

PESTICIDE REPORTS

Division of Agricultural Sciences and Natural Resources • Oklahoma State University
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CHEM

- 1 FALL TEST HELP WORKSHOPS3 EPA RELEASES DRAFT ASSESSMENT OF EFFECTS OF SULFOXAFLOR ON ENDANGERED SPECIES FOR PUBLIC COMMENT
- 2 EPA MAKES DRAFT RISK ASSESSMENTS AVAILABLE FOR DICAMBA AS THE NEXT STEP IN THE REGISTRATION REVIEW PROCESS
- 3 EPA FINALIZES EXTENSION OF THE CERTIFICATION OF PESTICIDE APPLICATORS RULE DEADLINE
- 4 UF STUDY SHEDS LIGHT ON HOW LONG CAN FORMOSAN TERMITE COLONIES LIVE
- 5 GLUFOSINATE-RESISTANT PALMER AMARANTH IN MISSOURI
- 6 ESA RENAMES ASIAN GIANT HORNET
- 6 COURT REVERSES \$60 MILLION PUNITIVE DAMAGE AWARD IN DICAMBA CASE
- 10 EPA REPORTS DICAMBA OFF-TARGET INCIDENTS SHARPLY INCREASED SINCE 2016
- 11 CEU MEETINGS
- 12 ONLINE CEU LINKS
- 13 ODAFF TEST INFORMATION

FALL TEST HELP WORKSHOPS

The Oklahoma State University Pesticide Safety Education Program (PSEP) has scheduled test help workshops for October 26 in Oklahoma City and October 28 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 is also at that website as well as future 2022 classes.
(OSU PSEP)

EPA MAKES DRAFT RISK ASSESSMENTS AVAILABLE FOR DICAMBA AS THE NEXT STEP IN THE REGISTRATION REVIEW PROCESS

The U.S Environmental Protection Agency (EPA) is releasing for public comment a second addendum to the [2016 draft human health risk assessment](#) and a draft ecological risk assessment for dicamba, an herbicide used to control a variety of broadleaf weeds. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) requires the Agency to re-evaluate pesticides every 15 years to ensure that risk assessments and pesticide decisions reflect the best available science. The draft risk assessments (DRAs) are part of the legally required registration review process to identify risks as well as actions that can mitigate those risks for all registered uses across all dicamba products.

Dicamba is an herbicide used to target annual, biennial, and perennial broadleaf weeds in agricultural and non-agricultural settings. The herbicide is registered for use on agricultural crops such as corn, cotton, sorghum, soybeans, sugarcane, and other crops. Some dicamba products can be sprayed over-the-top (OTT) of genetically engineered soybeans and cotton after the crops have emerged from the ground. Non-agricultural use settings include grasslands, golf courses, brush, residential areas, and other non-agricultural settings. In general, non-OTT products are applied earlier in the growing season before crop emergence and OTT product are applied later in the growing season after crop emergence. However, because non-OTT dicamba selectively removes broadleaf weeds in grass use sites, it can also be used later in the season for grass sites (e.g., corn, turf, pasture).

The registration review DRAs are the result of an extensive evaluation of available data on dicamba's potential human health and environmental impacts, and cover all registered uses on all products, including both the OTT and non-OTT uses and products.

Human Health Risk Assessment

In March 2016, EPA issued a human health risk assessment for proposed new uses of dicamba. The

March 2016 new use risk assessment identified no inhalation risks of concern, except for certain occupational handler activities. In May 2016, EPA issued an addendum that expanded the March 2016 assessment to include additional formulations and application methods to capture all uses subject to registration review. The May addendum identified additional inhalation risks of concern for certain occupational handler activities. In 2021, EPA completed a second addendum that superseded both of the 2016 assessments to reflect updated occupational handler exposure data. Based on the updated data, the addendum only identifies occupational handler inhalation risks of concern for mixing/loading of dry flowable formulations for aerial and groundboom applications. EPA found no dietary, residential, aggregate, or post-application risks of concern. Today, the Agency is issuing the 2021 addendum for public comment.

