

PESTICIDE REPORTS

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



February, 2019

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RECORD KEEPING CHANGES AND UPDATED FORMS

Last fall ODAFF added two new items to the record keeping requirements required to be kept when making applications in the State of Oklahoma for commercial and non-commercial applicators.

ODAFF now requires that you keep a record of what adjuvants were used in the tank when the label requires the use of adjuvants.

ODAFF also requires you keep records of what Drift Reduction Agents were used if the label requires the use of a drift control agent.

There is no official form required for recordkeeping but the OSU PSEP program makes a recordkeeping form available that meets ODAFF requirements on our web page. Applicators will want to make sure their recordkeeping forms are up to date whether using our PSEP form or a different form or way of keeping records.

Word and PDF versions are available for download and can be found here on our website.

<http://pested.okstate.edu/html/records.html>

HOW DOES HERBICIDE RESISTANCE OCCUR?

Herbicide resistance is the inherited ability of a plant to survive and reproduce following exposure to a dose of herbicide that would normally be lethal to the wild plant. Resistance happens with the repeated use of the same herbicide, or herbicides with similar modes of action on a weed population. Resistant plants were already found, very infrequently, in the weed population before a herbicide was ever used.

Think of it this way—there might be a few million weed seeds of a particular species in, say a 40-acre field. The overwhelming majority of plants from those seeds are controlled by a given herbicide. A slim handful are in every way the exact same except for one small genetic difference. That small genetic difference allows the weeds from those seeds to overcome the effects of that herbicide as they germinate.

After several years of using the same herbicide, or herbicides from the same group, that very infrequently occurring version of the weed—a version that looks exactly like the type that was controlled by the herbicide—is allowed to reproduce. At first it might look like an escape, or a small patch of weeds that survive. Eventually, it becomes the dominant type of that weed in the field. It's "survival of the fittest" in fast forward.

Some management techniques are key in preventing herbicide resistance:

Use mechanical weed control methods, such as cultivation, to control weeds.

Rotate herbicides — do not make more than two consecutive applications of herbicides with the same mode of action in the same field.

Use tank mixtures of herbicides with differing effective modes of action.

Rotate crops.

Scout your fields and destroy weed escapes.

Use herbicides with short soil residual times — herbicides with long soil residual times generally favor herbicide resistance.

Clean your equipment before moving to a different field to prevent the spread of resistant biotypes and save work in fields with suspected herbicide resistance for last. (CropLife January 15, 2019) <https://www.croplife.com/crop-inputs/herbicides/how-does-herbicide-resistance-occur/>

NC STATE STUDY: 'BUG BOMBS' ARE INEFFECTIVE KILLING ROACHES INDOORS

Total release foggers, commonly known as "bug bombs," are ineffective at removing cockroaches from indoor environments, according to a new study from North Carolina State University.

Bug-bomb chemicals fail to reach places where cockroaches congregate the most – on the underside of surfaces and inside cabinets, NC State researchers say. Besides leaving behind numerous cockroaches, bug bombs also leave behind nasty toxic residue in the middle of floors and countertops, areas cockroaches generally avoid but which are heavily used by humans and pets.

"There's been a general assumption that bug bombs work to eliminate cockroaches indoors, but no one had conducted a formal assessment of their efficacy and any exposure risks," said Zachary DeVries, an NC State postdoctoral researcher and the lead author of the study, published in BMC Public Health. "We've done that simultaneously in this study."

To understand more about the effectiveness of total release foggers, the researchers tested four different commercially available bug bombs with various insecticide active ingredients in five different apartment complexes with moderate to severe infestations of German cockroaches (*Blattella germanica*), common indoor household pests.

“All the fogger products contained pyrethroids, a class of fast-acting insecticides, and some contained piperonyl butoxide, a chemical that prevents roaches from metabolizing, or breaking down, the insecticide,” said Coby Schal, Blanton J. Whitmire Distinguished Professor of Entomology at NC State and senior author of the paper.

After gauging estimates of cockroach populations in 20 homes, the researchers set off the bug bombs, following the labels’ instructions – and U.S. Environmental Protection Agency guidelines on preparing the homes for fogger release – to the letter.

