

PESTICIDE REPORTS

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CHEM

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ATRAZINE HUMAN HEALTH RISK ASSESSMENT NOW AVAILABLE FOR PUBLIC COMMENT

Today, EPA is releasing the [atrazine draft human health risk assessment](#) for [public comment](#). The assessment identifies potential risks to children who crawl and play on lawns sprayed with atrazine and to workers who apply atrazine and/or enter treated fields after application.

[Atrazine](#) is one of the most widely used agricultural pesticides in the United States. It is used to control broadleaf and grassy weeds on corn, sorghum, and sugarcane, and to a lesser extent on residential lawns and golf courses. In the assessment, EPA reviewed all available scientific data, including published toxicity and epidemiology literature. The assessment uses multiple lines of evidence and methodologies that reflect current science.

In addition to the atrazine draft human health risk assessment, EPA is also releasing the [simazine](#) and [propazine](#) draft human health risk assessments and a [cumulative human health risk assessment](#) on these three triazines. We assessed these three pesticides together for human health risks because they share a common toxicity mechanism.

Comments must be submitted to docket # [EPA-HQ-OPP-2013-0266](#) at www.regulations.gov on or before Sept. 24, 2018.

After public comments on the human health and the [2016 ecological assessments](#) are reviewed, EPA will determine whether updates or revisions to the assessments are necessary. EPA plans to propose risk mitigation measures, if necessary, in 2019. (EPA, July 26, 2018)

<https://www.epa.gov/pesticides/atrazine-human-health-risk-assessment-now-available-public-comment>

OSU PESTICIDE EDUCATION TWITTER ACCOUNT

The OSU Pesticide Safety Education Program now has a twitter account as another option in providing you pesticide and applicator information plus regulatory updates.

This will be a platform to communicate information that occurs between the releases of the monthly newsletter. This Twitter account will supplement this monthly newsletter and allow us to communicate information that occurs between the releases of each month's newsletter.

Find us on Twitter at [@OkstatePestEd](#)

GENETICS HELP MAKE A WEED A WEED

New University of British Columbia research finds that the success of weedy and invasive plants like the Jerusalem artichoke lies in their genes. The tasty tubers, or root vegetables, of the Jerusalem artichoke may make for a nice side dish, but the plant is considered a major invasive species in Europe. Understanding how invasive plants evolve and the genetic underpinnings that enable them to thrive in a new environment is key to better understanding why they are wreaking havoc on

natural landscapes and food production around the world.

"The production of a large number of tubers is a major driver of invasion success in Jerusalem artichoke," said Dan Bock, lead author of the study who completed this work as part of his PhD in botany at UBC. "Moreover, we can see that this trait evolved multiple, independent times in invasive populations."

The plant, a member of the sunflower family, is native to central and eastern North America and was introduced to Europe in the early 17th century, where it was cultivated for food. Once potatoes became the more desired crop, the Jerusalem artichoke was left to its own devices and spread, pushing out native plants especially in water-rich ecosystems along rivers. It is now one of the most common invasive species in Europe.

"In countries of Central-Eastern Europe including Romania, where I am originally from, the plant is very common," said Bock, who is now a postdoctoral fellow at Harvard University. "Oftentimes, patches of invasive Jerusalem artichoke look like huge cultivated fields that extend as far as the eye can see."

For this experiment, researchers planted over 700 invasive and noninvasive Jerusalem artichokes in a controlled plot at UBC's Vancouver campus. Once the plants reached maturity, they recorded and compared a number of characteristics. One of these, the number of tubers, was always extreme in invasive populations.

"The results of this research are important to our broader understanding of how and why some plants become successful invaders." said Loren Rieseberg, professor in the department of botany at UBC and Bock's graduate advisor.

When the researchers paired genetic analyses with these measurements, they found that this trait had evolved independently more than once. Bock says they identified at least four independent genetic origins, meaning that invasiveness can evolve repeatedly.

"It is interesting that a single trait is driving invasion success," said Michael Kantar, a co-author of the paper and former UBC postdoctoral fellow who is now at the University of Hawaii.

Invasive species are a major concern for many regions because they are difficult to get rid of, they displace native plants and they can interfere with food production. Previous research estimated that invasive species of all types -- plants, insects and pathogens -- cost the U.S. more than \$120 billion annually.

It's also common for invasive species to take over areas that have abundant resources. In the case of the Jerusalem artichoke, the resource is water. In Europe, this invasive plant pushes out native plants along river courses and in the U.S., it's a weed on farm fields.