Ecological Risk Assessment

The draft ecological risk assessment also released today identifies potential adverse effects to non-listed birds, mammals, bees, freshwater fish, aquatic vascular plants, and non-target terrestrial plants. The primary risk of concern is for non-target terrestrial plants from exposure through spray drift and volatilization. Numerous non-target plant incidents have been reported to be associated with the use of dicamba. Since the initial registration of OTT uses in 2016, there has been a substantial increase in the overall number of reported non-target plant incidents which appear to be linked to the OTT uses. EPA continues to monitor the incidents information for dicamba.

This draft risk assessment does not include an analysis under the Endangered Species Act (ESA) of risk to listed species and critical habitats.

Upon publication of the Federal Register notice, public comments will be accepted for 60 days in the dicamba registration review docket [EPA-HQ-OPP-2016-0223](#) at www.regulations.gov.

Next Steps

After reviewing and considering the public comments received on the DRAs, EPA will proceed with the next step in the FIFRA registration review process, which is the proposed interim decision (PID), expected to be completed in 2023. The PID may include potential risk

mitigation to address any potential risks of concern identified in the dicamba DRAs.

Additionally, in [December 2021](#), EPA released a summary of OTT dicamba-related incident reports from the 2021 growing season. The 2021 incidents were primarily associated with drift and/or volatilization. Despite the control measures implemented in EPA's October 2020 dicamba registration decision, [the 2021 incident reports](#) showed little change in number, severity, or geographic extent of dicamba-related incidents when compared to the reports it received before the 2020 control measures were required. EPA is currently working with states and affected stakeholders to gather available incident information for the 2022 growing season.

EPA is reviewing whether OTT dicamba can be used in a manner that does not pose unreasonable risks to non-target crops and other plants, or to listed species and their designated critical habitats. EPA is also evaluating all regulatory options for addressing future dicamba-related incidents.

EPA's decisions will continue to consider information submitted by, as well as discussions with, scientists, academics, state agriculture extension agents, pesticide registrants, growers, the U.S. Department of Agriculture, the Association of American Pesticide Control Officials, and the State FIFRA Research and Evaluation Group. The Agency is committed to acting in a transparent manner, following well established regulatory processes, while upholding its mission of protecting human health and the environment.

Additional information on dicamba can be found on [EPA's website](#). (EPA, August, 18, 2022)
<https://www.epa.gov/pesticides/epa-makes-draft-risk-assessments-available-dicamba-next-step-registration-review-process>

EPA FINALIZES EXTENSION OF THE CERTIFICATION OF PESTICIDE APPLICATORS RULE DEADLINE

The U.S. Environmental Protection Agency (EPA) issued a final rule extending the deadline for states, tribes, and federal agencies with existing certification plans to comply with the updated federal standards under the 2017 Certification of Pesticide Applicators rule. State, territory, tribal, and federal authorities can continue existing applicator certification programs until November 4, 2023. After that date, only authorities with EPA-approved modified certification plans can continue to certify applicators of restricted use pesticides (RUPs).

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requires authorities to have an EPA-approved certification plan to certify applicators of RUPs. In 2017, EPA updated the [Certification of Pesticide Applicators](#) regulations, setting stronger standards for people who apply RUPs. All states, territories, tribes, and federal authorities with existing certification programs have submitted modified plans to the EPA for review and approval. To date, of the nation's 68 certification programs, EPA has reviewed all proposed modified plans and has approved seven plans (four from state lead agencies, three from federal agencies), which are now starting to be implemented.

For the existing certification plans that remain to be finalized, EPA issued a short-term extension to the original expiration deadline of March 4, 2022 and requested comment on a proposal to further extend the deadline for expiration, in part because of the impact of the COVID-19 public health emergency on certification programs, as well as the complexity of EPA's review of plans. EPA has carefully considered stakeholder and co-regulator comments and has assessed the progress of final revisions and approvals to help determine an appropriate length of time for an extension and is confident that it can finish approving all plans before the new November 4, 2023 deadline.

This extension avoids disruptions to authorities' certification programs, and to those who are certified to use RUPs under those programs. The implementation of revised certification plans and programs is crucial to reducing potential RUP exposures to certified applicators and those working under their direct supervision, other workers, the public, and the environment.

This extension will also give EPA and its co-regulators the needed time to ensure that the revised plans meet federal standards to achieve these goals.

[Read the final rule with the new deadline](#). More information is also available in docket [EPA-HQ-OPP-2021-0831](#) at www.regulations.gov.

