

# PESTICIDE REPORTS

Division of Agricultural Sciences and Natural Resources • Oklahoma State University  
<http://pested.okstate.edu>



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CHEM

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## OCTOBER TEST HELP SESSIONS

Don't miss the next test help sessions OSU Pesticide Safety Education Program will conduct for 2017 in October. Mark your calendars the workshops will be held October 17<sup>th</sup> in Tulsa and October 19<sup>th</sup> in Oklahoma City.

The Tulsa session will be at the Tulsa County Extension Office at 4116 E. 15<sup>th</sup>. The Oklahoma City Test help session will at the Oklahoma County Extension Office 2500 NE 63rd.

The help sessions will focus on information covered in the core and service tech tests. OSU PSEP will answer any questions over other category tests during this session.

Applicators should acquire and study the manuals before coming to the help session for optimum success. Study manuals can be purchased by using the manual order form available at our website <http://pested.okstate.edu/pdf/order.pdf> or by calling University Mailing at 405-744-5385.

**ODAFF Testing fees are not included in the registration fee and must be paid separately.**

Register online at the Pesticide Safety Education Program (PSEP) website at <http://pested.okstate.edu/html/practical.htm>.

Registration forms can also be downloaded from the website.

Registration will start at 8:30 and the program will run from 8:45 am to 12:30 pm at both locations. Testing will begin at 1:30 pm at both locations.

**NO CEU's will be given for this program!**

Reminder that Service Technicians must recertify before December 31, 2017 to stay certified for the next cycle that starts January 1, 2018.

More Test Help Workshop dates will be available for November and December. Please go to the website below for the rest of the 2017 dates.

<http://pested.okstate.edu/html/practical.htm>

## **EPA GUIDANCE ON MANAGING PESTICIDE RESISTANCE**

EPA has released two Pesticide Registration Notices (PRNs) aimed at combating pesticide resistance.

PRN 2017-1, "Guidance for Pesticide Registrants on Pesticide Resistance Management Labeling" offers general guidance on resistance management labeling for all conventional agricultural insecticides, fungicides and herbicides.

PRN 2017-2, "Guidance for Herbicide Resistance Management Labeling, Education, Training, and Stewardship" focuses specifically on herbicides and provides guidance on labels, terms of registration, education, training and stewardship.

Pesticides are used to control a variety of pests, such as insects, weeds, rodents, bacteria, fungi, etc. Over time, many pesticides have gradually lost their effectiveness because pests have developed resistance – which can be described as a significant decrease in sensitivity to a pesticide. Resistance reduces the utility of these pesticides. It has become a major economic factor in crop production and resulted in losses to growers.

To address the growing problem of resistance and preserve the useful life of pesticides, EPA has embarked on a more widespread effort aimed at helping pesticide users combat and slow this problem. Through these two PRNs the Agency is offering strategies to combat pesticide resistance. The two resistance management PRNs are available at <https://www.epa.gov/pesticide-registration/pesticide-registration-notices-year>. EPA took comments on the documents from June – September 2016 and incorporated those comments into the final documents. The Agency's response to public comments will soon be available for each PRN at Docket# EPA-HQ-OPP-2016-0242 and Docket# EPA-HQ-OPP-2016-0226.

EPA is focusing first on holistic guidance for herbicides. Herbicides are the most widely used agricultural chemicals, and no new herbicide mechanism of action has been developed in the last 30 years, while herbicide-resistant weeds are rapidly increasing. In the future, the Agency plans to evaluate other types of pesticides (e.g., fungicides, bactericides, insecticides and acaricides) to determine whether and what types of guidance may be appropriate for those types of pesticides. (EPA, September 22, 2017) <https://www.epa.gov/pesticides/epa-guidance-managing-pesticide-resistance>

## **ARKANSAS STATE PLANT BOARD BACKS REGULATORY CHANGES FOR DICAMBA**

The Arkansas State Plant Board voted to approve regulatory changes for the application of products labeled for agricultural use that contain dicamba in Arkansas.

The regulatory changes will prohibit the use in Arkansas between Apr. 16 – Oct. 31. The regulations include exemptions for the use of dicamba in pastures, rangeland, turf, ornamental, direct injection for forestry, and home use. The approved regulations are closely aligned with the recommendations from the Dicamba Task Force and the Plant Board's Pesticide Committee.

The Board's regulatory changes concerning the use of dicamba will now be subject to a 30-day public comment period which will be followed by a public hearing that will be held on Nov. 8. Following the public comment and public hearing period, the final proposed rule will be forwarded to the Executive Subcommittee of the Arkansas Legislative Council for final rule approval.

The board also voted to approve a new regulation that establishes notice procedures for requesting additional research and for restricting products beyond EPA approval. This regulatory change will also be subject to a 30-day public comment period which will be followed by a public hearing to be held in conjunction with the Board's next quarterly meeting on Dec. 12. Following the public hearing the final proposed rule will be forwarded to the Executive Subcommittee of the Arkansas Legislative Council for final rule approval.

