

# PESTICIDE REPORTS

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



## February, 2014

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### 2014 BRINGS CHANGES FOR THE SERVICE TECH EXAM

2014 brings a new test for individuals wanting to become Service Techs. The new Service Tech test will focus questions on information that would pertain to the job Service Technicians perform. The new Service Technician test will now be 50 questions long. Applying Pesticides Correctly will still be the study manual for the new Service Technician exam.

The Service Technician Exam and Core Exam are no longer interchangeable and are two completely different exams. Individuals wanting to become a Certified Applicator in a category must first take the Core Exam that is 100 questions long. Upon passing the core exam then individuals will take the appropriate category exam. Applying Pesticides Correctly will still be the study manual for the Core Exam.

With this change Service Technicians wanting to become a certified applicator in a category will now be required to take the 100 question Core Exam plus the category exam required. The Service Technician certification will no longer substitute for the Core Exam. Exam prices did not change and are still \$50 for each exam.

If you have any questions on this change please contact us at the OSU Pesticide Safety Education Program office at 405-744-5531.

## **2014 OSU PSEP TEST HELP SESSIONS**

The OSU Pesticide Safety Education Program will conduct the next test help sessions in April and May. The April 1<sup>st</sup> session will be held in Tulsa. The workshop will be held at the Tulsa County Extension Center 4116 E. 15<sup>th</sup>. The next test help session in Oklahoma City at the Oklahoma County Extension Center (930 N Portland) will be May 20<sup>th</sup>

This testing session will focus on information covered in the core/service tech test. 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 8:45 and the program will run from 9:00 am to 12:30 pm for both locations. Testing will begin at 1:30 pm for both locations.

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

All of the 2014 Test Help Workshop dates for 2014 are listed on our website.

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

## **STUDY: HERBICIDE RESISTANT PALMER AMARANTH WEEDS SHOW FITNESS, PERSISTENCE**

Palmer amaranth is a weed native to the southwestern U.S. that has developed resistance to various herbicides since the late 1980s. Its resistance to glyphosate was first confirmed in 2006 in Macon County, Georgia, and has since spread to 13 states. Palmer amaranth, which is capable of producing more than 600,000 seeds per female plant, significantly affects crop yields throughout the southern U.S.

An article featured in the current issue of Weed Science offers results from a greenhouse experiment focused on how resistance might affect the continued fitness of Palmer amaranth plants by comparing glyphosate-resistant plants to glyphosate-susceptible plants.

The mechanism of resistance studied in this population was amplification of the 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) gene. Palmer amaranth growth rate, height and volume, final biomass, photosynthetic rate, length of inflorescence, pollen variability and seed set were evaluated. If measures of plant growth, such as height and volume, showed a positive correlation with the EPSPS gene, this would suggest good fitness of the resistant plant. Fecundity-related measures, such as shorter inflorescence and increased number of days to first flower, could indicate a cost in the fitness of the resistant plant. Metabolic overproduction of the enzyme and disruption to other genes could potentially weaken the plant.

Some resistant plants had more than 100 EPSPS genes, but this study did not identify a fitness cost for resistant Palmer amaranth. The amplified EPSPS gene did not cause the plant to work harder or to divert resources to fight the herbicide. This means that glyphosate resistance will probably persist, making it unlikely that susceptible Palmer amaranth would once again become dominant if glyphosate use was discontinued. Farmers will continue to be faced with finding different methods of removing Palmer amaranth from their fields.

Aspects of this study also show the importance of controlling for genetic background when estimating fitness costs. Great variation was found in fitness measures even between sibling plants from the same family. Without a diverse sample, it could be concluded that these differences were due to the amplified EPSPS gene. These study results could also be used to develop a resistance evolution simulation model to help predict and guide future weed management.

Read the full text of the article, [“Impact of Genetic Background in Fitness Cost Studies: An Example from Glyphosate-Resistant Palmer Amaranth,”](http://www.croplife.com/crop-inputs/herbicides/study-herbicide-resistant-palmer-amaranth-weeds-show-fitness-persistence/) Weed Science, Vol. 62, No. 1, January–March 2014, is now available. (CropLife Online January 23, 2014) <http://www.croplife.com/crop-inputs/herbicides/study-herbicide-resistant-palmer-amaranth-weeds-show-fitness-persistence/>

## **HOUSE PASSES FARM BILL; LEGISLATION PROTECTS SULFURYL FLUORIDE FOOD USES**

On Jan. 29, the U.S. House of Representatives passed an almost \$100 billion-a-year, compromise farm bill that contains language retaining the food uses for the fumigant sulfuryl fluoride. The vote was 251-166.