(EPA, August 19, 2022)
<https://www.epa.gov/pesticides/epa-finalizes-extension-certification-pesticide-applicators-rule-deadline>

UF STUDY SHEDS LIGHT ON HOW LONG CAN FORMOSAN TERMITE COLONIES LIVE

Social insects such as ants and termites have changed many of the rules on how scientists understand biology. For centuries, that has led researchers to ask how such organisms could have evolved to be so successful.

However, a team of University of Florida entomologists in Fort Lauderdale finally provides a first-time look inside the remarkably long life span of several Formosan subterranean termite colonies.

UF/IFAS scientists learned that each termite colony may attempt different strategies to optimize their chances of survival and reproductive success.

“Scientists have often observed ant and termite colonies during short periods of time to study fascinating behaviors from these complex social animals,” said [Thomas Chouvenc](#), an assistant professor of urban entomology at the [UF/IFAS Fort Lauderdale Research and Education Center \(FLREC\)](#). “However, no one was able to follow the demographic history of a whole colony through its entire life, which can last decades.”

In an unprecedented effort initiated in 1986 by UF/IFAS Distinguished Professor Nan-Yao Su, also in Fort Lauderdale, scientists monitored colonies of the Formosan subterranean termites in the field on a

monthly basis, until 2009 when the project was stopped.

“The outcome of this effort resulted in a treasure trove of information, revealing unknown aspects of a termite colony’s complex biology, and it provided unique explanations on why some subterranean termite species can be so good at being problematic pests to buildings,” Chouvenc said.

“With more than 15,000 data points and a dozen of different variables from many colonies collected over decades, it took us dozens of independent studies and more than an additional decade to analyze this dataset and make sense out of it,” Chouvenc said.

For the first time, the researchers observed the changes in the population structure within four independent termite colonies over a period ranging from 10 to 24 years of monitoring. Scientists revealed that a mature termite colony can seasonally produce thousands of alates, the winged termites that fly away to make new colonies, every year and for several decades.

“We initially thought that all four colonies would be following similar demographic and reproductive patterns. However, each colony had a unique profile, to the point that we concluded each colony can display a unique demographic individuality” Chouvenc said.

The UF/IFAS researchers also found that colonies may lose their initial primary king and/or queen but can produce many secondary reproductive queens and kings to maintain reproductive output through long inbreeding cycles.

“What was fascinating about these findings is that some colonies failed to produce replacement queens and kings, and died after a three-year period of colony senescence,” Chouvenc said “On the opposite side, some colonies were able to produce more than 1,300 replacement queens and kings and continue thriving for more than a decade.”

In fact, this dataset revealed that each colony demographic trajectory is unique through their perennity, he said.

“Now that we know how complex and diverse this is, we can now take this information into account for the implementation of future pest control solutions.” Chouvinc noted.

The [study](#), published in *Frontiers in Ecology and Evolution*, showed that a mature Formosan termite colony has many options and strategies to optimize its reproductive output, and can switch from one strategy to another over the decades to survive.

Chouvinc also likened the finding to the changes that happen in a big city over time, such as the changes in demographic composition, building architecture, economic productivity over a 75- to-100-year history.

“In termites, it’s similar but at a different scale where the colony goes through a generational turnover every three to four years. A colony demographic outcome changes because of shifts in reproductive strategies, physiological flexibilities and environmental changes,” noted Chouvinc. “In a way, just like our cities, termite colonies are resilient and change over generations. So as each city is unique, each termite colony is just as unique,” concluded Chouvinc

(PCT Online August 23, 2022)

<https://www.pctonline.com/article/uf-study-formosan-termites-colonies-live/>

GLUFOSINATE-RESISTANT PALMER AMARANTH IN MISSOURI

Palmer pigweed just keeps getting more stubborn.

University of Missouri Extension researchers have confirmed the first case of glufosinate-resistant Palmer amaranth in southeast Missouri.

The confirmation of glufosinate resistance marks at least the fourth herbicide family that Palmer amaranth has shown resistance to in Missouri crops, including soybeans and cotton: ALS inhibitors (Group 2), PPO inhibitors (group 14), ESPS inhibitors (Group 9) and now glutamine synthetase inhibitors (Group 10), according to a University of Missouri news release.

