omissions of some conclusions addressing stakeholder risks," the report concluded.

Across the agency, other staff scientists reported a chilling effect on their opinions and concerns over the dicamba registration.

"In separate interviews, scientists from the OPP's Registration Division, EFED [Environmental Fate and Effects Division], and BEAD [Biological and Economic Analysis Division] all described feeling constrained or muted in sharing their scientific integrity concerns with senior management during the dicamba registration process," the OIG report stated.

Ultimately, the report concluded, these problems and mistakes led to a federal appeals court vacating all three herbicide registrations in June 2020. "The EPA's actions on the dicamba registration left the decision legally vulnerable, resulting in the Ninth Circuit Court of Appeals vacating the three 2018 registrations for violating FIFRA by substantially understating some risks and failing to acknowledge others entirely," the report stated.

It is not immediately clear what this OIG report's conclusions mean for current dicamba herbicides, which were registered in October 2020 and are already facing multiple federal lawsuits from environmental groups demanding they be vacated. Those groups are now calling for EPA to scrap the 2020 registrations in light of this OIG report. "After the Office of the Inspector General's damning report on the EPA's highly politicized, anti-science approach to fast-tracking the use of this harmful pesticide, the agency should cancel its recent approval, not try to defend it in court," Stephanie Parent, an attorney with one of the plaintiffs, the Center for Biological Diversity, said in an emailed statement to DTN. "The EPA knows that anything less is likely to result in yet another summer of damaged fields and lost profits for farmers choosing not to use dicamba."

In an emailed response to DTN, an EPA spokesperson said the agency is standing by the 2020 dicamba decision.

"The agency has responded to the Office of the Inspector General's report and is implementing several actions to ensure that our pesticide registration decisions are free from political interference and that the agency's scientific integrity policy is upheld," the statement said.

"The agency looks forward to productive conversations with the Office of the Inspector General as we work to resolve this matter. EPA stands by its 2020 decision made with the input of career scientists and managers."

Current EPA principal deputy assistant administrator for OCSSP, Michal Freedhoff, confirmed that the agency agrees with OIG's conclusion that EPA mishandled the 2018 dicamba decision.

"This incident occurred despite the best efforts of OCSSP's career scientists and managers to recommend a different approach that was scientifically, procedurally and legally sound," Freedhoff wrote in a formal response to OIG's report. She went on to condemn the meddling by senior EPA officials as deliberately violating the agency's own standards for scientific integrity. "The dicamba incident described in this Draft Report did not occur due to a lack of awareness of or training on the agency's Scientific Integrity Policy," Freedhoff wrote. "It occurred because OCSSP's past senior leadership consciously chose to advance a policy outcome in a manner inconsistent with the Scientific Integrity Policy."

RULES IGNORED, CHANGES MADE

All pesticide registrations must go through internal review panels, including a Product Review Panel by EPA officials in the BEAD office. That didn't happen with the 2018 dicamba registration review, the OIG concluded. Even more problematic, staff scientists told investigators that these panels -- even if they had occurred -- wouldn't have mattered, "due to significant involvement of senior management" in the final registration decision.

Some staff scientists so strongly disagreed with senior EPA officials' revisions in the final 2018 registration decision that they refused to sign the final document, the OIG report noted.

Those revisions included:

--a decision to use plant height as a standard measure of dicamba effects on plants, which went against the EPA, academic and industry standard of

using visual signs of plant injury. "This direction by senior management changed the division's scientific conclusions," the report said.

--a decision to only use dicamba injury reports counted by dicamba registrants Bayer, BASF and Corteva, rather than EPA's other data sources on injury reports. That decision would come back to haunt EPA, as "in its ruling to vacate the dicamba registrations, the Ninth Circuit Court found the dicamba damages to be substantially understated," the OIG report noted.

--the removal of several sections of EPA's original Benefits and Impacts analysis for dicamba.

"Multiple scientists said they felt directed to change the science to support a certain decision and that the reasons for senior managers' requested changes were not documented," the OIG investigators wrote.