The State Plant Board also held a public hearing to consider changes to Pesticide Enforcement Response Regulations in accordance with Act 778 of 2017 that increased the maximum civil penalty from \$1,000 to \$25,000 for egregious violations from applications of dicamba or an Auxin containing herbicide, or any new herbicide technology released after Aug. 1, 2017. No public comments were received and the regulation will now be sent to the Executive Subcommittee of the Arkansas Legislative Council for final rule approval.

Other business before the Board included a review of the petition for rulemaking recently filed by Monsanto. The State Plant Board denied the petition by unanimous vote and will work with legal staff to prepare a response.

The proposed regulations and other dicamba information and updates can be found at: <http://www.aad.arkansas.gov/arkansas-dicamba-information-updates>.

The Arkansas Agriculture Department is dedicated to the development and implementation of policies and programs for Arkansas agriculture and forestry to keep its farmers and ranchers competitive in national and international markets while ensuring

safe food, fiber, and forest products for the citizens of the state and nation. Learn more at [aad.arkansas.gov](http://aad.arkansas.gov).

(CropLife, September 22, 2017) <https://www.agripulse.com/articles/9777-dicamba-is-new-label-language-the-answer>

## **USDA-ARS TESTING NEW MOSQUITO CONTROL TECHNOLOGY**

Agricultural Research Service (ARS) scientists are testing innovative ways to reduce mosquito populations around residences. ARS research entomologist Seth Britch and his colleagues in Gainesville, Fla., tested a new technology, developed by private industry, that uses intense sound waves to kill mosquito larvae in water. This technology, a portable acoustic device, targets two major species—the Asian tiger mosquito, *Aedes albopictus*, and the yellow fever mosquito, *Aedes aegypti* — which can transmit viruses to humans that may cause Zika, dengue fever, chikungunya, yellow fever and other diseases.

“The device was highly effective at killing yellow fever mosquito larvae in large plastic containers of water, similar to those found in developing countries where this species is prevalent,” Britch says.

Traditionally, larvicides (synthesized or natural-based chemicals) are used to control mosquito larvae. This may not be practical for people in developing nations who store drinking water in containers in and around houses. Yet, untreated containers harboring mosquito larvae pose a persistent public health threat.

“The new sound wave technology works and can be used in 50-gallon plastic drums of drinking water with no danger to humans,” Britch says.

ARS scientists develop novel methods for surveying, controlling and protecting people from nuisance mosquitoes and those that transmit dangerous pathogens, says Kenneth Linthicum, director of the ARS Center for Medical,

Agricultural, and Veterinary Entomology. Research includes effective repellents, technologies to prevent mosquito reproduction, novel baits to lure and kill mosquitoes, and natural products to deter them.

While summer has officially ended, mosquitoes may hang around a bit longer—as long as temperatures hover around 60 degrees.

What can you do to protect yourself against mosquitoes when outside? Linthicum suggests wearing mosquito repellent and clothing that minimizes exposed skin and draining all standing water in containers, including flower pots, near your house. In addition, you can have a pest control company spray to help keep bugs and mosquitoes away.

Watch the ARS [YouTube video](https://www.youtube.com/watch?v=...) to learn about other ARS mosquito research efforts. (PCT Online, September 29, 2017) <http://www.pctonline.com/article/usda-ars-mosquito-control-technology/>

## **EPA EYES LIMITS FOR AGRICULTURAL CHEMICAL LINKED TO CROP DAMAGE**

The U.S. environmental agency is considering banning sprayings of the agricultural herbicide dicamba after a set deadline next year, according to state officials advising the agency on its response to crop damage linked to the weed killer.

Setting a cut-off date, possibly sometime in the first half of 2018, would aim to protect plants vulnerable to dicamba, after growers across the U.S. farm belt reported the chemical drifted from where it was sprayed this summer, damaging millions of acres of soybeans and other crops.

A ban could hurt sales by Monsanto Co (MON.N) and DuPont which sell dicamba weed killers and soybean seeds with Monsanto's dicamba-tolerant

Xtend trait. BASF (BASFn.DE) also sells a dicamba herbicide.

It is not yet known how damage attributed to the herbicides, used on Xtend soybeans and cotton, will affect yields of soybeans unable to withstand dicamba because the crops have not been harvested.

The Environmental Protection Agency (EPA) discussed a deadline for next year's sprayings on a call with state officials last month that addressed steps the agency could take to prevent a repeat of the damage, four participants on the call told Reuters.

It was the latest of at least three conference calls the EPA has held with state regulators and experts since late July dedicated to dicamba-related crop damage and the first to focus on how to respond to the problem, participants said.

A cut-off date for usage in spring or early summer could protect vulnerable plants by only allowing farmers to spray fields before soybeans emerge from the ground, according to weed and pesticide specialists.