"That is not to say all (weed) populations are resistant to all of these groups, but it illustrates Palmer's ability to adapt and the potential for populations to become resistant to multiple modes of action," said Jim Heiser, MU Extension researcher at the Fisher Delta Research, Extension and Education Center in Portageville, Missouri.

In 2016, researchers identified a population of Palmer amaranth with resistance to glyphosate (Group 9) and PPO (Group 14) north of St. Louis in the Mississippi River bottoms. Screenings for resistance began in 2007.

In the most recent study, researchers collected 60 samples from eight southeastern Missouri counties in 2020. They confirmed only one resistant sample in a Butler County soybean field, but Heiser said in the news release that resistance is likely to occur in more fields due to pollen spread and with testing of additional populations.

Arkansas and Mississippi have also confirmed populations of glufosinate-resistant Palmer amaranth. Read more here: [https://www.dtnpf.com/...](https://www.dtnpf.com/)

University of Missouri weed scientist Kevin Bradley told DTN the population found in the Bootheel region of the state wasn't a big surprise given the selection pressure being put on glufosinate. The postemergence herbicide, which is also sold under the trade name Liberty, has become increasingly used with the introduction of new herbicide trait platforms and as weeds have shown resistance to other postemergence herbicides.

So far, Palmer amaranth has been identified in 45 counties in Missouri of the 114 counties in the state. Populations are more concentrated in the Bootheel region of the state, while waterhemp thrives better to the north, Bradley said. "I would assume we have glufosinate resistant waterhemp in Missouri too. It just a matter of how long before we find it," he told DTN.

Palmer amaranth is a gnarly adversary -- it spreads and adapts quickly to herbicide and is a prolific seed producer. For more on how to identify Palmer amaranth go to: [https://www.dtnpf.com/...](https://www.dtnpf.com/)

Cotton, Inc., helped fund the multistate screening project that included MU, University of Arkansas, University of Tennessee and Mississippi State University. The team's research was published in the scientific journal *Planta*, which can be read here: <https://link.springer.com/...>

Find the complete news release here: <https://extension.missouri.edu/news/glufosinate-resistant-palmer-amaranth-found-in-missouri-bootheel-5764>

(Progressive Farmer, August 26, 2022)
<https://www.dtnpf.com/agriculture/web/ag/crops/article/2022/08/26/glufosinate-resistant-palmer>

ESA RENAMES ASIAN GIANT HORNET

The Entomological Society of America (ESA) has adopted 'northern giant hornet' for the species *Vespa mandarinia* in its Common Names of Insects and Related Organisms list. While there was no official ESA common name until now, the hornet has been most often referred to as 'Asian giant hornet' or "murder hornet" since its introduction in North America became widely known in 2020.

The Washington State Department of Agriculture (WSDA) is following ESA's recommendation and will begin referring to *V. mandarinia* as 'northern giant hornet' and will also update its website and printed materials to reflect the newly established ESA common name in the coming weeks.

The proposal to establish an ESA common name for *V. mandarinia* came from Dr. Chris Looney, who has been actively involved in WSDA's hornet research and efforts to eradicate northern giant hornet from Washington.

In conjunction with "northern giant hornet," ESA also adopted Looney's proposals for "southern giant hornet" as the common name for the species *Vespa soror* and 'yellow-legged hornet' for *Vespa velutina*. *Vespa soror* is a closely related – and – similarly large species to *V.*

mandarinia, and the descriptors 'northern' and 'southern' refer to the species' native geographic ranges in Asia.

The new official common names are intended to comply with ESA's insect common names guidelines, which include avoiding naming insects using geographic regions. The new names should also help reduce confusion between *V. mandarinia* – which had been known as Asian giant hornet – and *V. velutina* – which had been known as the Asian hornet.

The northern giant hornet is an invasive hornet native to Asia that has been the target of eradication efforts in Washington state, USA and British Columbia, Canada after individual hornets were first discovered in both locations in 2019. WSDA entomologists have eradicated four northern giant hornet nests since they were first discovered in the state.

Learn more about the northern giant hornet on [WSDA's hornet webpage](#).

(PCT Online, August 4, 2022)
<https://www.pctonline.com/article/esa-renames-giant-hornet/>

COURT REVERSES \$60 MILLION PUNITIVE DAMAGE AWARD IN DICAMBA CASE

The United States Court of Appeals for the Eighth Circuit recently vacated a \$60 million punitive damage verdict in a dicamba lawsuit filed by a Missouri peach farmer.