"We tend to think evolution happens very slowly but here, we're seeing evolution in real-time," said Kantar. "It's interesting to really understand how plants and people are constantly interacting; a lot of this invasion happened in the last 100 years because of our actions."

The researchers say the findings could one day be used to help control invasive species and may help prevent other species from becoming invasive. (Science Daily, May 7, 2018)
<https://www.sciencedaily.com/releases/2018/05/180507111807.htm>

CHOOSING THE PROPER ANT BAIT

You arrive at a home to do a routine service and the customer lets you know they've been seeing ants inside. Depending on where you are located, the offending ants could be one of several to many different species. You'll need to identify the ant because the type or species of ant will determine your approach to inspection and treatment.

Is the ant a soil- or wood-nesting ant or is it opportunistic in nest site selection? Is it a type that

is polydomous (many nest sites) or polygynous (many queens)? Is it a species that will respond to baits well enough to affect control? Soil nesting ants will be found near ground level while wood-nesters typically associate with moist wood. Opportunistic species that are polydomous and polygynous are the most difficult ants to control due to the widespread nature of their infestations around structures.

The fastest way to control ants is finding and treating the ant colony or colonies directly which with polydomous species is easier said than done. In most all cases, most of the infestation originates from outside with possible satellite colonies indoors. Even with Pharaoh ants which are primarily nesting indoors, a great deal of foraging is done on the outside of a building.

You've identified the ant involved and done your inspection. If you're dealing with Pharaoh ants and maybe rover ants, you should head straight for the ant baits. For other types of ants, you should first attempt to find and treat the colonies involved and use ant baits as a supplement to treatment. If the colony has been difficult to locate or with a hard-to-solve case, then ant baits become the key tool to select.

First things first—ant baits will only work if the target ants like and feed on the bait for an extended period of time.

Many times, ants may start feeding on a bait then, after a short time, begin ignoring the bait. Ant colonies also have different nutritional needs at different times of the year or by preference. For these reasons, it is a good practice to offer ants two or more different baits, including types of formulations to find out which the target ants prefer. For example, you might offer a drop of 2 different gel baits and 1 or 2 different granular baits. Whichever the ants prefer, give them more of that bait.

It is also important to establish as many "feeding points" as possible. During the inspection, especially outside, place drops of gel bait (or simply jelly) or small piles of granular bait along edges of concrete, at corners, on hose bibs, window sills, etc. Such pre-baiting helps (1) identify areas where the

target ant is active; (2) determine if other potentially infesting species are present; and (3) help establish ant trails that may be followed back to the colony to allow direct treatment.

Here are some other ant baiting tips that may help:

- Locating bait placements closer to the colony can promote bait acceptance.
- Place several placements along known ant trails.
- Once the preferred ant bait is known, don't skimp on amounts, particularly when ant numbers are significant.
- Indoors, use a wet, soapy paper towel or sponge to wipe an ant trail back to where it exits a wall or the floor then place the bait there. This helps minimize numbers of ants the customer might see.
- For carpenter ants, place baits on or in known or suspected entry points and/or in the crotch of tree limbs or base of infested trees.
- For Pharaoh ants, placement of baits inside wall outlet and switch boxes of infested rooms improves bait acceptance and helps keep ant foraging inside walls.
- Bait outdoors as well as indoors for Pharaoh ants to gain faster results.
- Follow-up in a few days to a week to replace or renew baits.
- If an ant bait is not accepted, try different baits.
- Use refillable ant bait stations where possible. Some of these can be attached to tree limbs, tree trunks, and fences to improve a bait's longevity outdoors. Where more security is needed, place ant baits in rodent stations outside, on roofs, etc.
- Always follow label directions.

(PCT, July 15, 2018)

<http://www.pctonline.com/article/choose-proper-ant-bait/>

TODAY'S WEED SEED BANK IS TOMORROW'S YIELD-ROBBING WEED

If a few waterhemp plants escape at the end of the year they might not have a huge effect on yield this year, but the weed seed bank they're creating could be detrimental to next year's crop. Start planning today to manage this aggressive, resistant weed.

"Make sure you're scouting to plan for next year," says Dave Roome, Corteva Agriscience customer technical specialist for the eastern Corn Belt.

"Everyone assumes scouting means for the current year, but it also means, 'What do I need to address next year?' Identify weed species and their populations so you know what to address next year."