Monsanto spokeswoman Christi Dixon told Reuters on Aug. 23, the day of the last EPA call, that the agency had not indicated it planned to prohibit sprayings of dicamba herbicides on soybeans that had emerged. That action "would not be warranted," she said.

The EPA had no immediate comment.

EPA officials on the last call made clear that it would be unacceptable to see the same extent of crop damage again next year, according to Andrew Thostenson, a pesticide specialist for North Dakota State University who participated in the call.

They said "there needed to be some significant changes for the use rules if we're going to maintain it in 2018," he said about dicamba usage.

State regulators and university specialists from Arkansas, Missouri, Illinois, Iowa and North Dakota are pressuring the EPA to decide soon on rules guiding usage because farmers will make

planting decisions for next spring over the next several months.

Tighter usage limits could discourage cash-strapped growers from buying Monsanto's more expensive dicamba-resistant Xtend soybean seeds. Dicamba-tolerant soybeans cost about \$64 a bag, compared with about \$28 a bag for Monsanto's Roundup Ready soybeans and about \$50 a bag for soybeans resistant to Bayer's Liberty herbicide.

Already, a task force in Arkansas has advised the state to bar dicamba sprayings after April 15 next year, which would prevent most farmers there from using dicamba on Xtend soybeans after they emerge.

Arkansas previously blocked sales of Monsanto's dicamba herbicide, XtendiMax with VaporGrip, in the state.

"If the EPA imposed a April 15 cut-off date for dicamba spraying, that would be catastrophic for Xtend - it invalidates the entire point of planting it," said Jonas Oxgaard, analyst for investment management firm Bernstein.

Monsanto has projected its Xtend crop system would return a \$5 to \$10 premium per acre over soybeans with glyphosate resistance alone, creating a \$400-\$800 million opportunity for the company once the seeds are planted on an expected 80 million acres in the United States, according to Oxgaard.

By 2019, Monsanto predicts U.S. farmers will plant Xtend soybeans on 55 million acres, or more than 60 percent of the total planted this year.

## RISKY DRIFT

About 3.1 million acres of soybeans vulnerable to dicamba were hurt by sprayings this summer, accounting for 3.5 percent of U.S. plantings, according to the University of Missouri.

Chemical companies have blamed the crop damage on farmers misusing the herbicides.

Specialists, though, say the weed killers are also risky because they have a tendency to vaporize and drift across fields, referred to as volatility. Summer can be a riskier time for sprayings, they said, because high temperatures can increase volatility.

Monsanto previously denied requests by university researchers to study its XtendiMax herbicide for volatility, as previously reported by Reuters. In the end, the EPA gave dicamba weed killers from Monsanto and BASF abridged two-year registrations, less than the five years experts say is more common.

To address the crop damage, the EPA has also asked state officials about enhanced training for dicamba users; tighter restrictions on when and how the herbicides can be sprayed; and the possibility of reclassifying the products so the general public could not buy them, according to participants on the call.

"Everything is an option," said Jason Norsworthy, a University of Arkansas professor who was on the call.

Monsanto Chief Technology Officer Robb Fraley said in a statement that the company was communicating with the EPA, which is "evaluating potential actions to facilitate enhanced training and compliance for 2018."

DuPont, too, is working with the EPA and state regulators on issues involving its dicamba herbicide, FeXapan, spokeswoman Laura Svec said.

Rival BASF "could see some label enhancements" to its dicamba herbicide, Engenia, if the EPA requires changes, spokeswoman Odessa Hines told Reuters. The company "will be as flexible as possible" so farmers can use the product, she said.

(This version of the story corrects "are" to "is" in the first paragraph) (Reuters, September 5, 2017) <http://www.reuters.com/article/us-usa-pesticides-epa-exclusive/exclusive-epa-eyes-limits-for-agricultural-chemical-linked-to-crop-damage-idUSKCN1BG1GT>

# TOP 10 MOST COMMON AND MOST TROUBLESOME WEEDS IN BROADLEAF CROPS, FRUITS AND VEGETABLES

A [recent survey conducted by the Weed Science Society of America \(WSSA\)](#) ranks Palmer amaranth as the most troublesome and difficult to control weed in 12 categories of broadleaf crops, fruits and vegetables, while common lambsquarters ranks as the weed most commonly found.

Almost 200 weed scientists across the U.S. and Canada participated in the 2016 survey, the second conducted by WSSA. A 2015 baseline survey explored the most common and troublesome weeds in 26 different crops and noncrop areas.