Background

Dicamba is a herbicide product that kills broadleaf weeds. Traditional dicamba formulations also kill growing crops, and thus, dicamba was not used as an over-the-top herbicide during the growing season. That changed, however, when Monsanto developed dicamba-tolerant soybean and cotton seeds. The seeds, Xtend, were released in 2015. However, at that time, there was no corresponding dicamba herbicide labeled for over-

the-top use. Realizing that this created the potential for off-label use of off-label dicamba, Monsanto gave warnings to growers purchasing the Xtend seeds that applying dicamba to the crop was illegal. Despite these warnings, there was significant off-label dicamba use around the country. In Missouri alone, 115 complaints of dicamba drift were filed in 2016. Monsanto's XtendiMax herbicide, which was labeled for over-the-top use, was approved in November 2016 and BASF's Engenia herbicide was approved in early 2017.

Bader Farms operates peach orchards in Missouri. They filed suit against Monsanto and BASF for negligent design and failure to warn after their orchards were damaged by dicamba drift from 2015-2019. The case was tried to a jury and a verdict of \$15 million in compensatory damages and \$250 million in punitive damages rendered in favor of Bader Farms. The trial court reduced the punitive damage amount to \$60 million and held both Monsanto and BASF jointly and severally liable for both actual and punitive damages even though the jury instruction on punitive damages only referred to Monsanto.

Monsanto and BASF appealed.

Appellate Court Opinion

The United States Court of Appeals for the Eighth Circuit reversed in part vacating the award of punitive damages and remanded for a new trial on punitive damages, but affirmed on all other grounds. [Read Opinion [here](#).]

Causation

Monsanto and BASF argued that Bader Farms failed to prove causation in this case. Specifically, the companies claimed (1) Bader Farms could not identify whose dicamba product harmed the trees, and (2) the third-party misuse of dicamba was an intervening cause so there was no proximate causation.

Whose product caused the damage?

The companies relied on two cases requiring proof of which defendant's product caused the damage. In *Zafft*,

a plaintiff sued 13 manufacturers of a medication claiming it caused her cancer. The court dismissed the case because she failed to prove which party's product caused the damage. Similarly, in *City of St. Louis v. Benjamin Moore & Co.*, the court dismissed a case against 9 lead paint manufacturers because there was no way to prove which manufacturer's product caused the damage.

These cases, the court noted, were different than the instant case. Although it is true that Bader Farms cannot identify whose dicamba product damaged the peach trees, "the dicamba itself is not the injury producing agent here. The jury believed that Bader would not have been injured but for the dicamba-tolerant *seed* sold before farmers could get the low-volatility dicamba." Thus, the theory of causation is that but for the seed, the neighbors would not have sprayed dicamba during the growing season. The only dicamba-tolerant seed is Monsanto's Xtend seed, meaning Plaintiffs did specially identify the party who produced the damage-causing product.

Proximate cause

Next, Monsanto and BASF argued that because third-party farmers used dicamba herbicides illegally despite express warnings, that broke the chain of proximate causation and, therefore, the companies cannot be held liable. The court disagreed.

When looking at proximate cause, courts consider foreseeability. Additionally, "when two or more persons commit successive acts of negligence, the first person's negligence is not the proximate cause of injury when there is an 'efficient intervening cause.' Even if third-party acts are foreseeable, they may constitute an intervening cause."

Here, the court held that the off-label misuse of dicamba herbicides during the growing season was certainly foreseeable; actually, it was foreseen by Monsanto. This is why there were warnings with the seeds and a communication campaign once the seeds were launched. The closer question, says the court, is whether the third-party farmers' use of the dicamba during the growing season despite Monsanto's warnings and the law, is an intervening cause.

The court noted here that the third-party farmers, while independent from Monsanto, did have a direct relationship with Monsanto through growers' licenses and technology use terms. "Monsanto therefore exercised some degree of control over their acts." Additionally, the primary benefit of the Xtend seeds was tolerance to dicamba. In 2015-2016, the third-party farmers could not receive that benefit without misusing dicamba products.

The court did note that a reasonable jury could have found intervening cause in this case, the court held that the trial court properly declined to find an intervening cause as a matter of law. Monsanto argued that failure to give a proximate cause instruction to the jury was an error, but the court disagreed and affirmed.