The researchers then monitored cockroach populations two weeks and one month after the bombs were released and found no declines from the pre-intervention estimates.

“The bug-bomb products did absolutely nothing to control cockroach populations in these homes,” DeVries said.

Meanwhile, the researchers treated 10 additional homes with either a commercially available gel bait or a professional-grade gel bait. Gel baits are generally applied in small dabs via syringe, so they can be placed directly in the places where cockroaches hide. In contrast to the bug bombs, these baits were effective, after two and four weeks, in eliminating cockroach populations in the 10 homes.

To further test the effectiveness of bug bombs, the researchers placed both roaches raised in the lab and roaches captured in the homes into greased cages – making them inescapable – and set the cages on the floor and in upper cabinets of the studied homes during the deployment of the bug bombs.

“The lab roaches, which are not hardy, had high mortality, as expected,” DeVries said. “The roaches captured in the homes and then brought back, however, had far lower mortality rates than you would expect from direct exposure to bug bombs, confirming the ineffectiveness of these products when used for German cockroach control.”

The researchers also examined whether bug bombs increased insecticide exposure risks in the homes. Prior to doing that, however, they swabbed floors and kitchen surfaces and found insecticide residue already present.

“Baseline levels of insecticides in these homes makes sense, because residents with moderate to severe cockroach infestations are likely to use insecticides to attempt to eliminate roaches,” DeVries said. “However, what was most disconcerting was that these swabs were collected from the middle of floors and kitchen surfaces, locations where roaches don’t generally congregate.”

Four to six hours after the bug bombs were deployed, the researchers again swabbed floors, kitchen surfaces, walls and cabinets and found average insecticide residues increased 600 times baseline levels on all horizontal surfaces.

One month later, those surfaces were swabbed again; 34 percent still had higher insecticide residue levels than the baseline.

“Bug bombs are not killing cockroaches; they’re putting pesticides in places where the cockroaches aren’t; they’re not putting pesticides in places where cockroaches are and they’re increasing pesticide levels in the home,” DeVries said. “In a cost-benefit analysis, you’re getting all costs and no benefits.”

“This is of particular concern in low-income communities, where bug bombs are frequently used because professional pest control may be too expensive,” Schal added.

Study co-authors include NC State research technician Richard Santangelo, former NC State graduate student Jonathan Crissman and lab assistant Russell Mick.

Funding for the work came from the U.S. Department of Housing and Urban Development Healthy Homes program (grant NCHHU0017-11), the U.S. Environmental Protection Agency Pesticide Environmental Stewardship Program (grant PE-95450709), the National Institute of Environmental Health Sciences (Center for Human

Health and the Environment, P30ES025128), and NC State's Blanton J. Whitmire endowment. (PCT Online, January 30, 2019)

<https://www.pctonline.com/article/nc-state-bug-bomb-study/>

US EPA WITHDRAWS CONTROVERSIAL PLAN TO REVISE AGCHEM SAFETY RULES

Acting EPA Administrator Timothy Wheeler delivered the move in an undated letter to Senator Tom Carper, a Delaware Democrat and the ranking member of the Senate Environment and Public Works Committee.

The move is a blow to pesticide industry interests, farm groups and state agriculture officials who had pressed for the changes to the Worker Protection Standard (WPS) and the Certified Pesticide Applicator (CPA). The WPS was amended in September 2015 by the Obama administration. It is a set of regulations intended to safeguard the nation's more than 2 million farmworkers and their families from pesticide exposure. The updated WPS added requirements for pesticide safety training, expanded restrictions on entering treated fields, increased record-keeping requirements for employers and tightened age restrictions for workers who handle pesticides.

The CPA rule, finalized in December 2016, raised age and competency requirements and imposed stricter standards for certification, training and supervision of applicators of restricted-use pesticides.

State officials, who are responsible for ensuring that the changes are implemented, balked at the cost and timelines and in early 2017 convinced the Trump administration to delay implementation of the rules.