Of interest to pest management professionals is Section 10015 of the legislation, which precludes the U.S. Environmental Protection Agency from considering non-pesticidal fluoride as part of sulfuryl fluoride's aggregate risk assessment, as required by the Federal Food, Drug, and Cosmetic Act.

The provision effectively reverses a proposed order revoking or withdrawing sulfuryl fluoride's food tolerances that EPA put forward in January of 2011

under the threat of activist group litigation. The activists claimed that sulfuryl fluoride's tolerances were not permissible because the "risk cup" for sulfuryl fluoride was already filled with fluoride in drinking water and dental care products.

The inclusion of the sulfuryl fluoride provision in the Farm Bill Conference Report represents a significant legislative victory for NPMA — one that would not have been possible without NPMA members lobbying their federal lawmakers about the importance of retaining sulfuryl fluoride's food uses.

The five-year bill now goes to the Senate, which is expected to send it to the president's desk.

(PCT Online, January 29, 2014)

<http://www.pctonline.com/farm-bill-sulfuryl-fluoride-update.aspx>

## **A DUBIOUS HONOR: MISSISSIPPI LEADS THE NATION IN GLYPHOSATE RESISTANCE**

Mississippi State University scientists are fighting glyphosate-resistant Italian ryegrass with a research-based plan of attack, reports Keri Collins Lewis, Mississippi State University.

Jason Bond, a weed scientist at the MSU Delta Research and Extension Center in Stoneville, said Mississippi was the first state to discover Italian ryegrass that cannot be controlled with glyphosate in a crop situation. The weed has spread quickly since it arrived.

“We have 32 counties that contain glyphosate-resistant Italian ryegrass,” Bond said. “The state with the next highest amount is Arkansas, and they

have eight counties with this problem. We've been working on this challenge since 2005, and everyone is looking to Mississippi for recommendations."

Bond said he and his colleagues with the Mississippi Agricultural and Forestry Experiment Station and the MSU Extension Service are very confident about the effectiveness of the research-based program they developed to control glyphosate-resistant Italian ryegrass. It is based on the use of other types of herbicide applied at specific times.

"Our program requires a minimum of two herbicide applications to even approach complete control," he said. "Ideally, growers will use fall, winter and spring herbicide applications for total control."

Bond said growers should make the first herbicide application in fall, from mid-October to mid-November; the second in winter, from mid-January to early February; and the third in spring, around March 1.

"Many of our Delta growers already use post-harvest herbicides in the fall," he said. "They do a lot of tillage after harvest and don't want to disturb the fields before they plant, so they put down an herbicide to control winter vegetation. That practice isn't typical in other states, so some growers hesitate to invest in that application. But to control glyphosate-resistant Italian ryegrass, they need to put down a residual herbicide to control it before it comes up."

Bond said growers who do not take steps in the fall to control glyphosate-resistant Italian ryegrass find it more difficult to control later. He and his colleagues have tested a variety of factors to develop their approach.

"We've sprayed around 50 residual herbicides to test their effectiveness, and we've found five or six that are active against glyphosate-resistant Italian ryegrass," he said. "We haven't kept track of post-emergence herbicides we've tried, but I'd guess easily over 100. Basically, at one time or another, we have sprayed every herbicide with any activity on grass species that is labeled for use in corn, rice, cotton or soybean."

Once Bond and his colleagues developed their recommendations and collected more data to verify their approach worked, they tackled the research from a yield perspective.

They began with test plots: some were free of ryegrass; some had been treated with two to three herbicide applications; and some were not treated at all and were carpeted with ryegrass.

"We applied different levels of our herbicide program and planted corn, cotton or soybeans," he said.

Then they monitored the yields from each test plot to see how the invasive weed impacted production.

In 2012, MSU researchers found corn was the most susceptible to yield reduction because of uncontrolled glyphosate-resistant Italian ryegrass.

"When we controlled glyphosate-resistant Italian ryegrass in corn, the benefit-to-cost ratio was 13:1," he said. "For every dollar spent to control glyphosate-resistant Italian ryegrass, we received a \$13 return in corn yield. Even if that was only 2:1, the inputs still paid for themselves."