The current survey ranks the following weeds as the most troublesome or the most common among broadleaf crops, fruits and vegetables:

## Top 10 Most Troublesome Weeds

1. **Palmer amaranth**
2. **Common lambsquarters**
3. **Horseweed (marestail)**
4. **Morningglory (ivyleaf, pitted, tall)**
5. **Waterhemp (tall, common)**
6. **Nutsedge (yellow, purple)**
7. **Kochia**
8. **Common ragweed**
9. **Giant ragweed**
10. **Nightshade (eastern black, hairy)**

## Top 10 Most Common Weeds

1. **Common lambsquarters**
2. **Foxtail (giant, green, yellow)**
3. **Morningglory (ivyleaf, pitted, tall)**
4. **Palmer amaranth**
5. **Redroot pigweed**
6. **Waterhemp (tall, common)**
7. **Horseweed (marestail)**
8. **Common ragweed**
9. **Barnyardgrass**
10. **Velvetleaf**

Six weed species appeared on both the “most troublesome” and “most common” lists, including Palmer amaranth, common lambsquarters, horseweed, morningglory, waterhemp, and common ragweed. “Weed scientists have confirmed multiple cases of herbicide resistance in all six of these weed species, except for the morningglories where there is suspected resistance to glyphosate,” says Lee Van Wychen, Ph.D., science policy director for WSSA. “While each of these species has evolved traits that make them widespread and tough competitors in broadleaf crops like soybeans and cotton, there is no question that their difficulty to control with herbicides has pushed them to the top of the list in this survey.”

WSSA also sorted the survey data to produce crop-specific results. To view that list, visit [WSSA.net](#).

(CropLife, September 8, 2017)

<http://www.croplife.com/crop-inputs/herbicides/top-10-common-troublesome-weeds-broadleaf-crops-fruits-vegetables/>

## LEGAL FIGHT RESUMES OVER US EPA CHLORPYRIFOS ORDER

Environmentalists and farmworker advocates are urging a federal court to reject the US EPA's request to dismiss their challenge of the Agency's decision not to ban the insecticide, chlorpyrifos.

The EPA last month asked the US Court of Appeals for the Ninth Circuit to dismiss the lawsuit, arguing that the plaintiffs have filed their complaint too soon. The Agency says that they must wait until it has completed a review of objections raised to the decision through the administrative process outlined by the Federal Food, Drug, and Cosmetic Act (FFDCA).

In their September 27th filing with the Court, the plaintiffs counter that the EPA has shown little interest in considering administrative appeals to the chlorpyrifos decision.

The plaintiffs, along with seven US state attorneys general, filed appeals through administrative process in June, but the EPA has yet to respond.

Although the FFDCA describes an "ordinary review process, this situation is anything but ordinary", the groups say. "Here, it would be futile to wait for EPA to rule on the objections: The Administrator has already shown blatant disregard for the legal prohibition on leaving tolerances in place when he has not and cannot find the pesticide safe."

At issue is Mr Pruitt's March order denying a petition brought by the NRDC and the Pesticide Action Network North America (PANNA) that called for a ban on chlorpyrifos.

The environmentalists said that evidence of neurological harm from the insecticide justified a ban and after years of legal wrangling and scientific review, the EPA in November 2016 appeared to agree. The Agency said that cumulative exposures to the organophosphate insecticide exceeded the FFDCA's safety standard and proposed granting the petition.

But the EPA faced strong pressure to reverse course from grower groups, the pesticide industry and the USDA. Critics of the proposed ban raised concerns about the scientific integrity of the Agency's review and worries about the lack of affordable and effective alternatives. US farmers annually use an estimated 5-6 million pounds (2,268-2,721 tonnes) of chlorpyrifos on some 50 crops, including almonds, apples, citrus fruit, maize and strawberries.

Mr Pruitt cited those concerns in his March 29th order and suggested the EPA would not reconsider the concerns about chlorpyrifos until 2022.

The plaintiffs, including NRDC and PANNA, filed their suit in June. They say that Mr Pruitt caved in to industry pressure and failed to cite any new safety finding to justify the decision. The lawsuit alleges that the EPA violated the FFDCA and calls on the Ninth Circuit to force the Agency to impose a ban on chlorpyrifos.

The plaintiffs say that dismissing the case and forcing them to wait until the EPA completes its administrative review would perpetuate the "illegal conduct" they are challenging in the complaint.

"Whether it is legally impermissible to leave chlorpyrifos tolerances in place without a safety finding is not a question left to EPA's discretion," the plaintiffs conclude. "In the meantime, people – children, in particular – are being exposed every day to this unsafe pesticide that causes acute poisonings and damages children's brains. In this situation, judicial review delayed until EPA rules on the administrative objections would be justice denied." (Pesticide & Chemical Policy/AGROW, September 29, 2017)

## **U.S. AIR FORCE SPRAYING FOR MOSQUITOES IN POST-HARVEY TEXAS**

Officials in Texas are anticipating that receding floodwater from Hurricane Harvey will bring about a new health risk: mosquito-borne illnesses. On Sept. 13, Texas commenced aerial spraying of insecticides with U.S. Air Force C-130 military planes to combat the growing number of mosquitoes populating along the coastal regions of the state, according to Reuters.

