

PESTICIDE REPORTS

Division of Agricultural Sciences and Natural Resources • Oklahoma State University

<http://pested.okstate.edu>



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CHEM

- 1 JUNE TEST HELP SESSIONS
- 2 UPDATED REGISTRATION REVIEW SCHEDULE NOW AVAILABLE
- 3 EPA EXTENDS COMMENT PERIOD ON PROPOSED DECISION TO REGISTER DICAMBA FOR USE ON GENETICALLY-ENGINEERED CROPS
- 4 HERBICIDE RESISTANCE IN WATERHEMP CONTINUES TO GROW
- 5 TERMINIX FINED \$10 MILLION OVER FUMIGATION POISONING CASE
- 6 US INDUSTRY SLAMS BELT CANCELLATION PROCESS
- 7 INDUSTRY ASKS TO INTERVENE IN US NEONIC SEED SUIT
- 8 THICK-SKINNED BED BUGS BEAT COMMONLY USED BUG SPRAYS, RESEARCHERS REPORT
- 9 BED BUGS DRAWN TO CERTAIN COLORS, STUDY SHOWS
- 9 WSSA SURVEY: PALMER AMARANTH RANKED THE MOST TROUBLESOME WEED IN THE U.S
- 10 NEW DISCOVERY MEANS MORE U.S. STATES WILL FACE A RISK FROM ZIKA
- 12 WELCOME BACK DR. BRAD KARD
- 13 CEU MEETINGS
- 13 ONLINE CEU LINKS
- 13 ODAFF TEST SESSION INFORMATION

JUNE TEST HELP SESSIONS

The OSU Pesticide Safety Education Program will conduct the next test help sessions for 2016 in June. The workshops will be held June 28th in Oklahoma City and June 30th in Tulsa.

The Oklahoma City Test help session will at the OSU-OKC Agriculture Resource Center (ARC) 400 N Portland. The Tulsa session will be at the Tulsa County Extension Office at 4116 E. 15th.

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!

More Test Help Workshop dates are scheduled for 2016. Please go to the website below for more 2016 dates.

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

UPDATED REGISTRATION REVIEW SCHEDULE NOW AVAILABLE

The U.S. Environmental Protection Agency has released an updated schedule for the Pesticide Registration Review program, covering planned draft risk assessments, proposed interim decisions, and interim decisions for antimicrobials, biopesticides and conventional chemicals through the end of the 2016 fiscal year.

Through the Pesticide Registration Review program, EPA reviews all registered pesticides at least every 15 years, as mandated by the Federal Insecticide, Fungicide, and Rodenticide Act. EPA bases its decisions on the best available sound science. However, science is constantly evolving, and new scientific information can come to light at any time and change our understanding of potential risks from pesticides. The review of new data could potentially prolong the risk assessment and decision-making process and change this schedule.

We are committed to an open and transparent registration review process and offer many opportunities for the public to submit their thoughts on draft risk assessments and proposed interim

decisions. Once these documents are available for public comment, any stakeholder is welcome to submit their comments in the given pesticide's docket at www.regulations.gov.

The updated schedule for pesticide registration review is available online at www.epa.gov/pesticide-reevaluation/registration-review-schedules.

For more information on registration review, visit www.epa.gov/pesticide-reevaluation. (EPA May 2, 2016) <https://www.epa.gov/pesticides/updated-registration-review-schedule-now-available-0>

Draft Risk Assessments

FY16 Quarter 3

- 2,4-D salts and esters
- Atrazine
- Carfentrazone-ethyl
- Chlorethoxyfos
- Copper salts
- Cymoxanil
- Diazinon
- Kresoxim-Methyl
- Linuron
- Malathion
- Mineral Acids
- Propazine
- Simazine
- Spinosad/Spinetoram

FY16 Quarter 4

- Acephate
- Cyclanilide
- Cyprodinil
- Dichlobenil
- Dimethomorph
- Etofenprox
- Fenpropathrin
- Flumethrin
- Glycolic acid and salts
- Imiprothrin
- Mepiquat chloride
- Metalaxyl/mefenoxam