Unfortunately for growers, Italian ryegrass is not the only glyphosate-resistant weed they have to manage.

Mississippi has the dubious honor of having more documented glyphosate-resistant weed species than any other state. While new control technologies are on the horizon, for now, growers must battle some type of weed year-round.

Darrin Dodds, cotton specialist with the Mississippi State University Extension Service, said each year more weeds are identified as resistant to herbicides.

"Mississippi has had documented resistance to herbicides as far back as 1989, when common cocklebur was identified as being resistant to a certain class of herbicides," Dodds said. "But beginning in 2003, the number of weeds resistant to glyphosate began steadily increasing: horseweed in 2003; Italian ryegrass in 2005; Palmer amaranth in 2009; johnson grass, common waterhemp, and giant

ragweed in 2010; and goose grass and spiny amaranth in 2012.

“Mississippi row crop producers need to be as adaptable as the weeds they fight, because herbicide-resistant weeds are here to stay,” he said.

More information can be found at the [Mississippi Crop Situation Blog](#).

(CropLife Online, January 16, 2014)  
<http://www.croplife.com/crop-inputs/a-dubious-honor-mississippi-leads-the-nation-in-glyphosate-resistance/>

## **US STUDY FINDS PESTICIDES TOXIC TO BEE LARVAE**

US researchers have found that four common pesticides are toxic when fed to bee larvae. The scientists from Penn State University and Florida University found that the fungicide, chlorothalonil, and the insecticides/acaricides, fluvalinate, coumaphos and chlorpyrifos, alone or in mixtures had "statistically significant impacts" on honeybee larvae survival. "This the first study to report serious toxic effects on developing honeybee larvae of dietary pesticides at concentrations that currently occur in hives," says Professor Chris Mullin of Penn State University.

Previous studies had shown that forager bees bring back to the hive an average of six different pesticides on the pollen they collect. Nurse bees use this pollen to make beebread, which they feed to honeybee larvae. In the latest study, researchers applied pesticides alone and in combination to beebread and fed it to laboratory-reared larvae. "We found that four of the pesticides most commonly found in beehives kill bee larvae," says Professor Jim Frazier of Penn State University. "We also found that the negative effects of these pesticides are sometimes greater when the pesticides occur in combinations within the hive."

Since pesticide safety is judged almost entirely on adult honeybee sensitivity to individual pesticides and does not consider mixtures, professor Frazier calls for the risk assessment process used by the US EPA to be changed.

The researchers also found that the pesticide co-formulant, N-methyl-2-pyrrolidone (NMP), was "highly toxic" to honeybee larvae. "The bulk of synthetic organic chemicals used and released into US environments are formulation ingredients like NMP, which are generally recognized as safe," professor Mullin says. "They have no mandated limits on their use and their residues remain unmonitored."

The research was partly funded by the National Honey Board and the USDA's National Institute of Food and Agriculture. It was published in the journal, Plos One.

(Pesticide & Chemical Policy/AGROW, January 29, 2014)

## **BIOTECH LABELING BATTLE TO CONTINUE AT STATE LEVEL, AS BOTH SIDES PREPARE FOR A FEDERAL FIGHT**

The battle over whether to label US foods that contain genetically modified ingredients looks likely to escalate in 2014, with both sides confident their respective messages can carry the day.

The coming year is also expected to bring several key regulatory decisions that could prove greater clarity about the public's view of biotech crops and foods, notably the likely approval of new biotech crops as well as the first GM apple and GM salmon, arguably the most controversial of GMOs.

Those regulatory decisions may have greater impact in the long run over the future of US agricultural biotechnology, but the issue of labeling looks set to retain center stage in 2014.

There are signs that state pressure is beginning to take its toll on food companies and biotech advocates who oppose mandatory labeling and have had to spend heavily to contest state efforts.

State labeling opponents spent more than \$20 million in Washington in 2013 to defeat a GM labeling ballot initiative, but their victory was far from easy and came on the heels of a \$46 million outlay to defeat California's Prop 37 in 2012. The initiative failed by a margin of 51-49% and the Grocery Manufacturers Association (GMA) is facing allegations it illegally bundled some \$10.6 million from its members -- including PepsiCo, Coca-Cola and Nestlé -- to fund the opposition.