EPA'S REPOSE

The OIG recommended EPA implement three changes to ensure these problems don't occur again at the agency: --require senior managers or policy makers to document changes made to EPA's opinions, analyses and conclusions in pesticide registrations as well as document the basis for those changes. --require verification from senior EPA administrators that EPA's Scientific Integrity Policy was reviewed and adhered to for pesticide registration decisions. --conduct annual training for all staff on the agency's commitment to that Scientific Integrity Policy

EPA agreed with the first and third recommendation, but balked at the second, given how unusual it was for senior EPA administrators to be involved in pesticide registrations, outside of the dicamba registration. OIG agreed to let this requirement stand only for registrations that involved senior staff.

But OIG remains unsatisfied with how EPA will ensure that its Scientific Integrity Policy will be followed by senior political appointees in the future. "[EPA] acknowledges that past senior managers chose to advance a policy outcome in a manner that

may be inconsistent with the Scientific Integrity Policy," the investigators concluded. "[Freedhoff] notes that, over the past few years, political interference has sometimes compromised scientific integrity. The Agency's statements support the need for safeguards to assure adherence to the EPA's Scientific Integrity Policy during the pesticide registration process, as intended by our recommendation. This recommendation is unresolved."

See the full report here: <https://www.epa.gov/office-inspector-general/report-epa-deviated-typical-procedures-its-2018-dicamba-pesticide> (Progressive Farmer, May 25, 2021) <https://www.dtnpf.com/agriculture/web/ag/crops/article/2021/05/24/senior-epa-officials-deliberately>

FLYING INSECTS NOT LIKELY TO TRANSMIT SARS-COV-2, ARS STUDIES SHOW

By early 2020, a new virus called SARS-CoV-2, the cause of Covid-19 disease, was rapidly spreading across the planet. Everyone wanted and needed information on what it was, what it did, and how it was transmitted.

Since then, the worldwide scientific community has amassed a great deal of information about the virus, and the Agricultural Research Service (ARS) is contributing to that knowledge base.

Scientists continue to research whether the virus was initially transmitted to humans from an animal. Researchers in the ARS Arthropod-Borne Animal Diseases Research Unit (ABADRU) in Manhattan, KS, in collaboration with Kansas State University, are investigating whether insects are involved in any way in the transmission of this virus. The team recently published two papers outlining their studies and findings.

In March 2021, the first study was published online in the Journal of Medical Entomology. It focused on biting insects, specifically midges and two species of mosquitoes, because of their known ability to pick up and transmit disease-causing viruses to humans and animals. The insects were allowed to feed on SARS-CoV-2-spiked blood, representing a natural route of infection, and were later tested at various times for the presence of viral RNA and infectious virus. Several insect cell lines were also tested to see if the virus could reproduce in them.

The team found that virus replication was not supported in any insects or cell lines tested.

“We conclude that these biting insects do not pose a risk for transmission of SARS-CoV-2 to humans or other animals following a SARS-CoV-2 infected blood meal,” said ARS research molecular biologist and study author Dana Mitzel.

The second study, published in the journal Parasites and Vectors in April 2021, focused on house flies because of their association with mechanically transmitting bacterial, parasitic, and viral agents to humans and animals. The team wanted to see whether house flies could acquire and transmit SARS-CoV-2 to their surroundings.

The house flies were exposed to SARS-CoV-2-spiked culture media or virus-spiked milk. (The team used reconstituted powdered milk as a substrate since it also is used as a food source for rearing the flies, and they knew the insects would readily feed upon it.) The flies were tested for virus at 4 and 24 hours after exposure. All flies exposed to virus tested positive for viral RNA, but infectious virus was only present in the flies exposed to the virus-spiked milk.

In the next experiment to check for transmission, flies were again exposed to virus-spiked milk and tested positive for virus 24 hours later. However, the flies were only able to mechanically transmit viral RNA, not infectious virus, to un-inoculated (clean) milk and test surfaces. Therefore, while some flies seemed to be able to carry infectious virus, they were not able to transmit the virus, only the virus's RNA, which is not infectious.