- MGK-264
- Momfluorothrin
- Oxytetracycline
- Phenothrin (Sumithrin)
- Phosmet
- Prallethrin
- Pyrethrins
- Tau-fluvalinate
- Tefluthrin
- Tetramethrin

FY16 Quarter 4

- Azoxystrobin
- Boric Acid
- Diquat Dibromide
- Ethephon
- Hymexazol

Interim Decisions / Decisions

FY16 Quarter 3

- Alpha-chlorohydrin
- Chlorfenapyr
- Cyanamide

FY16 Quarter 4

2-(Decylthio)ethanamine hydrochloride (DTEA-HCl)

- Aliphatic alcohols, C1-C5
- Bentazon
- Propoxur
- Propoxycarbazone
- Sodium Acifluorfen
- Thidiazuron

EPA EXTENDS COMMENT PERIOD ON PROPOSED DECISION TO REGISTER DICAMBA FOR USE ON GENETICALLY-ENGINEERED CROPS

In response to requests, the EPA is extending for an additional 30 days the public comment period on the proposed regulatory decision to register dicamba to control weeds in cotton and soybean genetically engineered (GE) to tolerate dicamba. Public comments on the Agency's proposed regulatory decision must be submitted no later than May 31, 2016. Comments may be submitted to the EPA

Proposed Interim Decisions / Interim Decisions

FY16 Quarter 3

- Antimycin-A
- Clethodim
- Flufenacet
- Flurprimidol
- Fosamine ammonium
- Glufosinate
- Hexazinone
- Lithium hypochlorite
- Methoxyfenozone
- Sucrose octanoate
- Sulfonylurea (SU) herbicides
 - Bensulfuron-methyl
 - Chlorimuron-ethyl
 - Chlorsulfuron
 - Flazasulfuron
 - Foramsulfuron
 - Halosulfuron-methyl
 - Imazosulfuron
 - Iodosulfuron-methyl-Na
 - Mesosulfuron-methyl
 - Metsulfuron-methyl
 - Nicosulfuron
 - Orthosulfamuron
 - Primisulfuron-methyl
 - Prosulfuron
 - Rimsulfuron
 - Sulfometuron-methyl
 - Sulfosulfuron
 - Thifensulfuron-methyl
 - Triasulfuron
 - Tribenuron-methyl
 - Trifloxysulfuron-Na
 - Triflusulfuron-methyl
- Tebufenozide

docket EPA-HQ-OPP-2016-0187 at
www.regulations.gov.

These GE cotton and soybean plants are the first developed to be resistant to dicamba and are intended to allow farmers to use dicamba to control weeds that have developed resistance to glyphosate and other herbicides.

After the comment period closes, EPA will review all of the comments and reach a final decision, which the Agency expects to issue in late summer or early fall 2016. (EPA April 28, 2016)

<https://www.epa.gov/pesticides/epa-extends-comment-period-proposed-decision-register-dicamba-use-genetically-engineered>

HERBICIDE RESISTANCE IN WATERHEMP CONTINUES TO GROW

Twenty-five years ago, waterhemp was virtually unknown to Illinois farmers. Today, the broadleaf weed blankets corn and soybean fields across the state and the Midwest, causing yield losses from 40% to 70%, according to an article on the University of Illinois' College of Agricultural, Consumer, and Environmental Sciences Website.

As it marched through the region, waterhemp began to develop resistance to the most commonly used herbicides of the day. A relatively new type of resistance to a class of herbicides called HPPD-inhibitors was discovered in waterhemp populations in Illinois and Iowa in 2009. Now, thanks to a new University of Illinois study, we know that some of those populations are also resistant to alternative herbicides, making them even harder to kill.

“We looked at the response of a McLean County, Illinois, population to a number of HPPD-inhibitors and several herbicides of six other classes in the field and in the greenhouse,” says University of Illinois weed scientist Aaron Hager.