In December 2017, the EPA announced that the rules would go into effect, but said that it would

launch new rulemakings to reduce the minimum age requirements from 18 years old to 16 in both rules.

Both rules require that individuals who handle pesticides be at least 18 years old unless the adolescent is working on a farm owned by an immediate family member. Echoing concerns raised by farm groups and state officials, the EPA said there was confusion about the flexibility of the "family exemption" and argued that the minimum age requirements should be reconsidered to ensure that the rules meet the "needs of the rural economy".

The agency also said it would revisit mandatory buffer zones within the WPS' "application exclusion zone" (AEZ) provision as well as another that allows farmworkers to designate a representative who can access records on pesticide hazards and applications.

In October, the EPA said that it would issue new proposals this year, but Mr. Wheeler's letter says that that plan has been scrapped.

"EPA will withdraw its OMB submission to propose revisions to these rules and will not make any changes to the designated representative and minimum age provisions," Mr. Wheeler said.

The agency may still consider proposing revisions to the AEZ provision, Mr. Wheeler added, but will not consider changes to any other "substantive provision" in the WPS rule.

"If such a proposal is issued, it would be subject to a public notice and comment period of no less than 90 days," he added.

Environmentalists praised the decision by Mr. Wheeler, who earlier this week was nominated to lead the EPA on a full-time basis.

"We're stunned and relieved by this welcome reversal," said Environmental Working Group President Ken Cook. "Dangerous pesticides that can cause cancer and brain damage should never be anywhere near children." (Pesticide & Chemical Policy/AGROW, January 14, 2019)

BIOLOGICALS ARE HERE TO STAY

Unseen by the naked eye, there are enough microbials to circle the earth 1,000,000,000,000,000,000,000,000,000 times, according to Novozymes. These tiny organisms could hold the key to unlocking corn and soybean yields and researchers are investing more time and money into them.

“The largest market for biopesticides is conventional crops,” says Keith Jones, executive director of the Biological Products Industry Alliance (BPIA). He estimates more than 400 companies are interested in biostimulants and at least 200 have or are developing biopesticide products on the market. There are even more biopesticide companies with many more biopesticide products already on the market.

The recently passed farm bill includes a description of the term biostimulant intended to help create a clearer path to market.

“That was a huge victory for us,” Jones says. “This is the first use of the term biostimulant in any US law and was based on what they plan to use in Europe, so it should help with regulatory harmonization and global trade.”

Currently, the EU represents 35% of the global biostimulant market share and 32% of the global biocontrol (biopesticide) market. The fastest growing market, however, is Latin America. According to DunhamTrimmer, a market research company focused on biological product markets, the global biocontrol market was valued at \$3.8 billion in 2017 and is growing at a consolidated annual growth rate (CAGR) in excess of 16%. The global biostimulant market was valued at \$2.2 billion in 2017 with a CAGR of 13%. By 2025, the combined global value of the biocontrol and biostimulants is projected to exceed \$15 billion.

While promising, biologicals still pose challenges.

Barriers to entry into the biological market are a big obstacle, according to Jacob Parnell, senior scientist

at Novozymes. Here are some major challenges he’s identified:

Efficacy: Microbes interact with soil, plant, bacteria, etc., and testing in a sterile environment doesn’t show what potential negative reactions the microbe might have

Versatility: There could be some ecological trade-offs such as the compound only working during specific plant growth stages, only associating with certain parts of the plant or a narrow host range

Growing Challenges: Some microbes aren’t practical to grow and might be so expensive to grow they’re not worth marketing

Stability: Microbes are living organisms that need to adapt to a wide range of conditions and adapt to a range of application techniques without dying or losing efficacy

Life Span: The organisms need to be created to live long enough that they benefit the plant, through reproduction or a longer life

Despite challenges, companies, investors and farmers are taking note of biologicals and their potential in the market. Before pulling the trigger on a new biological compound on your farm, be sure to ask questions to find out what it can do, how stable it is and where testing has been completed. (AgPro, January 22, 2019)

<https://www.agprofessional.com/article/biologicals-are-here-stay>

US GOVT SAYS SHUTDOWN WARRANTS STAY OF DICAMBA CHALLENGE

The Trump administration has asked a federal court to stay a lawsuit challenging the US EPA's new registration for Bayer legacy company Monsanto's dicamba herbicide. It argues that the government shutdown prevents the Department of Justice (DoJ) from working on the case.