The state requested the Air Force to spray some 6 million acres with insecticides, according to another report from Quartz, which also notes that so far three counties have been treated. According to Reuters, Harris County reported dense mosquito populations, and has also dispatched vector control trucks every night since September 4. Dr. Mustapha Debboun, director of the Mosquito and Vector Control division of Harris County Public Health, told Reuters typically trucks are sent only to areas with disease-carrying mosquito populations.

Texas officials claim most mosquitoes that turn up in the area won't be the kind that carry diseases, and that the point of spraying is largely to protect cleanup crews from the discomfort caused by bug bites. However, the growing number of Aedes

aegypti mosquitoes—vectors for viruses such as West Nile and Zika—are problematic for the state. (PCT Online, September 15, 2017) <http://www.pctonline.com/article/air-force-mosquito-spraying-texas/>

## **US PEACH FARMER PRESSES COURT TO EXPAND DICAMBA LITIGATION**

A US peach farmer is trying to add BASF to a lawsuit that alleges Monsanto is liable for crop damage from dicamba drift, claiming the two companies conspired to rush dicamba-tolerant crops and companion herbicides to market and profit from the resulting "ecological disaster".

A US peach farmer is trying to add BASF to a lawsuit that alleges Monsanto is liable for crop damage from dicamba drift, claiming the two companies conspired to rush dicamba-tolerant crops and companion herbicides to market and profit from the resulting "ecological disaster".

Missouri-based Bader Farms filed the litigation in December 2016 alleging that Monsanto's rollout of its dicamba-resistant Xtend crops was irresponsible and arguing that the company has responsibility for damage to their peach trees from dicamba drift.

The company began selling the XtendFlex cotton to farmers in 2015 and launched its Xtend soybeans the following year. But Monsanto did not receive approval for its companion herbicide, XtendiMax, until November 2016. The EPA approved BASF'S Engenia dicamba herbicide for use on Monsanto's GE crops in December 2016.

Instructions provided with the Monsanto crops told customers not to apply older dicamba products, but farmers in Missouri and ten other US states appeared to ignore that warning and drift problems followed. Bader Farms, Missouri's largest peach producer, says that it suffered more than \$1.5 million in crop damage from dicamba drift in 2015 and 2016.

The lawsuit argues that Monsanto is liable because it allegedly knew that growers would illegally spray dicamba herbicides to protect its GM crops.

In April, a federal judge in Missouri voiced doubt that the plaintiffs could support their claims but gave them leave to file an amended complaint. The revised lawsuit, filed in June, added claims that Monsanto employees actively instructed farmers who purchased the Xtend seeds to make illegal applications of dicamba to the GM crops.

Monsanto rejected the new allegations and filed a new motion for summary judgment.

The plaintiffs are now asking the court to allow them to file a second amended complaint, adding allegations about BASF and continued damage to their peach orchards from dicamba in 2017.

The farmers argue that dicamba has cause "extensive damage" to crops across southeast Missouri in 2017 despite the availability of the Monsanto and BASF dicamba products.

Monsanto and BASF conspired in "a scheme to improperly market, sell, and expand the sales and profits of their dicamba-based products", according to the plaintiff's August 27th motion with the US District Court for the Eastern District of Missouri.

The plaintiffs allege claims that the companies "knew the risks and the dangers" posed to non-target crops from the new dicamba products and hid information about volatility concerns from federal and state regulators.

"Neither of defendants' dicamba-based herbicides can be used safely on Xtend crops," the plaintiffs contend. "Defendants knew this and suppressed it."

Monsanto says that the Court should deny the motion to file an amended complaint, arguing that the new and revised allegations are "futile" and untimely.

"Business agreements are not conspiracies," Monsanto says.



The company contends that allowing the farmers to file a third complaint would be unfair and unwarranted. The Missouri farmers could have asserted their latest conspiracy theory "from day one," according to the company. "This is simply another effort to evade summary judgment through amendment." (Pesticide & Chemical Policy/AGROW, September 28, 2017)

## **EXPOSURE TO PET AND PEST ALLERGENS DURING INFANCY LINKED TO REDUCED ASTHMA RISK**

Children exposed to high indoor levels of pet or pest allergens during infancy have a lower risk of developing asthma by 7 years of age, new research supported by the National Institutes of Health reveals. The findings, published September 19 in the *Journal of Allergy and Clinical Immunology*, may provide clues for the design of strategies to prevent asthma from developing.

While previous studies have established that reducing allergen exposure in the home helps control established asthma, the new findings suggest that exposure to certain allergens early in life, before asthma develops, may have a preventive effect. The observations come from the ongoing Urban Environment and Childhood Asthma (URECA—pronounced “Eureka”) study, which is funded by NIH’s National Institute of Allergy and Infectious Diseases (NIAID) through its Inner-City Asthma Consortium.

“We are learning more and more about how the early-life environment can influence the development of certain health conditions,” said NIAID Director Anthony S. Fauci, M.D. “If we can develop strategies to prevent asthma before it develops, we will help alleviate the burden this disease places on millions of people, as well as on their families and communities.”