The researchers looked at whether it was possible to control plants with higher application rates of HPPD-inhibitors. But it turned out that, even with twice the label rate of some HPPD-inhibitors, the plants were able to recover after two weeks.

“When we did our first greenhouse work with this, no one had ever seen this kind of recovery before. When we looked at the plants seven days after spraying with HPPD-inhibitors, they were very injured. But, by 12-14 days, you could see that new, healthy tissue was emerging from the plants,” Hager recalls.

The researchers also evaluated the timing of post-emergence herbicide application.

“The idea was that perhaps a smaller plant size might be more sensitive than a larger plant,” Hager explains. “The level of injury of small, 1- to 2-inch plants was more than what we recorded on larger plants, but it was still less than an acceptable level of control. So, really, application timing is not going to be something that a farmer could use to overcome HPPD-resistance.”

When waterhemp was treated with herbicides from different classes, there was more bad news.

“We essentially confirmed that we can't control this population with three classes of herbicides, the HPPD-inhibitors, the ALS-inhibitors, or the PSII-inhibitors. The weight of everything together points to the fact that this population is using resistance mechanisms that we haven't seen before,” Hager says.

That said, the McLean County population is not the only waterhemp population that is resistant to multiple herbicide classes. In fact, Hager says that it's rare to find a population that is resistant to only one class.

“What's changed over time is the number of different classes to which it's resistant. In 2000, we first found a population that had three-way resistance. Then we found one with four-way resistance. Those are individual plants with resistance to two, three, or four different classes of herbicides,” Hager notes.

There are some herbicides that are still effective, at least on specific populations. The McLean County population is sensitive to glyphosate, glufosinate (a GS-inhibitor), and multiple PPO-inhibitors, such as fomesafen.

Hager cautions that, with certain resistance mechanisms, the ability to predict which herbicides will be effective on any given population has been lost, and that chemical control alone is not the answer. If a farmer switches to a class of herbicides that works today, it is unlikely to work for very long before waterhemp develops resistance.

“Ultimately, we know how to win the battle,” Hager says. “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.”

Hager recommends that farmers let seeds germinate, then mechanically work the soil before planting the crop.

“You’ve just reduced your seedbank by millions, maybe hundreds of millions, and it didn’t cost you a dime,” Hager notes.

Farmers should repeat this strategy for multiple years until the seedbank is diminished. Another key is pulling out any stragglers before they go to seed.

“Let’s say it’s late July, and you see a few of these things popping up. Don’t let them go to seed,” Hager warns. “It’s not fun. At that time of year, it’s hot, sticky, and miserable, but the ultimate goal is to reduce the seedbank. You can’t let female plants go and make hundreds of thousands of seeds and then run a combine through at the end of the year. You’re going to reseed that whole field.”

According to Hager, no new herbicides are being developed that are likely to work on waterhemp long-term.

“We’ve got to get people off this idea that we’ve got a chemical solution for waterhemp, because in some cases, we don’t,” Hager adds. (CropLife April 22, 2016) <http://www.croplife.com/crop-inputs/herbicides/herbicide-resistance-in-waterhemp-continues-to-grow/>

TERMINIX FINED \$10 MILLION OVER FUMIGATION POISONING CASE

Terminix has agreed to pay \$10 million for illegally using a pesticide containing a toxic chemical in the U.S. Virgin Islands, federal officials said.

The plea deal comes more than a year after a family of four vacationing in the U.S. Virgin Islands fell seriously ill when the unit below them was fumigated, CNN reported.

“Terminix companies knowingly failed to properly manage their pest control operations in the U.S. Virgin Islands, allowing pesticides containing methyl bromide to be applied illegally and exposing a family of four to profoundly debilitating injuries,” U.S. Assistant Attorney General John C. Cruden said in a statement Tuesday.

Terminix did not immediately respond to CNN’s request for comment.