Compensatory Damages

Monsanto and BASF argued that the compensatory damages were based on the wrong legal standard. The issue here is what is the proper measure of compensation when trees are damaged. Generally speaking under Missouri law, when fruit trees are damaged the proper measure of compensation is the difference in value of the land before and after the damage to the trees. However, there is an exception to this general rule when the owner of the trees is not the owner of the land. It does not make sense to award damages based on damage to land to a party who does not, in fact, own that land. Instead, in the situation where there is a separate tree owner, the proper measure of damages is lost profits.

The court found this to be the situation here. Bill Bader testified that he owned the orchard land individually and that no peaches were grown on any land owned by Bader Farms (the plaintiff in the case). Thus, because the plaintiff was not the owner of the land, the court held lost profits were the proper measure of damages.

Next, the companies also argued that Bader Farms' lost profit estimate was impermissibly speculative. The court disagreed. "The lost-profits damages awarded to Bader did not rest upon mere speculation. The orchard had been productive for decades, and Bader provided financial statements showing peach revenues averaged \$2,285,354 from 2011-2014. Bader's agricultural economist expert calculated about \$20.9 million in

actual damages based on a number of factors including acre maturity, tree lifespan, historical yield, interest rate on the operating note, time value of money, and budgets projecting maintenance costs. Although Monsanto and BASF offered competing evidence, the court noted that it is up to the jury to weigh evidence. Here, there was an adequate basis for the lost profits award.

Joint and Several Liability

BASF argues that the jury improperly found Monsanto and BASF jointly and severally liable for damages as joint venturers and co-conspirators.

Joint venture

To prove a joint venture in Missouri, a plaintiff must show: (1) an agreement among members of the group; (2) a common purpose to be carried out by the group; (3) a community of pecuniary interest in that purpose among the members; and (4) equal right to a voice in the direction of the enterprise, which gives an equal right of control. The first three exist in this case as the parties entered into express agreements related to dicamba, seeking to accomplish the goal of developing dicamba-tolerant seed, and although Monsanto owned the seed, BASF received value share payments for every acre of Xtend seed.

The question is whether BASF had equal control over the direction of the enterprise. The trial court relied on agreements between Monsanto and BASF that created an Alliance Management Team with equal representation and alternating chairs. Through this team, the companies worked together to develop the dicamba tolerant seed by conducting trials and studies, registering herbicides, recommending labels, forecasting seed volume, and coordinating a launch strategy. The trial court concluded this structure provided the parties joint control and raised a sufficient question of fact about equal control to go to the jury. However, before trial, Monsanto filed a stipulation making clear that it was Monsanto's sole decision to release the seeds in 2015. BASF had no control over how, when, or whether the seed would be released and, therefore, did not have equal control over the enterprise. Thus, the appellate court found there was no joint venture.

Co-conspirators

In Missouri, civil conspiracy is an agreement or understanding between two or more parties to do an unlawful act or use unlawful means to do a lawful act. The court found there was sufficient evidence to support the jury's finding that Monsanto and BASF acted as co-conspirators. Monsanto and BASF agreed to use unlawful means (knowingly enabling widespread off-label use of dicamba during growing season) to increase the sales of Xtend seed. Under the terms of their agreements, both companies took acts in furtherance of this unlawful objective, agreeing to share access to testing data, share materials, share in costs of testing, and make capital expenditures to fulfil their obligations. Both parties engaged in marketing campaigns in 2015. Thus, as a member of the conspiracy, BASF is jointly and severally liable for the plaintiff's actual damages.

Punitive Damages

The companies make three challenges to the punitive damage award: (1) punitive damages not submissible under Missouri law; (2) BASF argues the instruction should have been to assess punitive damages against Monsanto only; and (3) the amount awarded was unconstitutionally excessive.

Submission of instruction

Monsanto and BASF argue there should not have been a punitive damage instruction submitted to the jury. Missouri law allows for punitive damages only with clear and convincing evidence that the defendant "acted with either an evil motive or a reckless indifference to the plaintiff's rights." Factors against the submission of punitive damages include that a defendant did not knowingly violate a statute, regulation, or clear industry standard, prior similar occurrences known to the defendant are infrequent, and the injurious event was unlikely to have occurred without negligence on the part of someone other than the defendant.