According to the Centers for Disease Control and Prevention, more than 8 percent of children in the

United States currently have asthma, a chronic disease that intermittently inflames and narrows the airways. Asthma can result in missed time from school and work and is a major cause of emergency department visits and hospitalizations.

The URECA study investigates risk factors for asthma among children living in urban areas, where the disease is more prevalent and severe. Since 2005, URECA has enrolled 560 newborns from Baltimore, Boston, New York City and St. Louis at high risk for developing asthma because at least one parent has asthma or allergies. Study investigators have been following the children since birth, and the current research report evaluates the group through 7 years of age.

Among 442 children for whom researchers had enough data to assess asthma status at age 7 years, 130 children (29 percent) had asthma. Higher concentrations of cockroach, mouse and cat allergens present in dust samples collected from the children’s homes during the first three years of life (at age 3 months, 2 years and 3 years) were linked to a lower risk of asthma by age 7 years. The researchers observed a similar association for dog allergen, although it was not statistically significant, meaning it could be due to chance. Additional analysis indicated that exposure to higher levels of these four allergens at age 3 months was associated with a lower risk of developing asthma.

Evidence also suggested that the microbial environment in the home during infancy may be associated with asthma risk. A previous report from URECA that assessed the microbiome of house dust collected in the first year of life suggested that exposure to certain bacteria during infancy may protect 3-year-olds from recurrent wheezing, a risk factor for developing asthma. In the current report, researchers found associations between the abundance of certain types of bacteria in the house dust and an asthma diagnosis by age 7 years, suggesting that exposure to certain types of bacteria in early life might influence development of asthma. However, additional research is needed to clarify the potential roles of these microbial exposures in asthma development.

“Our observations imply that exposure to a broad variety of indoor allergens, bacteria and bacterial products early in life may reduce the risk of developing asthma,” said James E. Gern, M.D., the principal investigator of URECA and a professor at the University of Wisconsin-Madison. “Additional research may help us identify specific targets for asthma prevention strategies.”

In addition, the seven-year URECA results confirm previous research linking development of childhood asthma to recognized risk factors such as prenatal exposure to tobacco smoke and maternal stress and depression. Investigators found that the presence of cotinine, which results from the breakdown of nicotine in the body, in the umbilical cord blood of newborns increased their risk of developing asthma by age 7 years. Maternal stress and depression reported during the first three years of the child’s life also were associated with an increased risk of developing childhood asthma.

The URECA investigators are continuing to monitor the children. By dividing the children into groups based on characteristics of their allergies and asthma, the scientists hope to uncover additional information about which early-life factors influence development of allergic or non-allergic asthma.

This work was funded by NIAID under award numbers AI025496, AI25482, HHSN272200900052C, HHSN272201000052I, AI114271-01 and AI117870. NIH’s National Center for Advancing Translational Science provided additional support under award numbers RR00052, RR00533, RR025771, RR00071, RR024156, and RR024992-02, TR001079 and UL1TR000040. The URECA study is conducted at the Boston University School of Medicine, Johns Hopkins University in Baltimore, Saint Louis Children’s Hospital and Columbia University in New York. The URECA study is no longer recruiting, but more information is available at [ClinicalTrials.gov](http://ClinicalTrials.gov) using identifier NCT00114881.

NIAID conducts and supports research — at NIH, throughout the United States, and worldwide—to study the causes of infectious and immune-mediated diseases, and to develop better means of preventing, diagnosing and treating these illnesses. News

releases, fact sheets and other NIAID-related materials are available on the NIAID website. (PCT Online, September 20, 2017) <http://www.pctonline.com/article/exposure-pest-infancy-asthma/>

## **ILLEGAL CANNABIS OPERATIONS ARE FOULING CALIFORNIA WATERWAYS WITH BANNED PESTICIDES**

Toxic chemicals from illegal marijuana farms hidden deep in California's forests are showing up in rivers and streams that feed the state's water supply, prompting fears that humans and animals may be at risk, data reviewed by Reuters show.

The presence of potentially deadly pollutants in eight Northern and Central California watersheds is the latest sign of damage to the environment from thousands of illegal cannabis plantations, many of them run by drug cartels serving customers in other states, according to law enforcement.

"I don't drink out of the creeks - and I used to," said Sergeant Nathaniel Trujillo, a narcotics expert with the sheriff's department of Trinity County, about 200 miles north of San Francisco. "I grew up drinking out of them."

California accounts for more than 90 percent of illegal U.S. marijuana farming. There are as many as 50,000 marijuana farms in California according to state estimates, and even though voters legalized the drug last November, only about 16,000 growers are expected to seek licenses when commercial cultivation becomes legal next year.

Many of the illegal growers use fertilizers and pesticides long restricted or banned in the United States, including carbofuran and zinc phosphide.

The chemicals have turned thousands of acres of forest into waste dumps so toxic that law enforcement officers have been hospitalized after inadvertently touching plants and equipment, and scores of animals have died.