The plea agreement, which must be approved by a district court judge, includes \$8 million in criminal fines, \$1 million in restitution and a \$1 million community service project for Terminix International Company and its U.S. Virgin Islands operation, the U.S. Justice Department said. (PCT Online, March 30, 2016)

<http://www.pctonline.com/article/terminix-fine-fumigation-case/>

US INDUSTRY SLAMS BELT CANCELLATION PROCESS

The US pesticide and agricultural industries are rallying behind Bayer CropScience's challenge of the US EPA's effort to cancel its insecticide, Belt (Nihon Nokyaku's flubendiamide).

CropLife America says that the Agency's notice of intent to cancel Belt's registration is an attempt to "short-circuit the carefully designed process" for registration cancellation laid out in the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). "If EPA's attempt to bypass the procedure that Congress intended is affirmed by this body, it would have significant immediate and long-term negative implications for CropLife's member companies and for agriculture generally," the group says in a brief filed earlier this month with EPA Chief Administrative Law Judge (ALJ) Susan Biro, who is considering Bayer's administrative appeal of the Agency's cancellation notice.

A coalition of 36 national grower and agricultural organisations, led by the American Soybean Association and the National Corn Growers Association, takes a similar view of the EPA's bid to cancel the insecticide. The EPA has "bypassed" established regulatory procedures and "simply demanded voluntary cancellation", the coalition argues in its ALJ filing. "Not only are EPA's actions unlawful, they have effectively silenced growers from having any input in a decision that directly impacts them."

The industry push to support Bayer comes as the company and the EPA continue to battle over the pending review by Judge Biro.

The dispute centres on a conditional registration that the Agency granted Bayer in July 2008, covering uses of flubendiamide on more than 200 crops across the US, including maize, soybeans, fruits and tree nuts. Citing concerns about the potential impacts on aquatic ecosystems and the effectiveness of vegetative buffers, the EPA required Bayer to complete four additional studies by July 2012. The registration included a provision calling on Bayer to voluntarily request cancellation

if the EPA had subsequently found that continued use would cause "unreasonable adverse effects" on the environment.

After reviewing the new studies, the Agency concluded that its new assessment met that threshold, citing specific risks to aquatic invertebrates and calling on Bayer to voluntarily cancel the insecticide.

Bayer refused, prompting the EPA last month to issue a notice of intent to cancel the Belt registration. The company disagrees with the EPA's assessment of the science, arguing that the results of the required studies show that residues of the insecticide were below levels the Agency said would pose harm. But the appeal to the ALJ is focused on whether the Agency has followed the correct statutory guidelines for issuing a cancellation notice not the science dispute.

Bayer says that the EPA wrongly issued its notice under a section of the FIFRA that allows only limited issues, notably whether the registrants failed to comply with the required conditions of their registration, to be considered at a hearing on the decision. The Agency rejects Bayer's concerns that this process is unfair and says that the company is on shaky legal ground.

"The simple fact is the registrants now regret the best deal they were able to get in 2008 and want this tribunal to give them not merely a 'do-over,' but a registration on their own terms," the EPA says in its April 18th filing with the ALJ.

The Agency cautions that a ruling in Bayer's favour could harm other pesticide manufacturers and users, arguing that registrants experiencing "buyer's remorse" should not be allowed to "ignore a condition of a registration that they do not like". If the ALJ sides with Bayer, the EPA "would have to reconsider whether its current practice of approving conditional registrations is adequate to prevent unreasonable adverse effects", according to the Agency. "Such a scenario would impact many companies and applications not involved in this proceeding and slow the introduction of promising new pesticide products into the market. The likely

result would be that growers, registrants and the environment would all suffer."

Bayer counters that the EPA's actions are not in line with FIFRA and argues that it deserve an adjudicatory hearing that considers the full range of issues at hand. "EPA seeks to dodge the central question, by assuming without explanation that the forced 'voluntary' cancellation conditions it imposed are valid exercises of its regulatory authority," Bayer notes in an April 21st filing with the ALJ.