Environmentalists filed the lawsuit on January 11th, one day after the US Court of Appeals for the Ninth Circuit dismissed their challenge of the EPA's 2016 approval of Monsanto's XtendiMax herbicide. The Court agreed with Bayer/Monsanto's argument that the 2016 complaint was moot because of the new registration.

The new complaint -- filed by the Center for Food Safety (CFS) and other environmentalist groups -- alleges that the EPA has "once again" failed to fully consider the environmental impacts of XtendiMax and had not assessed the potential harms to endangered species from legal uses of the herbicide.

In its January 14th filing with the Court, the DoJ calls on the Court to stay the case until the government re-opens. "Absent an appropriation, Department of Justice attorneys and employees of the US Environmental Protection Agency are prohibited from working, even on a voluntary basis, except in very limited circumstances, including 'emergencies involving the safety of human life or the protection of property,'" according to the motion. "Although we greatly regret any disruption caused to the Court and the other litigants, the government hereby moves for a stay."

Appropriations for the DoJ and the EPA lapsed on December 21st and the DoJ says that it "does not know when funding will be restored by Congress".

The environmentalist groups have called on the Court to deny the request, arguing that a stay "threatens the environment, farmers, and meaningful judicial review".

They note that several courts "during this and past government 'shutdowns'" have denied requests to stay civil litigation on the basis that "a lack of funding is a problem internal to the government, and also when harm to the environment or public safety is involved".

"The lapse in appropriations is regrettable, but should not excuse the government from meeting its deadlines in this litigation," the environmentalist groups say. (Pesticide & Chemical Policy/AGROW, January 22, 2019)

LARGEST COUNTY IN MARYLAND BANS GLYPHOSATE (ROUNDUP) IN ITS PARKS, PENDING COMPLETE PESTICIDE BAN

Prior to a pesticide ban taking effect in Montgomery County Maryland Parks, the Department of Parks announced in mid-December 2018 that it would discontinue the use of glyphosate-based herbicides through March 2019. The agency has used these hazardous herbicides as part of its IPM (Integrated Pest Management) program for weed management. Montgomery Parks indicates it will release further information on the use of glyphosate in mid-March. In November last year, Montgomery County Council member Tom Hucker wrote to the head of Parks, supported by a community-wide petition, urging that glyphosate be banned immediately, pending implementation of the county ban. He cited the finding of the International Agency for Research on Cancer's (World Health Organization) finding that the chemical probably causes cancer in humans and the \$289 million jury verdict last year that the chemical caused a school groundskeeper's non Hodgkin lymphoma.

In 2016, Montgomery Parks instituted a pesticide reduction program in compliance with Montgomery County, Maryland's 2015 adoption of County Code 33B, which aimed to regulate use of pesticides on county-owned property, including parks, and on private property. In 2017, a Montgomery Circuit

Court overturned that ban, saying that it would “conflict with federal and Maryland state regulations that allow the use of the pesticides.” At the time, Montgomery County Council member George Leventhal registered his disappointment in Judge Terrence McGann’s ruling, saying that it “sets a worrisome precedent for the ability of local governments to protect their residents on vital issues of health and safety.” The council has appealed that ruling, and in June 2018, an amicus brief was filed by 10 organizations, including Beyond Pesticides, in support of the 2015 regulation.

A number of localities (e.g., municipalities or counties) have ventured to regulate the use of pesticides (including fungicides and herbicides) on public or private property, or sometimes, both. Montgomery County 2015 ban limited allowable turf management pesticides (on public or private property within the county’s jurisdiction) to those permitted for use in organic production, or identified by the Environmental Protection Agency (EPA) as “minimum risk pesticides” under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).