The streams in which they have been detected are crucial sources of water for fish, vulnerable animals including the Pacific fisher and the Northern Spotted Owl and are used for drinking by people and cattle. Ultimately, the contaminated rivers and creeks flow into the massive water supply system relied on by the most populous U.S. state.

"Carbofuran is in the water, and it's not supposed to be," said Mourad Gabriel, an ecologist who works with law enforcement on marijuana contamination issues. "How are we going to mitigate something like that?"

Carbofuran poisoning can cause headaches, nausea, dizziness, vomiting, uncontrollable muscle twitching, convulsions and even death, according to the National Institutes of Health.

Poisoning by diazinon, another chemical Gabriel has found in streams, can cause difficulty breathing, weakness, blue lips and fingernails, convulsion and coma, the agency says.

Gabriel, who has visited more than 100 sites in California and is widely considered the leading authority on toxins at marijuana farms, said about half the streams he studied in eight watersheds in the state's prime pot-growing regions tested positive for contaminants.

In unpublished data seen by Reuters, Gabriel's testing showed carbofuran, diazinon and other chemicals were present downstream from pot farms in Kern County in Central California, Humboldt County on the state's northwestern coast, Mendocino County north of Santa Rosa and others. In some cases, the chemicals were present only in trace amounts.

Some streams tested positive more than a year after law enforcement cleared illegal grows from nearby land.

At Brush Mountain in Kern County, law enforcement shut down a growing operation in June 2014, Gabriel said. But testing the following November and December showed the presence of diazinon in a local stream.

### CHEMICAL 'LAYER CAKE'

In further testing in February 2015, the stream appeared to be chemical-free. But chemicals showed up again the following year, Gabriel's unpublished data show, prompting him to speculate that it can take months or years for chemicals to migrate through the soil.

"It's like a layer cake," Gabriel said. "They put chemical on chemical on chemical. We'll find different chemicals in the water on different years."

In another instance, a stream in Trinity County tested negative for pesticides in 2014 but positive in December 2016.

The state does not have a comprehensive testing program for marijuana contaminants, and little such work has been done at the local level, officials said.

But many people and animals rely on water from local streams. And some are growing concerned.

Patricia Young, whose family grazes cattle in Shasta County, said eight cows have died suddenly over the past three years near an irrigation channel they use for drinking.

Young said the family was worried the cows died from poisoning from marijuana farms in nearby woods, and they were testing the stream.

The chemicals have been found in game animals, including a quail Gabriel shot and ate with his family, and numerous deer and elk whose livers were tested in a study for the Mule Deer and Rocky Mountain Elk Foundations, he said.

Trujillo, the Trinity County sheriff's department narcotics sergeant, said his law enforcement dog, a Belgian Malinois named Johnny, almost died from pesticide poisoning after jumping into a reservoir at an illegal marijuana grow.

California is developing regulations for marijuana farms including rules about water quality and pesticide use, but widespread water testing is not included.

The federal government, which owns much of the land on which illegal marijuana grows are planted, has also not conducted extensive testing of streams near the toxic sites, officials said.

Matt St. John, executive officer of the North Coast Regional Water Quality Control Board in the heart of marijuana country, said his agency is planning to regulate pesticide use by marijuana farmers. But testing streams on a regular basis would be too expensive, he said.

Trinity County supervisors will decide on Sept. 19 whether to authorize a testing program along part of the Trinity River and its tributaries.

"Maybe six months down the road we'll say water quality wasn't affected all that much," said Trinity County Planning Director Leslie Hubbard. "But maybe we'll say we have a disaster on our hands."

(Reuters, September 8, 2017)

<https://www.usnews.com/news/us/articles/2017-09-08/banned-pesticides-from-illegal-pot-farms-seep-into-california-water>

## CEU Meetings

Date: October 4-5, 2017

Title: OKVMA Fall Conference, Training and Trade Show

Location: Hard Rock Hotel & Convention Center  
Catoosa OK

Contact: Kathy Markham (918) 256-9302

Course #: OK-17-103 A-F

CEU's:	Category(s):
3	A
5	3A
2	5
6	6
6	10

Date: October 5, 2017

Title: OSU Fumigation Workshop

Location: SPREC Stillwater OK

Contact: Edmond Bonjour (405) 744-8134

Course #: OK-17-120 A-D

CEU's:	Category(s):
1	7A
4	7C
4	10

Date: October 10, 2017  
Title: Winfield Academy  
Location: Reed Center Midwest City OK  
Contact: Dana Ellis (612) 240-5535  
www.winfieldacademy.com  
Course #: pending

CEU's:	Category(s):
1	1A
1	2
5	3A
1	3B
1	3C
2	5
2	6
2	7A
3	7B
7	10

Date: October 12, 2017  
Title: Winfield Academy  
Location: Renaissance Tulsa Hotel & Convention  
Tulsa OK  
Contact: Dana Ellis (612) 240-5535  
www.winfieldacademy.com  
Course #: pending