The company says that the Agency is claiming "unlimited and unreviewable authority to impose any condition it wishes and to cancel a registration ... for failure to meet any condition it devises". Although the EPA may prefer "a quicker and less burdensome process that shields its decision-making from any legal or scientific scrutiny, Congress took that decision out of EPA's hands", Bayer concludes. "EPA's convenience does not trump statutory rights provided to registrants and other stakeholders, nor should it." (Pesticide & Chemical Policy/AGROW, April 26, 2016)

INDUSTRY ASKS TO INTERVENE IN US NEONIC SEED SUIT

Pesticide and agricultural trade groups are keen to intervene in a lawsuit that aims to force the US EPA to regulate seeds treated with neonicotinoid insecticides as pesticides. They argue that the claims in the case "directly threaten the property and economic interests" of their members.

At issue is a lawsuit brought in January by a coalition of environmentalists, beekeepers and farmers that alleges the EPA has wrongly concluded the seed coatings are not pesticide applications, a classification that exempts the treated seeds from the registration requirements of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).

Some 61 million ha of neonicotinoid-treated maize, soybeans and canola are planted annually across the US and the plaintiffs, led by the Center for Food Safety (CFS), contend that dust and contamination from the treated seeds are "killing honey bees by the many millions and imposing a potentially catastrophic hazard to aquatic systems".

The lawsuit calls on the US District Court for the District of Northern California to mandate that the EPA regulate the seeds themselves as pesticides under the FIFRA and block the sale and use of new seeds treated with neonicotinoids and other systemic insecticides.

The industry trade groups, led by CropLife America (CLA), say that the lawsuit aims to "upend EPA's process for regulating seed treatments" and would cause "significant harm" to their members. The other organisations joining CLA in the request to intervene are the American Seed Trade Association, the Agricultural Retailers Association, the American Soybean Association, the National Cotton Council of America, the National Association of Wheat Growers and the National Corn Growers Association.

CLA says that the lawsuit aims to "render null and void more than two dozen seed treatment registrations" held by its members and stymie ongoing development of new treatments.

The proposed intervenors contend that the lawsuit could also prohibit members of the seed trade groups from selling or distributing the treated seed and unfairly block members of the grower groups from purchasing or planting any treated seeds until the EPA registers the seeds as pesticides. "Growers would be deprived of the benefit of treated seed should EPA's lengthy pesticide registration process extend beyond the growing season for which a treated seed was produced," according to the March 16th brief filed with the court.

Beyond the specific claims in the case, the groups say that they have "an additional interest in defending against unwarranted expansion of the administrative process that would effectively require needless and duplicative FIFRA registrations."

The EPA, which has asked the court to dismiss the case on jurisdictional grounds, says that it does not oppose the intervention of the industry groups.

The plaintiffs, however, say that the proposed intervenors' claims of economic hardship are "vastly exaggerated" and argue that the court should reject their request. The case "narrowly targets neonicotinoid insecticidal coated seeds" and not other types of seed treatments, according to the plaintiffs. "Moreover, this case would not directly affect any of the existing registrations of seed coating products, but rather the way EPA regulates pesticidal seeds in the future," the CFS-led coalition says in its March 30th filing.

The court will hear arguments on the motion to intervene on April 21st. (Pesticide & Chemical Policy/AGROW, April 4, 2016)

THICK-SKINNED BED BUGS BEAT COMMONLY USED BUG SPRAYS, RESEARCHERS REPORT

The global resurgence in bed bugs over the past two decades could be explained by revelations that bed bugs have developed a thicker cuticle that enables them to survive exposure to commonly used insecticides, according to University of Sydney research published today in PLOS ONE.

Bed bugs are blood suckers that produce intense bites and cause significant financial heartache in the hospitality and tourism sectors. Understanding why they have again become so common may help develop new strategies for their control.

Resistance to commonly used insecticides is considered the main reason for the global resurgence in bed bugs, according to University of Sydney PhD candidate, David Lilly, whose research focuses on the biological mechanisms that help bed bugs survive exposure to commonly used

insecticides. Being 'thick' may be smart, for bed bugs at least!