Waterhemp is quickly climbing the charts, aiming for the title of "most devastating" weed in the U.S. It's resistant to six herbicide groups and can rob between 40% and 70% of yields, according to research at the University of Illinois.

"Ultimately, we know how to win the battle," Aaron Hager said in a previous University of Illinois publication. "If we attack waterhemp at the most vulnerable stage in its life cycle—the seed—we could beat this thing in five to seven years."

Seed shelf life is just five years, which means certain cultural practices could provide a new form of defense. Tillage, if available on your fields, could bury waterhemp seeds deep enough they can't germinate. Or, if you let the seed germinate and till quickly thereafter it makes that seed ineffective.

This season's escapes are your roadmap to determining where you need to focus weed control efforts next year. This means planning tillage and herbicides.

While waterhemp is resistant to ALS (2), T1R1 auxin receptors (4), photosystem II inhibitors (5), PPO inhibitors (14), EPSP synthase inhibitors (9) and HPPD inhibitors (27), there are still options for controlling the weeds. In addition, just because resistance has been discovered for each of these

modes of action, it doesn't mean that resistance is in your state. Talk to a local Extension agent or agronomist to find out what works in your area and protect that product with good stewardship.

When planning next year, make sure you use multiple, effective modes of action and consider a minimum two-pass system with pre- and post-emergent residual herbicides.

Is it waterhemp, or Palmer? The two pigweeds can be incredibly difficult to differentiate.

"One easy way to tell is waterhemp is longer in the leaf surface, whereas Palmer is longer in the petiole," Roome says. "If you bend over the petiole on the leaf it won't reach the leaf tip on waterhemp, and on Palmer it will."

In addition, look for these characteristics to tell if the weed is waterhemp:

Bright red or green stems

Oar-shaped leaves

First true leaves are oval with a notch on the tip

Alternate, oval, hairless and waxy true leaves

Green to dark pink and spiked flowers

Up to 9' tall

The weed is most common in the eastern and central U.S., but, like many resistant weeds, it isn't confined to just those areas as seeds can easily spread. Scout for waterhemp this year to know what you're up against next season (AgWeb, July 25, 2018) <https://www.agweb.com/article/todays-weed-seed-bank-is-tomorrows-yield-robbing-weed/>

EPA VISITS FIELDS IN ARKANSAS HURT BY DICAMBA

Despite being banned for in-crop use this summer in Arkansas, dicamba is a suspect in damage to

thousands of acres of soybeans and to vegetables, backyard gardens and trees.

Farmers and regulators in other soybean-producing states that have allowed dicamba, even with some restrictions, have reported similar damage this year, a repeat from a year ago.

On Thursday, two regulators with the federal Environmental Protection Agency visited state-funded research fields in Mississippi County hit for the second-consecutive year by dicamba. Use of the herbicide on crops has been banned in the state since April 16.

The inspectors' visit, which also took them to other farms in Arkansas, Tennessee and Missouri this week, was part of the agency's work in deciding whether to re-register dicamba formulations produced by Monsanto, BASF and DowDupont. The current two-year registration for those products expires Nov. 9, and the EPA has said it expects to make a decision in August or September. EPA representatives are conducting similar tours in other states.

The state Plant Board, a division of the Arkansas Agriculture Department, had received 176 dicamba complaints as of Friday, compared with about 750 this time last year. The board also has received complaints of 2,4-D damage to cotton.

In Manila, in northeast Arkansas, Darrell Birmingham said his 89-year-old grandmother's small commercial crop of tomatoes, trays of tomato plants, her vegetable garden and ornamentals have been damaged.

Birmingham, who filed a complaint with the Plant Board on June 26 on behalf of Mildred Ramsey and her 58-year-old business, Ramsey's Plants, said damage was first noticed in early May.

"A few days after that, she noticed the garden started wilting out, none of the peppers came out, the tomato vines dried out and now a big 20-foot-tall Bradford pear tree looks like a telephone pole," Birmingham said.

No one has come forward to acknowledge any mistakes, Birmingham said. "If that farmer came forward with a box of tomatoes or some corn, he'd have a friend for life," he said.

The ban on dicamba, with exceptions for use around the home and pastureland, was implemented after the Plant Board received nearly 1,000 complaints last season. The ban effectively removed dicamba as a legal tool for farmers this year in a battle against pigweed that has grown resistant to other herbicides.