“We want to emphasize that this research was done under carefully controlled laboratory conditions using high amounts of virus—much more than what flies might encounter naturally. More research is needed to see if house flies can transmit infectious SARS-CoV-2 in a natural setting and if so, what the implications are for public health,” said ARS entomologist Dana Nayduch, ABADRU research leader and corresponding author on the study. “On a positive note, since we were able to detect both virus and viral RNA in flies, we potentially can use flies to monitor and detect virus in the environment. In this type of surveillance strategy, the house fly does all the work by visiting animals, including humans, and their waste. Then in the laboratory we can screen flies for evidence of the virus and know if it's out there in places the flies visited.”

(PCT Online June 1, 2021)

<https://www.pctonline.com/article/flying-insects-usda-do-not-transmit-sars-cov2/>

PLAINTIFFS OBJECT TO ROUNDUP SETTLEMENT

Bayer AG's attempts to move a Roundup settlement across the finish line in a federal court met with resistance this week as attorneys representing cancer victims objected to the proposed \$2 billion glyphosate settlement on a number of fronts.

At the beginning of February, Bayer announced it had reached a \$2 billion settlement resolving outstanding legal issues related to the herbicides glyphosate and dicamba.

During a hearing before the U.S. District Court for the District of Northern California on Wednesday, attorneys for several plaintiffs involved in the class action suit objected to details of the plan and called for the court to reject it.

The court is considering a preliminary approval of the settlement.

One provision would allow Bayer to continue to sell Roundup. The settlement also would require healthy people who have already been exposed to Roundup to relinquish their right to sue if they are later diagnosed with non-Hodgkin's lymphoma.

Attorneys for the plaintiff also objected to a provision that would limit legal options for people exposed to glyphosate who later become sick.

During a hearing Wednesday, U.S. District Court Judge Vince Chhabria expressed concern about limiting future Roundup claims.

"The concept that you're covered if you're exposed prior to a certain day and not covered if you're exposed after a certain day, usually that's used if a company has decided to take a product off the market or slap a warning label on it," he said.

In June 2020, Bayer reached a settlement of between \$8.8 billion and \$9.6 billion to resolve current and future litigation on glyphosate and dicamba. But that agreement ran into legal troubles and has not been fully finalized. Now Bayer is trying again, this time focusing on a settlement just for future claims of injury from its glyphosate herbicide, branded Roundup.

According to a Bayer news release, the settlement would establish a fund to pay between \$5,000 to \$200,000 to future plaintiffs who allege they developed cancer from glyphosate use.

The settlement would make a total of \$2 billion available and last four years.

The company would also create an advisory science panel "whose findings would not be preclusive but can be used as evidence in potential future litigation" involving class members.

The company said it would work with EPA to "provide greater transparency" and access to glyphosate studies. That would include adding a reference link on the glyphosate labels to provide consumers with access to scientific studies and information.

Bayer acquired Roundup brands as part of its \$63 billion purchase of Monsanto. Bayer continues to maintain that glyphosate is safe, regularly pointing out that the EPA and many other countries' regulatory agencies support glyphosate's continued use.

But during the past few years, Bayer has lost a number of lawsuits from plaintiffs who alleged their use and exposure to Roundup caused non-Hodgkin's lymphoma and other cancers.

In May 2019, a California jury awarded \$2.055 billion in damages to a couple that battled cancer after decades of using the product. The couple, both in their 70s, were each diagnosed with the same type of non-Hodgkin's lymphoma. The court later reduced the damages to \$86.7 million.

At the end of March 2019, a California jury awarded \$80 million to a man with non-Hodgkin's lymphoma who had used glyphosate at an animal refuge for nearly 30 years. A court later reduced the damages to \$25.2 million.

In 2018, another jury in the state awarded \$289 million to a groundskeeper with cancer who used the chemical. The award has since been reduced to \$20.5 million.