"The new findings reveal that one way bed bugs beat insecticides is by developing a thicker 'skin', said David Lilly. "Bed bugs, like all insects, are covered by an exoskeleton called a cuticle. Using scanning electron microscopy, we were able to compare the thickness of cuticle taken from specimens of bed bugs resistant to insecticides and from those more easily killed by those same insecticides."

Comparing the cuticle thickness of the bed bugs revealed a stunning difference: the thicker the cuticle, the more likely the bed bugs were to survive exposure to the insecticides.

The new findings could explain why failures in the control of bed bug infestations are so common. They may also unlock new pathways to developing more effective insecticides for bed bug control.

"If we understand the biological mechanisms bed bugs use to beat insecticides, we may be able to spot a chink in their armour that we can exploit with new strategies," said Lilly.

But measuring the thickness of bed bug cuticle wasn't an easy task, he said: "The findings are exciting but collecting data was frustrating. Taking microscopic measurements of bed bug legs requires a steady hand and patience, lots of patience."

(PCT Online, April 14, 2016)

<http://www.pctonline.com/article/bed-bug-thick-skinned-cuticle-research/>

BED BUGS DRAWN TO CERTAIN COLORS, STUDY SHOWS

Researchers from the University of Florida and Union College in Lincoln, Neb., wondered whether bed bugs preferred certain colors for their hiding places, so they did some testing in the lab. The tests consisted of using small tent-like harborage that were made from colored cardstock and placed in Petri dishes. A bed bug was then placed in the middle of the Petri dish and given ten minutes to choose one of the colored harborage. A few variations of the test were also conducted, such as testing bed bugs in different life stages, of different sexes, individual bugs versus groups of bugs, and fed bugs versus hungry bugs.

The results, which are published in the *Journal of Medical Entomology*, showed that the bed bugs strongly preferred red and black, and they seemed to avoid colors like green and yellow.

"It was speculated that a bed bug would go to any harborage in an attempt to hide," wrote the authors. "However, these color experiments show that bed bugs do not hide in just any harborage; rather, they will select a harborage based on its color when moving in the light."

"We originally thought the bed bugs might prefer red because blood is red and that's what they feed on," said Dr. Corraine McNeill, one of the co-authors. "However, after doing the study, the main reason we think they preferred red colors is because bed bugs themselves appear red, so they go to these harborage because they want to be with other bed bugs, as they are known to exist in aggregations."

While this is a plausible explanation, many factors influenced which color the bed bugs chose. For example, the bugs' color preferences changed as they grew older, and they chose different colors when they were in groups than when they were alone. They also chose different colors depending on whether they were hungry or fed. Furthermore, males and females seemed to prefer different colors.

The authors suggest that a possible explanation for why bed bugs avoided yellow and green colors is because those colors resemble brightly-lit areas. These findings are important because they may have implications for controlling the pests. (PCT Online April 27, 2016)

<http://www.pctonline.com/article/bed-bugs-color-preference/>

WSSA SURVEY: PALMER AMARANTH RANKED THE MOST TROUBLESOME WEED IN THE U.S

It's now official. A survey conducted by the Weed Science Society of America (WSSA) has ranked Palmer amaranth, also known as Palmer pigweed, as the most troublesome weed in the U.S. Weeds in the *Galium* genus (cleavers, catchweed bedstraw, and false cleavers) ranked as the most troublesome in Canada.

"We certainly weren't surprised to find Palmer amaranth at the top of the U.S. list," says Lee Van Wychen, Ph.D., science policy director for WSSA. "This weed can have a devastating impact on crop yields. Its stems are tough enough to damage rugged farm equipment, and it is extremely prolific. A single Palmer amaranth plant can produce as many as a million seeds during a growing season."