Only BASF's Engenia was allowed in Arkansas last year. Farmers here who used the herbicide praised its effectiveness against pigweed and touted high yields in the fall, but weed scientists in Arkansas and other states say even the newer formulations of dicamba can "volatilize" off plants as a vapor as much as 96 hours after application and move to susceptible crops and other vegetation.

The manufacturers said applicator error was mostly to blame and, this year, expanded training sessions to thousands of farmers in states where the new dicamba formulations could still be applied. The new formulations of dicamba were developed to go along with the introduction by Monsanto of dicamba-tolerant cotton and soybeans over the past three years.

While the complaints this year are still being investigated, Plant Board officials and weed scientists believe some farmers sprayed dicamba illegally in Arkansas well after the April 16 cutoff date because it takes seven to 21 days for dicamba symptoms to show.

The University of Arkansas System Agriculture Division's soybean research fields at Keiser, also in Mississippi County, have been hit twice, in early June and in early July.

Similar damage was reported in May and June at UA's Lon Mann Cotton Research Station at Marianna.

The EPA regulators, who declined to comment, also toured Reelfoot Lake, near Memphis, where bald cypress trees reportedly have been damaged by

herbicide drift, and Bader Farms in Campbell, Mo., where thousands of peach trees allegedly have been damaged or killed by off-target movement of dicamba the past two years. UA weed scientists and Plant Board staff members accompanied the EPA regulators.

"If something's not done, there's not going to be any produce grown in this part of the state," said Gary Goodwin of Trumann, owner and operator of Two Seasons Fresh Market in the Poinsett County town. Goodwin filed a complaint about possible damage with the Plant Board on June 28.

Goodwin sells tomatoes that he raises on 3 acres, and other fruit and vegetables raised locally, as well as catfish from the nearby St. Francis River. He has replanted a lot of his tomatoes, hoping to have a second harvest in September. "I think folks who aren't farmers needed to be considered," he said.

The Plant Board helped coordinate the EPA visit, and the state Agriculture Department held a conference call Thursday morning with other EPA officials, Agriculture Secretary Wes Ward said Friday. "They're doing their due diligence," Ward said. "I was glad they came to Arkansas to see what things look like, the good and the bad, to see things first hand and not just read a report." (Arkansas Online, July 28, 2018)

http://www.arkansasonline.com/news/2018/jul/28/epa-visits-fields-hurt-by-dicamba-2018/#.W14srU_awec.twitter

NCSU RESEARCH: SIMPLE COCKROACH CONTROL METHOD LOWERS RESPIRATORY HEALTH RISKS

When it comes to understanding, and lowering, the risk that cockroaches pose to urban children's health, a North Carolina State entomologist and a Tulane University epidemiologist are making substantial strides.

RED MEAT ALLERGIES CAUSED BY TICK BITES ON THE RISE

Coby Schal, the Blanton J. Whitmire Distinguished Professor of Entomology at NC State, and Felicia Rabito, an associate professor of epidemiology in Tulane's School of Public Health and Tropical Medicine, have collaborated since 2011 to understand the role of cockroaches on the quality of homes in the inner city and their link to asthma in low-income children.

Through recent randomized, controlled experiments in low-income housing in Raleigh and New Orleans, Schal and Rabito wanted to see if eliminating cockroaches with targeted insecticidal treatments would improve asthma outcomes.

The research showed promising results: Children in homes that used simple, inexpensive insecticidal baits had fewer asthma symptoms, used health-care services less and improved their lung function.

The researchers reported that the findings raise the possibility that inexpensive cockroach control could replace the more complex pest management strategies that are currently recommended.

The U.S. Housing and Urban Development Secretary Ben Carson recently recognized the impact of their long-running research, education and outreach programs, bestowing on them the 2018 HUD Secretary's Award for Healthy Homes for research innovation.

Rabito and Schal were honored by HUD and the National Environmental Health Association in late June at the Healthy Homes Conference in Anaheim, California.

In notifying the researchers about their award, Carson explained that the award "recognizes programs that demonstrate overall excellence in terms of healthy indoor environments in response to both the needs and constraints of affordable housing." (PCT, July 10, 2018)

<http://www.pctonline.com/article/schal-simple-cockroach-control-lowers-respiratory-health-risks/>

Tick bites can cause all sorts of nasty afflictions. And if you're bitten by a Lone Star tick, here's one more to add to the list: a red meat allergy.

Laura Stirling, 51, a Realtor who lives in Severna Park, Md., was diagnosed with the allergy last year. She got a tick bite while walking on a trail with her dog, Gunner, near her home.