Takoma Park, a city within Montgomery County, passed a similar ordinance in 2013, as did Ogunquit, Maine in 2014. South Portland, Maine followed Ogunquit by roughly a year, as did Portland, Maine (2018) in passing an ordinance quite like Montgomery County’s 2015 “public and private” ban. In September 2018, Miami Beach instituted a ban on any use of glyphosate-based herbicides by city employees and contractors in landscaping and maintenance work on all city-owned properties.

Local governments have been constrained by “preemption” of their authority to restrict pesticides on private property by state law — even though these laws, similar to other local public health declarations, are protective of public health and safety. Even where states have not expressly preempted local jurisdictions, the pesticide industry and the chemical pest management industry and trade groups jump in to oppose and in some cases sue.

Preemption is the ability of one level of government to override laws of a lower level. As Beyond Pesticides has written, “The Supremacy Clause of the U.S. Constitution (Article VI, Clause 2) clearly establishes that the Constitution, federal laws made pursuant to it, and treaties made under its authority, constitute the supreme law of the land. At the state level, things can become a bit less clear. Each state has its own Constitution . . . its own interpretive history of the document, and its own assignments of authority regarding the host of issues with which governments concern themselves.”

Beyond the reach of the Supremacy Clause, states and other litigants can claim that state statutes necessarily preempt local ordinances. It’s worth noting that pressure from the chemical industry led many states to pass legislation to prohibit localities from adopting local pesticide ordinances (affecting the use of pesticides on private property) that are more restrictive than state policy. But localities have more latitude in regulation of public lands under their jurisdiction. In part for this reason, counties and municipalities have more often tended to create regulations that pertain to pesticide use on public, rather than private, property.

In 1991, the U.S. Supreme Court (SCOTUS) upheld local governments’ authority to regulate pesticides in their jurisdictions under federal pesticide law. In the precedential *Wisconsin Public Intervenor v. Mortier*, the Court ruled that federal pesticide law does not prohibit, or preempt, local jurisdictions from restricting the use of pesticides more stringently than the federal government. That said, the case also resulted in the Court stating that states do have the authority to supersede local control.

Daily News for October 25, 2017 reported, “The pesticide industry has been very active in seeking federal legislation that preempts the ability of states to adopt more stringent standards, and has tried repeatedly to preempt the rights of states to adopt more-stringent regulations under FIFRA. After the SCOTUS *Mortier* decision, the Coalition for Sensible Pesticide Policy (comprising pesticide industry lobbyists) formed and drafted model legislation that would restrict municipalities from creating ordinances that would regulate use of pesticides on private property, and advocated for it

methodically — and successfully — in many states.”

A 2017 National League of Cities report, *City Rights in an Era of Preemption: A State-by-State Analysis*, points out that, “State legislatures have gotten more aggressive in their use of preemption in recent years. Explanations for this increase include lobbying efforts by special interests, spatial sorting of political preferences between urban and rural areas, and single party dominance in most state governments. . . . This loss of local control means that cities cannot curtail laws to fit their needs.”

In the recent federal Farm Bill, which passed in December 2018, there had been alarming language that would have amended the federal pesticide law to prohibit local governments from restricting pesticide use on private property in their jurisdictions. Fortunately, that language did not make it into the final iteration of the bill, which became law, after dozens of local officials from across the country voiced their opposition.

Nevertheless, both globally and in the U.S., efforts to ban or restrict the use of glyphosate are on a steep rise; see a report on such initiatives here, and an interactive map identifying municipal ordinances restricting pesticide use, assembled by Beyond Pesticides and the Environmental Working Group, here. Recently, a federal judge in Brazil ordered the suspension of glyphosate use until the government reevaluates the herbicide’s toxicity. A French Court has just canceled the license for, and instituted an immediately effective ban on, Roundup Pro 360, one of Bayer’s (Monsanto’s) glyphosate-based herbicides.

Other efforts are ongoing in Washington State and California. In Hawaii — which is “ground zero” for chemical industry experimental testing of pesticides on cropland, enduring more of it than any other state — the state legislature fielded several bills to restrict pesticide use, including one that would regulate the use of glyphosate herbicides in land and road management. (Relatedly, Hawaii did institute a ban on the neurotoxic pesticide chlorpyrifos in May 2018.) Keep abreast of developments on initiatives related to glyphosate as Beyond Pesticides covers them in its Daily News.