As to the first factor, Monsanto argued that it was undisputed they did not sell the seeds illegally as they had regulatory approval from USDA. But, the court pointed out, there was significant evidence that

Monsanto acted to prevent testing of volatility to ensure approval. Second, Monsanto argued that when the seeds were launched, there were very few instances of dicamba drift. The court responded, "But of course there were—before dicamba-tolerant seed, farmers had no reason to spray dicamba during growing season." The issue is that Monsanto released the dicamba-tolerant seed without a corresponding approved herbicide, despite knowing that farmers would likely use older dicamba formulations off label. Monsanto pointed out that as to the third factor, there was negligence by the third-party farmers. True, the court noted, but Monsanto chose not to enforce licenses to prevent off-label dicamba use and refused to investigate complaints of damage in 2015 or 2016. The court held this was clear and convincing evidence that Monsanto and BASF acted with reckless indifference and that a punitive damage instruction was proper.

Punitive damage award against BASF

The instruction given to the jury did not mention BASF, only Monsanto. BASF argues that punitive damages should not have been awarded absent a finding of BASF's individual wrongdoing. Under Missouri law, defendants have a right to have their conduct considered separately for the purpose of determining punitive damages. If the defendants formed a joint venture, joint and several liability for punitive damages may be warranted, but as noted above, the court held they did not do so. They were found to be co-conspirators, but that fact does not change the rule that punitive damages assessed against several defendants must be assessed separately. This is particularly true where there may be different degrees of culpability and wealth of the defendants. The court found this to be the case here and held that the court should have instructed the jury to separately assess punitive damages against Monsanto and BASF.

Bader argues that BASF waived its right to this separate assessment because it did not properly object to the lack of apportionment, object to testimony of Monsanto's net worth, or present argument during the punitive damages phase. The court disagreed. First, prior to trial, the court granted BASF's motion to dismiss Bader Farms' claim against BASF for joint liability for any punitive damage award. Then, when Bader proposed the joint and several punitive damage award after the trial, BASF

filed a timely motion to alter the judgment. This sufficiently preserved BASF's argument.

Based on this, the court vacated the punitive damage award and remanded the case with instructions to hold a new trial on the sole issue of punitive damages. In light of this, the court did not need to address whether the amount of the vacated punitive damage award was unconstitutionally excessive. (Southwest FarmPress, August, 1, 2022)

<https://www.farmprogress.com/herbicide/court-reverses-60-million-punitive-damage-award-dicamba-case>

EPA REPORTS DICAMBA OFF-TARGET INCIDENTS SHARPLY INCREASED SINCE 2016

The EPA said in its dicamba draft risk assessment released on Thursday that the agency continues to struggle to get a grasp on how common off-target incidents of the herbicide has become.

EPA said in the 287-page draft risk assessment that in 2021 the agency received nearly 3,500 incident reports not already reported as part of the Incident Data System. Those included damage to non-dicamba-tolerant soybean, "numerous other crops," as well as to a wide variety of non-target plants in non-crop areas including residences, parks and wildlife refuges.

"Incidents reported for the 2021 season provide a snapshot of potential damage caused by product use, but the number of reported incidents is generally expected to underrepresent the actual number of incidents," EPA stated.

Among the findings of the draft assessment, EPA said it found no evidence new measures put in place in October 2020 for over-the-top applications helped reduce the number of off-target incidents.

DTN has documented issues with off-target dicamba movement through several stories, webinars and

discussions leading up to the over-the-top registration in 2016 and through the 2022 season.

The agency also offers data on how the nature of incident reports have changed since EPA approved over-the-top use of dicamba on DT plants. Prior to that approval for cotton and soybeans for the 2017 growing season, the EPA said it received reports to the IDS of about 11,800 incidents from 1981 to 2016 -- or an average of 337 reports annually.

"Until recently, localized small-scale residential uses (e.g., lawn care products) have accounted for most alleged incidents whereas the number of wide area damage (i.e., landscape level) incidents associated with crops has increased in recent years, specifically since the approval of OTT use on DT plants," the EPA said in the draft assessment.