"I found [the tick] 3 or 4 inches to the left of my hip bone," Stirling recalls. At the time, she says, she didn't think much of it. "I just took it off and threw it away."

Then, three weeks later, after she ate an Italian-style pork sausage for dinner, she had a horrible reaction. The reaction began about six hours after her meal, which is typical of this allergy.

"It was the middle of the night. I woke up covered in hives," Stirling recalls. She woke her husband with all her itching and scratching. She felt lightheaded, and she experienced stomachaches and other gastrointestinal troubles.

An allergist gave her a blood test to check for an alpha-gal meat allergy. When the test came back positive, she was told to avoid all red meat, including beef, pork and lamb. (Despite a long-running campaign marketing it as "The Other White Meat," pork is classified as a red meat.) Some people who develop the allergy can no longer tolerate dairy products.

Stirling was surprised when she first got the news. "I thought it was completely crazy, because I've eaten dairy and red meat all my life," she says. But she quickly realized the diagnosis was spot on. Meat and dairy did trigger her symptoms.

"Her story is really interesting," says Dr. Scott Commins, an allergist and associate professor of medicine at the University of North Carolina, Chapel Hill. He says it is a meat allergy, but about 15 to 20 percent of patients with the alpha-gal allergy also report getting symptoms from dairy, especially high-fat dairy such as ice cream.

About 10 years ago, Commins was among the first physicians to identify the allergy in patients with tick bites. Back then, there were just a few dozen known cases.

That has increased dramatically. "We're confident the number is over 5,000 [cases], and that's in the U.S. alone," Commins says. There are also cases in Sweden, Germany and Australia — likely linked to other species of ticks.

In the U.S., the Lone Star tick has expanded its range beyond the Southeast, and there are documented cases of alpha gal meat allergies farther north — including New York, Maine and Minnesota.

"The range of the tick is expanding," says Commins. So is awareness about the red meat allergy it can cause. "We have a blood test, and the word is getting out."

Commins first began trying to solve the mystery of what was causing a red meat allergy in 2007, when he was at a University of Virginia allergy clinic. "We had a growing population of people reporting these reactions [to meat]," he recalls.

Early on, ticks were not on his radar. "We thought it was a parasite," Commins explains. But then he and his colleagues realized that many of the patients were outdoorsy types who spent time hiking. And eventually they pieced together the tick bite connection.

One hint came from mapping newfound cases of the meat allergy. When he compared that with the geographic distribution of Rocky Mountain spotted fever, also caused by the Lone Star tick, he saw striking similarities. "That map overlapped very nicely with the states where we were finding these emerging reactions to beef, pork and lamb," he says.

There's still a lot to learn about the alpha-gal allergy. Alpha gal is a sugar that animals — including cows, pigs and lamb — make in their bodies. "As humans, we don't make this alpha gal sugar," Commins explains. "We all make an immune response to it." So, how does a tick bite cause the allergy?

It's possible that ticks inject humans with alpha gal when they bite. The ticks likely get it from feeding off wild animals, such as mice or squirrels, which also carry alpha gal. Or it's possible that ticks activate the response in another way.

"Whatever the tick is doing, it seems that it's a very potent awakener for our immune system to produce antibodies," Commins says. "And in this case, it's antibodies to this very particular sugar in red meat."

Laura Stirling now avoids all red meat and dairy. "As soon as I stopped, I was fine, I felt great," she says.

"I get enough poultry and seafood in my diet," she says, so she's not pining for beef. And with all the nondairy options now available, she says it's not hard to avoid milk. "But I kind of miss having, you know, a bowl of ice cream or really good cheese."

She looks forward to the day when she may be able to eat foods such as prosciutto and salami — and ice cream — again. And there's a good chance she will outgrow the allergy.

"It can resolve," Commins says. But he adds a caveat: "We need people to avoid additional tick bites for the allergic response to wane." For people who like to be outside, this can present a challenge.

"I wear bug spray and I'm very cautious," Stirling says. (NPR, June 25, 2018)
<https://www.npr.org/sections/thesalt/2018/06/25/621080751/red-meat-allergies-caused-by-tick-bites-are-on-the-rise>

US EPA CONTESTS CHALLENGE OF ENLIST DUO REGISTRATION

The US EPA has hit back at litigation that aims to upend its approval of DowDuPont's Enlist Duo herbicide (2,4-D choline + glyphosate), arguing that it complied with federal law and that environmentalists lack standing to challenge the registration.