Increasingly, people are voicing their concerns about the use of toxic chemicals in their communities. As noted in Beyond Pesticides’ factsheet on preemption, “As pesticide pollution mount[s], many are fighting to overturn preemption laws and return the power back to localities, enabling them to adopt more stringent protective standards throughout their communities.”

In 2017 Beyond Pesticides wrote that it “has long maintained the importance of the rights of local governments to protect public health and the environment — particularly when federal and state government are not adequately protective. State preemption often denies people their democratic right to better protection when a community decides that minimum standards set by state and federal law are insufficient. Localities across the country continue the work to pass statutes that would better protect residents and resources. A snapshot of the status of local policies on pesticide use is provided by the Beyond Pesticides and Organic Consumers Association in the map of U.S. Pesticide Reform Policies.”(Beyond Pesticides, February 1, 2019) <https://beyondpesticides.org/dailynewsblog/2019/02/largest-county-in-maryland-bans-glyphosate-roundup-in-its-parks-pending-complete-pesticide-ban/>

STUDY SHOWS HIGH PESTICIDE EXPOSURE LINKED TO POOR SENSE OF SMELL AMONG FARMERS

A study by Michigan State University has shown an association between unusually high pesticide exposure and poor sense of smell among older farmers. MSU researchers collaborated with researchers from the National Institute of Environmental Health Sciences and National Cancer Institute on the study, "High Pesticide Exposure Events and Olfactory Impairment among U.S. Farmers," which was published in the journal *Environmental Health Perspectives*.

In the study, researchers examined more than 11,200 farmers over a period of 20 years. At the start of the study, about 16 percent of participants reported having experienced a high pesticide exposure event (HPEE), such as a large amount of pesticide spilling on their body. They were asked 20 years later if they suffered olfactory impairment, a partial to complete loss of sense of smell.

At the end of the study, farmers who reported an HPEE were 50 percent more likely to report a poor sense of smell.

The research also showed that immediately washing with soap and water might mitigate risk. Compared to farmers who had never experienced an HPEE, those who did and washed within three hours had about a 40 percent higher risk of having problems with their sense of smell. The risk potentially doubled for those who waited four or more hours.

"Studying farmers gives us more reliable data on pesticide exposures than if we had studied the general population," said Honglei Chen, lead author and professor of epidemiology. "Because they use pesticides more and it's part of their job, they're more likely to remember what pesticides they used and in cases of high exposures, report the specific events."

During the study, Chen was able to identify two insecticides—DDT and lindane—as well as four weed killers—alachlor, metolachlor, 2, 4-D, and pendimethalin—that showed a greater association with poor sense of smell.

"Farmers reporting incidents, involving unusually high exposures to certain organochlorine insecticides such as DDT and herbicides including 2,4-D, were more likely to have a poor sense of smell," Chen said. "More research needs to be done, but some studies have linked these chemicals to Parkinson's and possibly dementia, too."

Poor sense of smell has been shown to be an early symptom of Parkinson's and dementia, but Chen said his study only addresses a link between pesticide exposure and impaired smell, not to neurodegenerative diseases.

"Olfactory impairment affects up to 25 percent of our older population, and our understanding of what the consequences are is still very limited," Chen said. "Studies have also suggested that older adults with a poor sense of smell are more likely to die earlier, so understanding the factors involved is very important." (Occupational Health & Safety, January 29, 2019)

<https://ohsonline.com/articles/2019/01/29/study-shows-high-pesticide-exposure-linked-to-poor-sense-of-smell-among-farmers.aspx?m=1>

UA SCIENTISTS WORKING ON BIRTH CONTROL FOR MOSQUITOES

Researchers at the University of Arizona have discovered a protein that prevents mosquitoes from hatching, opening the possibility of developing new drugs that could act as birth control for mosquito populations.