"Over 90% of those incidents were associated with residential uses. Starting in 2016 there was a pronounced annual increase in the number of incidents associated with agricultural sites and wide area damage to crops (i.e., 10's to 100's of acres for individual incidents), primarily soybean. Although OTT use on DT plants was not registered by EPA until the 2017 growing season, in 2016 there was a sudden increase in the number of incidents of soybean damage reported in IDS (107 incidents for that year)."

INCIDENTS CAUSED BY MISUSE

The agency said those incidents were allegedly caused by "OTT misuse" of dicamba products on DT plants, "which was made possible because the DT seed had become commercially available in the prior years."

EPA said once OTT products and use were approved for DT cotton and DT soybean, "the number of wide area incidents increased to the thousands per year from 2017 to 2020." That damage, the agency said, was predominantly reported in soybeans.

There are about 1,100 incidents reported to the IDS for the 2017-20 time period, according to the EPA draft. EPA said, however, an additional 5,600 incidents were submitted that were not reported to IDS. About 97% of

those reports, according to the agency, report off-site damage to non-dicamba-resistant soybeans.

"However, a wide variety of other plants including woody species were allegedly impacted for the other approximately 3% of the reported incidents," the assessment said.

"Incidents were reported at distances from the treatment site beyond the required volatility and spray drift in-field setbacks on the DT soybean and DT cotton labels at the time of reporting."

The agency said many of the applications and observations of damage were reported as occurring in warmer months, which is "an indication that many of those incidents may have been associated with OTT uses on DT plants or non-DT plants."

BASF REVIEWING DRAFT ASSESSMENT

When contacted by DTN for comment, BASF North America External Communications Manager Casey Allen said, "We are aware of and reviewing the U.S. EPA's ecological draft risk assessment and human health addendum for dicamba that were published on Aug. 18. This is a routine part of the EPA's registration review process, and we will submit our comments directly to the U.S. EPA within the next 60 days."

Nathan Donley, environmental health science director at the Center for Biological Diversity, said in a statement it was time for EPA to take action to further restrict dicamba.

"The science is clear, and the EPA needs to act with urgency to rein in these uses to protect people and wildlife from this drift-prone poison," Donley said.

Read more on DTN:

"EPA Draft Contains Dicamba Concerns,"

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: September 1, 2022

Title: Wheat, Cattle & Risk Management Meeting

Location: Washita Co. Activity Center

1005 E. 3rd St. Cordell OK

Contact: Gary Strickland (580) 477-7962

CEU's: Category(s):
1 1A

Date: September 7, 2022

Title: ODAFF Lunch & Learn Zoom meeting @12 pm

Location: <https://us02web.zoom.us/j/85725652458>

Contact: Megan Parker (405) 522-5972

<https://us02web.zoom.us/j/85725652458>

CEU's: Category(s):
1 1A

Date: September 7, 2022

Title: Payne County Surviving Winter for Cow/Calf Producers

Location: Payne County

Contact: Nathan Anderson (405) 747-8320

CEU's: Category(s):
1 1A

Date: September 15, 2022

Title: Caddo Research Station Peanut and Cotton Field Day

Location: Caddo Resarch Station Fort Cobb OK

Contact: Jennifer Catoe (405) 744-5401

CEU's: Category(s):
3 1A
2 10

Date: September 15-16, 2022

Title: 2022 OPMA Fall Conference
Location: Grand Casino Shawnee OK
Contact: Eileen Imwalle (405) 726-8773
<https://www.ok-pca.com/conferences>

CEU's:	Category(s):
3	3A
2	6
4	7A
3	7B
1	7C
2	8
10	10
2	11A

Date: September 28, 2022

Title: ENSYSTEX 2022 CEU Workshop
Location: Hilton Garden Inn· Oklahoma City OK
Contact: Don Stetler (281) 217-2965
<https://ceuworkshop.com/>

CEU's:	Category(s):
4	7A
2	7B
1	8

Date: October 5-6, 2022

Title: 2022 Fall OKVMA Conference & Trade Show
Location: Hard Rock Hotel Catoosa, OK
Contact: Kathy Markham (918) 256-9302
<https://okvma.com/conferences/>

CEU's:	Category(s):
1	A
5	1A
2	3A
2	5
8	6
1	7A

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

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

South Penn - Moore Norman Technology Center
13301 S. Pennsylvania, Oklahoma City, OK 73170

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

Find us on Twitter at @OkstatePestEd

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