The Agency's July 11th filing with the US Court of Appeals for the Ninth Circuit outlines its defense of a January 2017 decision to amend the conditional registration of the herbicide, which has been approved for use on the genetically modified maize, cotton and soybeans in 34 states.

The EPA first registered Enlist Duo in November 2014. Environmentalists quickly filed suit, alleging that the Agency had violated federal pesticide law and the Endangered Species Act (ESA). At the EPA's request, the Ninth Circuit remanded the registration in January 2015, allowing the product to remain on the market while the Agency reviewed new evidence of potential synergistic effects.

The EPA subsequently concluded that existing buffers and mitigation measures were sufficient and issued its new conditional registration in January 2017. The Agency highlighted the "low volatility" of the herbicide and noted that it had retained restrictions on aerial applications as well as requirements for updated application technologies and buffer zones to protect sensitive areas.

But environmentalists, including the Center for Food Safety and the Natural Resources Defense Council, were not convinced and filed new lawsuits last year, arguing that the EPA did little to address their concerns about the human health effects on farmworkers or their fears that increased use of glyphosate and 2,4-D would harm the environment.

The complaints, consolidated before the Ninth Circuit, allege that the EPA failed to fully assess the human health effects of the two active ingredients, particularly exposure to the mixture in drinking water. The plaintiffs also contend that the EPA

ignored its obligations under the ESA to consult with federal wildlife agencies about the potential harm to listed species from the approved uses of the herbicide.

The EPA responds that the environmentalists have missed the mark, suggesting that their scientific arguments about the potential risks from Enlist Duo "lack evidence and are based on a misunderstanding of the registration process". The Agency says that it finalized the 2017 amendment to the Enlist Duo registration using "an appropriate and more stringent legal standard" than required by federal law and correctly concluded that it would not "generally cause unreasonable adverse effects" to the environment. The environmentalists lack standing to challenge the glyphosate component of Enlist Duo given the use of that herbicide in other products on the same crops, the EPA argues.

The Agency also defended its ESA review of Enlist Duo, telling the Court that it "assessed all possible impacts based on the best available information". The Ninth Circuit should defer to that review and to the EPA's expertise in assessing potential risk and benefits under federal pesticide law and uphold these findings as "reasonable and scientifically sound decisions" underlying its amended registration for Enlist Duo, according to the EPA.

DowDuPont generally echoes the Agency's arguments in its July 11th filing with the Court, arguing that the EPA "acted lawfully and reasonably" in registering the herbicide. "The irony here is palpable," the company says. "Enlist Duo, a product that presents significant benefits over the status quo, is being challenged on environmental grounds notwithstanding its environmental benefits."

"If, as a practical matter, the regulatory and judicial process stymie the approval of such improved products, American agriculture will be forced to continue relying on existing products with a less favorable efficacy and environmental profile, and industry will lose the incentive to innovate," the company says. (Pesticide & Chemical Policy/AGROW, July 17, 2018)

USDA ASSESSES AGCHEM USE ON FRUIT

US apple growers treated nearly 90% of crops with fungicides, insecticides and other chemicals in 2017, according to a survey by the USDA's National Agricultural Statistics Service. Around 80% of the crop was treated with fungicides and other chemicals and 91% treated with insecticides when the crop was last surveyed in 2015. Herbicide use was around 40% in both surveys.

The most widely used fungicide on apples in 2017 was sulfur, with 1.2 million lbs (544.3 tonnes) applied to 42% of the acreage. The next most widely used in terms of the proportion of acres treated was trifloxystrobin, with 11,900 lbs used on 39% of the crop. The major insecticide treatments were chlorantraniliprole (19,100 lbs on 52%) and spinetoram (18,500 lbs on 44%), and the herbicides were glyphosate isopropylamine salt (145,200 lbs on 25%) and 2,4-D dimethylamine salt (52,600 lbs on 15%).

Blueberry growers treated approximately 90% of crops with fungicides and insecticides, and 65% with herbicides. The most popular fungicide treatments were fenbuconazole (6,300 lbs on 56%) and captan (178,000 lbs on 51%), while the most used insecticides were phosmet (62,700 lbs on 49%) and zeta-cypermethrin (1,800 lbs on 47%), and the most popular herbicides flumioxazin (3,800 lbs on 21%) and glufosinate-ammonium (20,700 lbs on 21%).