Researchers at the University of Arizona have discovered a protein in mosquitoes that is critical to the process of producing viable eggs and could pave the way for "mosquito birth control." When researchers selectively blocked the activity of the protein – which they named Eggshell Organizing Factor 1, or EOF-1 – in female mosquitoes, the mosquitoes laid eggs with defective egg shells, leading to the death of the embryos inside.

In the report, published in the open access journal PLoS Biology on Jan. 8, the team showed that EOF-1 exists only in mosquitoes. Therefore, any drug developed to render the protein dysfunctional would only affect mosquitoes and no other organisms.

The team, led by Jun Isoe, a research scientist in the lab of Roger Miesfeld, a UA Distinguished Professor and head of the Department of Chemistry and Biochemistry, is hopeful the approach might offer a way to interrupt mosquito egg formation and reduce mosquito populations in areas of human disease transmission without harming beneficial insects such as honey bees.

(PCT Online, January 22, 2019)

<https://www.pctonline.com/article/ua-birth-control-mosquitoes/>

Find us on Twitter at
[@OkstatePestEd](https://twitter.com/OkstatePestEd)

Date: March 5-6, 2019

Title: 2019 Spring OKVMA Conference & Trade Show

Location: The Grand Spa Hotel & Casino Shawnee, OK

Contact: Kathy Markham (918) 256 -9302
www.okvma.com

CEU Meetings

Date: February 13, 2019

Title: 2019 Turf & Landscape Workshop

Location: OSU-Institute for Agriculture & Biosciences Ardmore, OK

Contact: Sandy Lee (580) 223-6570

CEU's: Category(s):

5	A
5	3A
4	5
6	6
6	10

CEU's: Category(s):

7	3A
1	3C
3	6
7	10

Date: March 14, 2019

Title: BWI Winter Pest Control Seminar 2019

Location: Reed Conference Center

Midwest City, OK

Contact: Tim Ruminer (405) 227-2985
Bwicompanies.com

CEU's: Category(s):

2	3A
2	7a
1	7b
2	8
4	10
1	11

Date: February 19-20, 2019

Title: 2019 All-Crops Conference

Location: NCED hotel and conference center
Norman, OK

Contact: Dr. Josh Lofton (405) 744-3389

CEU's: Category(s):

2	1A
2	10

Date: September 10, 2019

Title: General Pest Services (Defined by label/What does this mean to you?)

Location: Hampton Inn Tulsa, OK

Contact: Donald Stetler (281) 217-2965
www.ensystex.com www.for-thor.com

CEU's:	Category(s):
4	3A
2	7A
3	7B

Date: September 11, 2019

Title: General Pest Services (Defined by label/What does this mean to you?)

Location: Hampton Inn Edmond, OK

Contact: Donald Stetler (281) 217-2965
www.ensystex.com www.for-thor.com

CEU's:	Category(s):
4	3A
2	7A
3	7B

Date: September 12, 2019

Title: General Pest Services (Defined by label/What does this mean to you?)

Location: Hampton Inn Durant OK

Contact: Donald Stetler (281) 217-2965
www.ensystex.com www.for-thor.com

CEU's:	Category(s):
4	3A
2	7A
3	7B

ODAFF Approved Online CEU Course Links

Online Pest Control Courses

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

PestED.com

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

Certified Training Institute

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

WSU URBAN IPM AND PESTICIDE SAFETY EDUCATION PROGRAM

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

CEU University

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

Technical Learning College

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

All Star Pro Training

www.allstarce.com

Wood Destroying Organism Inspection Course

www.nachi.org/wdocourse.htm

CTN Educational Services Inc

http://ctnedu.com/oklahoma_applicator_enroll.html

Pest Network

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

Univar USA

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

AG CEU Online

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

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

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

ODAFF Test Information

Pesticide applicator test sessions dates and locations for February/March are as follows:

February		March	
5	McAlester	5	OKC
5	Goodwell	14	Tulsa
12	OKC	19	OKC
13	Lawton	28	Tulsa
14	Tulsa		
28	Tulsa		
28	Enid		

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

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

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

Tulsa: Tulsa County Extension Office
4116 E 15th St. (**New Location**)

Pesticide Safety Education Program