EPA reapproved an interim registration of glyphosate in January 2020. The Rural Coalition, Organizacion en California de Lideres Campesinas,

Farmworker Association of Florida, Beyond Pesticides and the Center for Food Safety filed a petition for review in March 2020.

Those groups asked a federal court to vacate the decision.

They allege EPA violated the Federal Insecticide, Fungicide and Rodenticide Act and violated the agency's duties in the Endangered Species Act by not consulting with the U.S. Fish and Wildlife Service or the National Marine Fisheries Service before issuing the decision.

Most recently, EPA released a biological evaluation of glyphosate's potential effect on endangered species and critical habitats, finding that it was "likely to adversely affect" 1,676 listed species and 759 critical habitats, the vast majority of the species and habitats the agency considered.

The agency's findings mean glyphosate will have to undergo more reviews before its routine registration review, initiated in 2009, can be completed, most likely sometime in 2021, according to EPA estimates on its website.

Read more here: <https://www.dtnpf.com/...>

(Progressive Farmer, May 21, 2021)
<https://www.dtnpf.com/agriculture/web/ag/crops/article/2021/05/21/federal-court-considers-preliminary>

SENTRIS AND GLYPHOSATE TANK-MIX COMPATIBILITY PROBLEMS REPORTED IN ARKANSAS

Several Arkansas chemical applicators have reported issues when tank-mixing products with Engenia — BASF's dicamba formulation for dicamba-tolerant crops — and the new volatility agent for Engenia, Sentris. [That's the word from Tommy Butts, Tom Barber, and Jason Norsworthy, who are University of Arkansas \(U of A\) weed scientists.](#)

The U of A weed scientists report that some applicators state that they are experiencing extreme amounts of foaming from the tank.

Picture sent from an Arkansas applicator in which a tank-mixture that included Engenia, Roundup PowerMax, and Sentris popped the lid off of the sprayer inductor tank and foamed out.

A few reports indicate enough pressure being generated to pop the lids off their spray tank, specifically inductor tanks.

VRA BACKGROUND

Volatility Reducing Agents (VRAs) are 2021 updates to the labels of approved dicamba products for use in Xtend and XtendFlex soybeans. VRAs must now be added to the tank when spraying XtendiMax, Engenia, or Tavium.

The two most common ones are VaporGrip Xtra Agent (from Bayer) and BASF's Sentris. These VRAs are required in order to adjust the pH of the spray solution to a level that reduces dicamba volatility, which is especially important when these products are applied in a tank-mix with Roundup. Other researchers have shown that the addition of Roundup in the tank can reduce the pH of the spray solution to 5 or lower, which can lead to increased volatility of dicamba.

TESTING DETAILS

[Due to these calls regarding excessive foaming, the U of A weed scientists did several small scale “jar” tests in 3-liter \(L\) bottles to determine if they could find the cause or reproduce these reported issues. http://bit.ly/Sentris-Gly-Mix.](http://bit.ly/Sentris-Gly-Mix)

The scientists evaluated multiple herbicides and VRAs. [They can be found here.](#)

The U of A weed scientists purchased Sentris from local cooperative — thus, it is a commercially available product. The water used as the carrier had been previously analyzed with the following results: pH=7.0, “Soft” hardness classification based on

calcium (Ca+2) and magnesium (Mg+2) concentrations, and minimal iron (Fe+3) and sodium (Na+) concentrations. They also conducted additional tests with distilled water.

Calculations were done to determine the amount of each chemical necessary for a 3L bottle that would match label rates and assume a 15-gallon-per-acre spray volume. They note at this time, Cornerstone Plus and Interline are both illegal tank-mixture options with Engenia (or XtendiMax and Tavium) according to the federal label, and any glyphosate product is prohibited from tank-mixture with Engenia (or XtendiMax and Tavium) in the state of Arkansas. These were included for research evaluation purposes only.