Hundreds of weed scientists, extension agents and practitioners across 49 U.S. states, Puerto Rico, and eight Canadian provinces participated in the 2015 WSSA survey. They provided input on both the most common weeds (those most frequently seen) and the most troublesome weeds (those most difficult to control) in 26 different cropping systems and natural areas. The lists below are based on an aggregation of their responses, which mentioned more than 650 weeds at least once.

Three weeds – common lambsquarters, morningglory species, and Palmer amaranth – appear on both lists above.

For Canada, weed species in the Alberta, Saskatchewan and Manitoba prairies tended to dominate the survey. Wild buckwheat and wild oat appeared on both the “most troublesome” and “most common” lists.

Among the other significant findings from the 2015 WSSA survey were the most troublesome and the most common weeds in several key crops and ecosystems across the U.S. and Canada:

The 2015 survey data is available here. Scientific names for the weeds above are available in the WSSA composite list of weeds.

WSSA plans to conduct its weed survey annually, with a three-year rotation of different weed habitats. The 2016 survey focuses on weeds in broadleaf crops, fruits, and vegetables. The 2017 survey will focus on weeds in grass crops, pastureland, and turf, while the 2018 survey will focus on weeds in aquatic environments, natural areas, and other noncrop settings. (Crop Life, April 8, 2016)

<http://www.croplife.com/crop-inputs/herbicides/wssa-survey-palmer-amaranth-ranked-the-most-troublesome-weed-in-the-u-s/>

NEW DISCOVERY MEANS MORE U.S. STATES WILL FACE A RISK FROM ZIKA

For the first time in the Western Hemisphere, researchers have detected the Zika virus in *Aedes albopictus*, the mosquito species known as the “Asian tiger,” a finding that increases the number of U.S. states potentially at risk for transmission of the disease.

During the summer months when U.S. mosquito populations are at their peak, *albopictus* are more ubiquitous than the *Aedes aegypti* that have been the primary vector of the spread of Zika elsewhere

in the Americas. Unlike the *aegypti* mosquito, which is mostly present in southern United States and along the Gulf Coast, the *albopictus* has a range as far north as New England and the lower Great Lakes.

The discovery was reported recently by the Pan American Health Organization after researchers in Mexico confirmed the presence of Zika in Asian tiger mosquitoes captured in the state of San Luis Potosi and sent them to government labs for testing.

U.S. health officials say they had anticipated the finding and have already encouraged states within the range of the Asian tiger mosquitoes to prepare for Zika. Scientists had previously identified the Asian tiger as the primary vector for Zika during a 2007 outbreak in the West African country of Gabon.

U.S. health officials say the latest discovery should serve as a wake-up call to state and local governments that have assumed their populations were too far north to be at risk.

“There are officials who have been saying we don’t have *aedes aegypti*, so we don’t need to be worried or have a plan,” said Janet McAllister, an entomologist at the U.S. Centers for Disease Control and Prevention. “What CDC is saying is: You need a plan in place because *albopictus* could transmit Zika in your area, and you need to take it seriously.”

While the methods for eliminating the *aegypti* and *albopictus* mosquitoes are similar, they are not identical, experts say, because the two species have significantly different behavioral and breeding patterns.

Unlike the *aegypti* mosquito, which thrives in urban areas by laying eggs in discarded food containers and old tires, the Asian tiger mosquito lives outdoors, laying its eggs in tree stumps and holes, McAllister said. It doesn’t try to follow humans indoors and prefers leafy forests to dense urban

environments. It's especially fond of suburban back yards and sprawling city parks.

Marcos Espinal, director of communicable diseases at the Pan American Health Organization, said researchers are still trying to determine how effectively the Asian tiger can spread disease in comparison to aegypti.

"Scientists will not be surprised if it's a competent vector, but we need to find out more," Espinal said in an interview.

CDC entomologist McAllister said there are several reasons to doubt that the Asian tiger mosquito will be able to drive the kind of Zika outbreak ravaging Brazil, where more than 1,000 infants have been born with undersize heads and severe brain damage probably caused by a Zika-related infection during the early stages of fetal development.