About 83% of peach crops were treated with fungicides and insecticides, and 60% treated with herbicides and other chemicals. The most widely used fungicides used on the crop were propiconazole (9,600 lbs on 58% and captan (327,000 lbs on 38%), while the most popular insecticides were lambda-cypermethrin (2,400 lbs on 32%) and chlorpyrifos (36,300 lbs on 25%) and the most used herbicides glyphosate isopropylamine (50,400 lbs on 30%) and 2,4-D dimethylamine salt (27,400 lbs on 26%).

The NASS has highlighted the results on these three crops but surveyed a total of 22 crops in 12 states,

focusing on the states that are the major producers of the surveyed crops. (Pesticide & Chemical Policy/AGROW, July 30, 2018)

DICAMBA SO FAR IN 2018: TOUGH TO TELL

It's still too early to tell exactly how dicamba injury-related issues on U.S. cropland will compare to last year, but as of late July, a major improvement is not in the cards. It's disappointing, given the unprecedented training that went on in the off-season.

In his closely watched dicamba report, Dr. Kevin Bradley, Professor in the Division of Plant Sciences at the University of Missouri, recalled that last year on July 25, there were 1,411 dicamba-related injury investigations being conducted by the various state Departments of Agriculture while university weed scientists estimated approximately 2.5 million acres of soybean had been injured with dicamba.

"To date, at about the same time in 2018, we have somewhere around 600 cases being investigated by the state departments of agriculture and approximately 1.1 million acres of soybean estimated with dicamba injury by university weed scientists," Bradley said. His report includes maps that detail a survey of estimated dicamba-injured soybean acreage across the U.S.

Andrew Thostenson, Pesticide Program Specialist with the North Dakota State University Extension Service, has participated in weekly conference calls with EPA on the matter, and will continue to do so throughout the summer. He told CropLife on July 18:

"I can tell you EPA is concerned about what they're hearing ... They are trying to keep their finger on the pulse of things. I think they've been doing good job in terms of trying to collect information on what is or what is not happening, but I have no idea how they are going to process it and what decisions are going to be made." Dicamba labels are set to expire this Nov. 9.

Thostenson received his first dicamba injury-related call on July 10 in his home state of North Dakota, where about half of the state's 7 million soybean acres this season are dicamba tolerant. Since then, he said, the complaint calls have picked up pace.

“The thing that was alarming to me was that it was an entire field that was impacted. In my thinking, it wasn't a physical spray drift issue. Many fields that I've observed in the last week have been damaged fairly uniformly across the field. That's extremely worrisome. If there is a high degree of uniformity it usually has to do with volatility or physical drift having to do with an intense inversion,” he said.

Like many other weed scientists and extension specialists, Thostenson remains guarded in his outlook for the new technology: “We're into new territory here. All of the ways in which we have thought about things in the past are completely different ... This is not business as usual.”

In his report, Bradley posed two interesting questions:

“First, does 605 official dicamba-related injury investigations and/or approximately 1.1 million acres of dicamba-injured soybean constitute a problem for U.S. agriculture?”

“Second, can you look at the scale and the magnitude of the problem on these maps and really believe that all of this can collectively be explained by some combination of physical drift, sprayer error, failure to follow guidelines, temperature inversions, generic dicamba usage, contaminated herbicides, and improper sprayer clean out, but that volatility is not also a factor?”

Dr. Bob Hartzler, Professor of Agronomy and Extension Weed Specialist with Iowa State University, told CropLife, “If we conclude at the end of this year that there are more problems with off-target movement than last year, or even the same amount, to me that's an indication that the training did not work and that additional restrictions are required. I don't think anybody has a good feel for what's going to happen at the end of this year.”

He added: “I think the big thing is to recognize that these new technologies are not the solution to the resistance, regardless of how effective they are. They need to be part of an integrated, diverse weed management program.”

(CropLife, July 20, 2018)

<https://www.croplife.com/crop-inputs/dicamba-so-far-in-2018-tough-to-tell/>

SCORPIONS OUTDO SPIDERS AS SCARY CREATURES, UCR REPORTS

RIVERSIDE, Calif. — “I hate spiders.”

“How do you work with them?”

“I'd rather scoop maggots off a corpse than deal with a spider.”

Those are some of the typical responses Rick Vetter hears when he tells people about his work as an arachnologist at the University of California, Riverside.

“It doesn't matter if I say they're beneficial, many people just want them dead,” said Vetter, a retired research associate who spent 32 years in UCR's entomology department. “Even some of the entomologists I've worked with are incredibly afraid of spiders.”