The U of A scientists also changed mixing order with several mixtures to evaluate any differences that occurred if Sentris was added into the spray solution first, or if it was added into the mix after the herbicides. Further jar tests evaluated whether the amount of initial water in the bottle (0.5L vs. 1.5L vs. 2.5L) prior to mixing altered any response. A final test was also conducted to evaluate if the addition of a defoaming agent (Foam Breaker) would alter the resulting response, they add.

RESULTS

Overall, the results indicated a severe incompatibility problem when glyphosate, Engenia, and Sentris were mixed, say the U of A scientists. [This is especially demonstrated in the corresponding video.](#)

When glyphosate, Engenia, and Sentris were mixed, a chemical reaction occurred within the solution releasing an unknown gas pressurizing the bottle, they say.

Additionally, increased foaming occurred and when the bottle was opened to release the pressure, the foam sprayed out of the bottle, they say. This was not limited to a single glyphosate product or glyphosate salt; instead, the same result occurred for each glyphosate tested (Roundup PowerMax 2, Roundup PowerMax 3, and Cornerstone Plus).

Furthermore, this was not limited to a singular water quality source, they say. The same reaction occurred even when distilled water was used as the carrier, and the results observed in these tests in Arkansas were also observed by university collaborators in other states (using different sources of Sentris), they say.

No other herbicide tank-mixtures, including Engenia plus Sentris without glyphosate, caused this increased foaming and gas release, they say. Even Interline, which is typically expected to foam more, did not result in the same level of foam production or result in a release of an unknown gas similar to the glyphosate, Engenia, and Sentris mix, they say.

Mixing order and amount of water in the bottle also did not influence this result. Per BASF recommendations, some tests included 1.5L of water (50% of final required volume), Sentris added to the bottle first and shaken, followed by the addition of Engenia and glyphosate, they say. This mixing order still resulted in the chemical reaction occurring, gas being produced, and high levels of foam spewing from the cap, they say. Although this mixing order did not solve the problem at hand, since Sentris and VaporGrip Xtra are considered water conditioning adjuvants, it is still recommended that these products be added to the tank first to begin conditioning the water prior to the addition of any other products, say the U of A scientists.

When Foam Breaker was added into the spray solution first, the glyphosate, Engenia, and Sentris mixture resulted in little to no foam occurring; however, the same unknown gas was still produced significantly pressurizing the bottle, say the scientists. Finally, the tank-mixture of glyphosate, Engenia, and VaporGrip Xtra did not result in any negative compatibility issue as far as increased foaming or gas production, they add.

There was an incompatibility identified when tank-mixing Engenia, glyphosate, and Sentris resulting in a significant increase in foaming and an unknown gas that pressurized the bottle, say the U of A

scientists. This increased foaming has also resulted in other reports of problems effectively spraying the tank-mixture and maintaining an appropriate spray pattern. It is once again important to note that this tank-mixture is prohibited within the state of Arkansas, they add.

But, if used outside of Arkansas, the U of A weed scientists say to avoid the tank-mixture of glyphosate and Engenia (or XtendiMax and Tavium) due to herbicide antagonism, improper nozzle options for grass control, and now the recently identified incompatibility between the VRA Sentris and Engenia plus glyphosate. If glyphosate must be mixed with Engenia, it is recommended to use VaporGrip Xtra as the mandatory VRA tank-mix partner as the incompatibility issue was not observed with this VRA, they say. University testing of Sentris was extremely limited prior to its commercialization, and as a result we are learning as we go, they say.

Further tests will be conducted in the future to better understand this reaction, and search for solutions for our farmers and applicators, say the U of A weed scientists.

UNIVERSITY OF MISSOURI TESTS

University of Missouri (MU) weed scientists also conducted a test after hearing about potential problems in Arkansas. [Use rates and herbicides can be found here.](#)

The MU researchers evaluated these products in a variety of different mixing order configurations. The mixing order did not impact any of the results as far as the MU scientists could see. The pH of the water in this mix was 7.57.

The accompanying figure shows the four different tank mixes approximately 10 minutes after they were made.