For one, the albopictus mosquito is "a more aggressive biter," McAllister said, as it feeds on humans, raccoons, squirrels or any other warm-blooded mammal it finds.

"Once it starts taking a blood meal, it will stay on that person until it's completely full," she said, instead of jumping from person to person — precisely the promiscuous behavior that makes the aegypti species so effective at spreading infections.

The aegypti variety is much more adapted to humans, she said, as it flies low around human ankles to avoid detection, then eats quick, short meals that reduce its chances of getting swatted.

"It won't take a complete blood meal if people are actively moving around, so that's what makes aegypti a super-spreader," McAllister said. "Whereas the albopictus tends to stay put."

Specimens of the Asian tiger species found in the United States have been traced back to northern Japan, reflecting the mosquito's ability to survive colder weather. With a distinctive black-and-white coloring, the species was first detected in North America at the Port of Houston in 1985, and later

showed up in the Port of Los Angeles. In both instances, scientists suspect the larvae arrived in shipments of used tires.

Albopictus eggs have also arrived from Asia in the ornamental plants sold as "lucky bamboo" in U.S. department stores.

In Europe albopictus populations have increased so fast that the European Centre for Disease Prevention and Control, a European Union agency, has labeled it the world's most invasive mosquito species.

Eliminating albopictus larvae can be more difficult than controlling aegypti populations because the species can reproduce in a variety of outdoor environments, said Thomas Inglesby, the director of the University of Pittsburgh Medical Center's Center for Health Security.

The discovery of Zika in the Asian tiger mosquito means states and counties in the insect's range need to rethink their control plans, he said.

"We have a big country where the responsibility for this rests with a lot of little jurisdictions, so we don't have a lot of good data about how well states and localities are prepared," Inglesby said.

"Mosquito-control programs around the country are a patchwork."

"I think some states and local governments have been focusing on aegypti and less on albopictus, but this finding makes clear that both will require control measures," he added.

The White House has asked Congress for nearly \$1.9 billion to help state and local health officials prepare for a Zika outbreak in the United States this summer, including funds for spraying, larvicide and other mosquito control methods. The request has been stalled for two months, and Senate Republicans have countered with a \$1.1 billion proposal.

In the meantime, the Obama administration has been paying for Zika preparations using funds previously approved for fighting Ebola.

According to the most recent CDC figures, 426 Zika cases have been reported in the 50 U.S. states by travelers who acquired the virus abroad or had sex with an infected partner. Another 596 cases have been tallied in U.S. territories, mostly in Puerto Rico, where mosquitoes are spreading the disease.

There have been no reports of Zika transmission by mosquitoes in the 50 U.S. states, but the CDC has warned that is likely to change as insect populations increase with warmer weather. (Washington Post, April 29, 2016)

https://www.washingtonpost.com/world/the_american/new-discovery-means-more-us-states-will-face-a-risk-from-zika/2016/04/29/497ffa98-0d59-11e6-bc53-db634ca94a2a_story.html

WELCOME BACK DR. BRAD KARD

With the departure of Dr. Jackie Lee the OSU Pesticide Education Safety Program would like to welcome back Dr. Brad Kard OSU Structural and Urban Entomologist as the Interim Pesticide Coordinator.

Dr. Kard served as the Interim Pesticide Coordinator after Dr. Jim Criswell retirement in 2010 up to Dr. Lee's hiring in 2013.

The OSU PSEP program looks forward to once again working with Dr. Kard on Pesticide Education training.

CEU Meetings

No meetings to report for May.

ODAFF Approved Online CEU Course Links

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.state.ok.us/~okag/cps-ceuhome.htm>

ODAFF Test Information

Pesticide applicator test sessions dates and locations for May/June are as follows:

May		June	
5	Enid	7	Goodwell
12	Tulsa	9	Tulsa
13	OKC	10	OKC
19	Altus	23	Tulsa
26	Tulsa	24	OKC
27	OKC		

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 33rd St. Edmond
OK (New Location)

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

**Pesticide Safety
Education Program**