Spiders and snakes reign supreme in the world of animal phobias, but the evolutionary reason for spider fear isn't well understood. Some psychologists believe it has an innate foundation, since humans may be genetically programmed to fear animals that can cause them harm.

But such visceral reactions to spiders have always intrigued Vetter, who said most of the long-legged arthropods are “easily squishable” and few are harmful to humans. Even those that bite often leave nothing more than a pinprick at first, with more severe symptoms developing hours or days later.

The danger of spiders pales in comparison to another member of the arachnid family: scorpions, whose venomous stings cause immediate searing pain, severe reactions, and sometimes death.

“In terms of innate fear, scorpions would be a much better candidate for aversive reaction than spiders. But as an arachnologist, I rarely hear about peoples’ fear of scorpions,” Vetter said. “Nor do scorpions enjoy the same monster-like status in popular culture.”

With this in mind, Vetter and colleagues from five universities across the U.S. set out to study fear of spiders and scorpions among 800 students in Green Bay, Wisconsin; Cookeville, Tennessee; Athens, Georgia; Tucson, Arizona; and Riverside. The Wisconsin site is the only location devoid of scorpions, while the Arizona location is the only one to host a potentially deadly scorpion, *Centruroides sculpturatus*, commonly known as the Arizona Bark Scorpion.

The researchers used the well-known “Fear of Spiders” questionnaire, which they adapted to measure fear of scorpions. The participants were asked to agree or disagree with statements, such as, “If I saw a spider now, I would leave the room,” and “Spiders are one of my worst fears.” The scientists predicted spider fear would be higher than scorpion fear overall, with students in Arizona being the most fearful of scorpions, and those in Wisconsin the least fearful.

Published today in the non-peer reviewed “Musings” section of *American Entomologist*, the results surprised them: respondents from all locations reported being more fearful of scorpions than spiders.

“The results from our survey blew our predictions to smithereens,” Vetter said. “Not only were people more afraid of scorpions than spiders at all universities, but scorpion fears in Wisconsin were equal to or higher than scorpion fears in Arizona. That fact that students in scorpion-free Wisconsin registered such high fear scores is mind boggling.”

Vetter said it’s possible that exposure to arachnids leads to habituation and therefore lower scores, which might also explain why scorpion fear was low among Arizona students.

“Are high scorpion fear scores in Wisconsin due to fear of the unknown and the unfamiliar?” said Vetter, who said the paper’s inconclusive findings open the door for psychology researchers to explore scorpion fear, which is much less studied than spider fear.

“By adding scorpions to the research mix, psychologists might be able to get a better understanding of arachnid fear in humans,” he said. (PCT, June 29, 2018)

<http://www.pctonline.com/article/scorpions-outdo-spiders-ucr-study/>

CEU Meetings

Date: August 9, 2018

Title: Plant Materials for the Green Industry

Professional and End Consumer

Location: Wes Watkins Center OSU Stillwater

Contact: Mike Schnelle (405) 744-7361

www.hortla.okstate.edu

CEU's:	Category(s):
3	3A
3	3B
3	3C
3	10

Date: September 18, 2018

Title: 2018 Ensystem CEU Workshop

Location: Hampton Inn & Suites 85th Ave Tulsa OK

Contact: Donald Stetler Jr. (281) 217-2965

www.ceuworkshop.com

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

Date: September 19, 2018

Title: 2018 Ensystem CEU Workshop

Location: Holiday Inn Express Durant OK

Contact: Donald Stetler Jr. (281) 217-2965

www.ceuworkshop.com

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

Date: November 5-7, 2018

Title: Oklahoma Ag Expo 2018

Location: Embassy Suites Norman

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

www.oklahomaag.com

CEU's:	Category(s):
8	1A
3	4
11	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

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/>

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-ceu.htm>

ODAFF Test Information

Pesticide applicator test sessions dates and locations for August/September are as follows:

August		September	
6	OKC	4	OKC
9	Tulsa	6	Tulsa
16	Enid	17	OKC
20	OKC	20	Tulsa
23	Tulsa		

Altus: SW Research & Extension Center
16721 US HWY 283

Ardmore: Carter County Extension Office
107 1st Ave Ardmore OK

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., Prairie Bldg

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

OKC: ODAFF Building 2800 N Lincoln
BLVD Oklahoma City OK (**New Location**)

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

**Pesticide Safety
Education Program**