From left to right, the mixes and mixing orders are listed accordingly: 1) Roundup Powermax, Engenia, Sentris; 2) Sentris, Engenia, Roundup Powermax,

NIS; 3) Sentris, Roundup Powermax, Engenia, OnTarget; 4) Sentris, Roundup Powermax, Engenia.

Slight differences occurred in foam, but no major differences occurred within the bottles.

The MU weed scientists say they do not know exactly why their results differ from what others have seen. It may be related to spray solution pH, tank-mix partners, or perhaps the different lot numbers of Sentris used, they say.

Even though they did not see the pressure issues that others have reported, the MU weed scientists note that several other weed scientists have replicated this problem. They add it is important for Missouri applicators to be aware of these potential issues as Missouri farmers approach the time when they'll be making post-emergence herbicide applications to XtendFlex soybeans.

WHAT BASF SAYS

BASF released this statement in response to the U of A study.

We are aware of the blog and videos posted by the University of Arkansas regarding mixes of Sentris Buffering Technology, Engenia herbicide, and glyphosate in 3L bottles. The mixing, immediate capping of the bottles, and agitation does not represent any real-world scenario encountered by applicators when using Sentris Buffering Technology.

BASF remains confident in the performance of Sentris buffering technology, and we want to reassure applicators that it is safe to use as a pH buffering adjuvant with approved tank mix applications that contain dicamba and glyphosate for over-the-top applications on dicamba-tolerant soybean and cotton.

Sentris buffering technology has been used successfully in BASF trials and by applicators in the field during the 2021 season. BASF has not received any complaints regarding Sentris

Buffering Technology and glyphosate when the proper mixing order has been followed.

(Successful Farming, May 25, 2021)
<https://www.agriculture.com/crops/crop-protection/sentris-and-glyphosate-tank-mix-compatibility-problems-reported-in-arkansas>

KILLING BUGS WITH CORNSTARCH

Who says oil and water don't mix? They do if you add cornstarch.

The USDA's [National Center for Agricultural Utilization Research](#) is working on the [process of converting cornstarch and other biobased ingredients](#) into a new class of materials called "amylose inclusion complexes". They may someday have endless uses – and increase the value of corn.

Bob Behle is a research entomologist working on the project. He says in one study, the material creates a protective film which shows promise for keeping biopesticides on a plant longer.

"Wash off by rain is always an issue. So, my interest was that this inclusion complex could be used as a formulation ingredient to treat a plant. The material would stick to it and hold my beneficial microbes on the plant in the case of rain," says Behle.

Another possible use for the cornstarch emulsion – mosquito control. There are some plant-based essential oils that are toxic to mosquito larvae in the water. The problem is these essential oils don't like to mix with water. Behle says they found a way.

"By using the amylose inclusion complex we were able to create very stable emulsions in particle sizes that the mosquitoes would feed on in the water column," he says. "And so, as the mosquitoes are feeding, they're actually taking up the essential oil which would then be detrimental to them."

Cornstarch can also be used in formulations to put the kibosh on wood-damaging termites and rot-causing fungi, including species that cause stored potatoes to go bad.

(Successful Farming, August 24, 2024)

<https://www.agriculture.com/podcast/successful-farming-radio-podcast/killing-bugs-with-cornstarch>

STUDY EXAMINES WHERE IN THE U.S. LYME DISEASE RISK IS GREATEST

Lyme disease, which is carried by ticks, can lead to numerous debilitating health conditions and even death. In the latest research from the Lerner Center for Public Health Promotion at Syracuse University, Lerner Graduate Fellow Mary Helander describes the geographic distribution of Lyme disease in the U.S. and summarizes prevention strategies. Here are the key takeaways from the study:

- Over 30,000 Lyme disease cases are reported in the U.S. each year.
- Lyme disease incidence is highest in the Northeast and upper Midwest.
- While the 10-year trend for the national incidence rate overall is relatively flat, rates in 75 counties have been trending downward (primarily in Wisconsin), while rates in 285 counties (primarily in the Northeast) have continued to trend upward.
- Clear, concise, consistent and ongoing public health messaging, in addition to accurate county and state-level reporting and surveillance, are key to combatting Lyme disease.