CEU's:	Category(s):
1	1A
1	2
5	3A
1	3B
1	3C
2	5
2	6
2	7A
3	7B
7	10

Date: October 12, 2017  
Title: APWA/CME Training Day  
Location: Francis Tuttle Business Innovation Center  
Edmond OK  
Contact: Richard Kindberg (405) 717-7728  
www.cme.city  
Course #: pending

CEU's:	Category(s):
6 pending	3A
4 pending	6
6 pending	10

Date: October 12, 2017  
Title: A Focus on Pest Management  
Location: Embassy Suites Kansas City MO  
Contact: FISA Deborah Murphy (913) 397-1185  
Course #: OK-17-108 A-E

CEU's:	Category(s):
3	7A
1	7C
4	10
1	11

Date: October 24, 2017  
Title: Ensystem 2017 CEU Workshop  
Location: Oklahoma City OK  
Contact: Donald Stetler (281) 217-2965  
Course #: OK-17-1113 A-E

CEU's:	Category(s):
3	7A
1	7C
4	10
1	11

Date: October 27, 2017

Title: OAAA 2017 Operation SAFE Fly-In

Location: El Reno OK

Contact: Sandy Wells (405) 341-3548

Course #: pending

CEU's:                   Category(s):

1                            A

Date: November 8, 2017

Title: Oklahoma Recreation and Park Society

Maintenance track

Location: Ardmore Convention Center

Ardmore OK

Contact: Joe Medlin (918) 246-2561

Course #: pending

CEU's:                   Category(s):

2                            3A

2                            10

Date: November 2, 2017

Title: Rights of Way and Bare Ground Work Shop

Location: Courtyard Marriott Norman OK

Contact: Joshua Britt (580) 235-3816

Course #: pending

CEU's:                   Category(s):

6                            6

6                            10

Date: February 3, 2018

Title: Integrated Pest Management for the Food

Environment

Location: Holiday Inn Express Denton TX

Contact: FISA Deborah Murphy (913) 397-1185

Course #: OK-17

CEU's:                   Category(s):

3                            7A

1                            7C

4                            10

1                            11

Date: November 6-8, 2017

Title: 2017 Oklahoma Ag Expo

Location: Embassy Suites Norman OK

Contact: Tammy Ford-Miller (580) 233-9516

Course #: OK-17-115 A-L

CEU's:                   Category(s):

2                            All

7                            7

3                            3

10                          10

## ODAFF Approved Online CEU Course Links

PestED.com

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

CEU School

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

Technical Learning College

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

Green Applicator Training

<http://www.greenapplicator.com/training.asp>

All Star Pro Training

[www.allstarce.com](http://www.allstarce.com)

Wood Destroying Organism Inspection Course

[www.nachi.org/wdocourse.htm](http://www.nachi.org/wdocourse.htm)

CTN Educational Services Inc

[http://ctnedu.com/oklahoma\\_applicator\\_enroll.html](http://ctnedu.com/oklahoma_applicator_enroll.html)

Pest Network

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

Univar USA

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

Southwest Farm Press Spray Drift Mgmt

<http://www.pentonag.com/nationalsdm>

SW Farm Press Weed Resistance Mgmt in Cotton

<http://www.pentonag.com/CottonWRM>

Western Farm Press ABC's of MRLs

<http://www.pentonag.com/mrl>

Western Farm Press Biopesticides Effective Use in Pest Management Programs

<http://www.pentonag.com/biopesticides>

Western Farm Press Principles & Efficient Chemigation

<http://www.pentonag.com/Valmont>

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

link:<http://www.oda.state.ok.us/cps-ceuhome1.htm>

## ODAFF Test Session Information

Pesticide applicator test sessions dates and locations for October/November are as follows:

October		November	
3	McAlester	2	Tulsa
9	OKC	7	Goodwell
12	Tulsa	7	OKC
18	Altus	7	McAlester
23	OKC	14	Hobart
26	Tulsa	16	Tulsa
		20	OKC
		21	Ardmore

Altus: SW Research & Extension Center  
16721 US HWY 283

Atoka: KIAMICHI TECH CENTER 1301  
W Liberty Rd, Seminar Center

Enid: Garfield County Extension Office,  
316 E. Oxford.

Goodwell: Okla. Panhandle Research &  
Extension Center, Rt. 1 Box 86M

Hobart: Kiowa County Extension Center  
Courthouse Annex, 302 N. Lincoln

Lawton: Great Plains Coliseum,  
920 S. Sheridan Road.

McAlester: Kiamichi Tech Center on  
Highway 270 W of HWY 69

OKC: Arcadia Conservation Education  
Building 7201 E 33<sup>rd</sup> St. Edmond  
OK (**New Location**)

Tulsa: NE Campus of Tulsa Community  
College, (Apache & Harvard)  
Large Auditorium

**Pesticide Safety  
Education Program**