Read more about this study in the research brief [“Lyme Disease in the U.S.: Where is Risk Highest?”](#)

(PCT Online, May 12, 2021)

<https://www.pctonline.com/article/lyme-disease-greatest-risk-study-syracuse/>

CEU Meetings

Please note that many of these meetings are now being done virtual. Please contact the meeting host directly if you have any questions.

Date June 10, 2021

Title: Payne County Pasture Tour

Location: Payne County

Contact: Nathan Anderson (405)-747-8320

| CEU's: | Category(s): |
|--------|--------------|
| 1 | 1A |
| 1 | 1B |

Date June 10-11, 2021

Title: Oklahoma Pecan Growers Association Annual Conference

Location: Stoney Creek Hotel & Conference Center, 200 W Albany St, Broken Arrow

Contact: Becky Carroll (405)-744-6139

<https://www.okpecangrowers.com/events/2021-annual-convention-trade-show>

| CEU's: | Category(s): |
|--------|--------------|
| 3 | 1A |
| 3 | 10 |

Date September 7-9, 2021

Title: ENSYSTEEX - 2021 CEU Workshop

Location: TBA

Contact: Don Stetler (281) 217-2965

| CEU's: | Category(s): |
|--------|--------------|
| 2 | 7A |
| 6 | 7B |

ODAFF Approved Online CEU Course Links

Online Pest Control Courses

<https://www.onlinepestcontrolcourses.com/>

PestED.com

<https://www.pested.com/>

Certified Training Institute

<https://www.certifiedtraininginstitute.com/>

WSU URBAN IPM AND PESTICIDE SAFETY EDUCATION PROGRAM

<https://pep.wsu.edu/rct/recertonline/>

CEU University

<http://www.ceuschool.org/>

Technical Learning College

<http://www.abctlc.com/>

All Star Pro Training

www.allstarce.com

Wood Destroying Organism Inspection Course

www.nachi.org/wdocourse.htm

CTN Educational Services Inc

http://ctnedu.com/oklahoma_applicator_enroll.html

Pest Network

<http://www.pestnetwork.com/>

Veseris

<http://www.pestweb.com/>

AG CEU Online

<https://agceuonline.com/courses/state/37>

Target Specialty Products Online Training

<https://www.target-specialty.com/training/online-training>

For more information and an updated list of CEU meetings, click on this link:

<http://www.kellysolutions.com/OK/applicators/courses/searchCourseTitle.asp>

ODAFF Test Information

Testing will be done at testing centers in multiple locations around the state by PSI Services LLC.

For more information and instructions, please go to

<https://bit.ly/3sF4y0x>.

Reservation must be made in advance at

www.psiexams.com/ or call **855-579-4643**

PSI locations.

Oklahoma City I 3800 N Classen Blvd, Ste C-20, Oklahoma City, OK 73118

Oklahoma City II NW 23rd St and Villa Avenue, Suite 60, Shepherd Mall Office Complex, Oklahoma City, OK 73107

Tulsa 2816 East 51st Street, Suite 101, Tulsa, OK 74105

McAlester 21 East Carl Albert Parkway (US Hwy 270), McAlester, Oklahoma 74501

Woodward 1915 Oklahoma Ave, Suite 3, Woodward, OK 73801

Lawton Great Plains Technology Center, 4500 West Lee Blvd Building 300- RM 308, Lawton, OK 73505

Enid Autry Technology Center, 1201 W. Willow Rd, Enid, OK 73703

Ponca City Pioneer Technology Center, 2101 N Ash, Ponca City, OK 74601

Norman Moore Norman Technology Center, 4701 12th Ave NW, Norman, Oklahoma, 73070

If you have questions on pesticide certification. Please email or call:

Kevin Shelton

405-744-1060 kevin.shelton@okstate.edu or

Charles Luper

405-744-5808 charles.luper@okstate.edu

**Pesticide Safety
Education Program**