Labeling advocates contend the narrow defeat in Washington shows the tide is turning in their favor and they are bullish on 2014. The battleground will now shift to Oregon, where activists have already filed a petition to take the issue to state voters.

"Oregon is the one to watch this year," says Colin O'Neil, government affairs director for the Center for Food Safety.

Val Giddings, a senior fellow at the Information Technology and Innovation Foundation and a long-time biotech advocate, suggests the Oregon contest will be similar to the unsuccessful bids by activists in California and Washington.

"There was a lot of 'déjà vu all over again' about the Washington ballot initiative compared to CA Prop 37, and it looks as if the same will be true for the upcoming Oregon fight as well," Mr Giddings tells Pesticide and Chemical Policy (PCP). "As for momentum, proponents continue to be hell-bent on trying to make gains, but they have so far spent tens of millions and gotten precious little. That doesn't look like momentum to me."

O'Neil says advocates are quietly confident of their chances in Oregon -- the state trends liberal and turnout should be high in 2014 as voters will also be voting for governor and choosing a US Senator.

An array of other states will also consider the labeling issue through their legislatures, perhaps buoyed by the success in 2013 of Maine and

Connecticut. The two Northeastern states approved labeling language last year, but with caveats that require other states to act before the laws enter into effect.

All told 26 states considered some form of GM labeling legislation in 2013 and advocates predict that number will rise in the coming year.

The New Hampshire legislature is expected to take up a labeling bill next month, as is Vermont, and some 30 states will likely consider labeling legislation, Mr O'Neil predicts.

"The momentum and organization at the state level has picked up," he tells PCP.

But biotech proponents are clearly looking to cut these state efforts off at the pass, arguing such measures are unnecessary and warning of the economic harm from a patchwork of state requirements.

"We've long been clear about our support for voluntary labeling of GMO food, and with the emergence of state labeling challenges, a federal resolution makes sense," says Cathleen Enright, executive director of food and agriculture for the Biotechnology Industry Organization.

Ms Enright tells PCP her group expects more state efforts, particularly in the Northeast and West, and has been working with the GMA on the labeling issue. The grocery group recently announced its intent to lobby harder for federal labeling.

A GMA memo leaked to the press earlier this month shows the trade group is drafting federal legislation that would require the FDA set up voluntary federal labeling standards and would preempt states from enacting their own labeling laws.

State-based labeling initiatives "only mislead consumers into thinking foods produced using GM technology pose a health risk or are different than what's been on their shelves for the last 20 years ... [and] would snarl inter-state commerce and create confusion, reduce choices and increase costs for consumers," according to the GMA memo.

Other key industry players are also signaling their intent to back a federal solution. Last week, the Food Marketing Institute revamped its board policy on GM foods to stress the need for a national labeling standard that identifies foods that are not GM.

Still, the prospect of Congress taking much interest in the labeling issue looks unlikely. The GMA did not respond to request for comment on which lawmakers might introduce their plan. Labeling advocates argue their allies in Congress would stymie any voluntary labeling regime and they intend to continue pressing for federal requirement.

Mr O'Neil calls the GMA's plan "dead on arrival" but says it shows the food industry is "very serious" about finding a federal solution.

"The ground game has already begun in Washington," he says.

Mr Giddings contends there is no real need for Congress or FDA to intervene in the labeling dispute and he predicts it unlikely they will anytime soon.

"Congress and FDA have acted on these issues long ago," Mr Giddings adds. "The proponents of labeling have presented no new data or justifications for changing existing FDA policy that can survive the slightest scrutiny. I expect a few poseurs in Congress will try and score political points on the issue, but I do not expect to see anything move because there is neither need nor justification."

## **Fish and apples**

US consumers may ultimately decide the labeling issue, but they continue to send mixed messages on GM foods. Given the wide use of biotech crops in the US -- notably corn, soybeans, sugar beet, cotton and canola -- the vast majority of processed food Americans consume contain GM ingredients.

But consumer awareness of GM foods is at best sketchy and it remains difficult to know how

accepting Americans are of biotech. Polls tend to find strong support for labeling of GM foods; however a national survey conducted last year by researchers at Rutgers University found 54% of individuals say they know very little or nothing at all about GM foods. The survey reported one in four say they have never even heard of GM foods.

That could change in the coming year as federal regulators look poised to move beyond biotech crops and approve both GM salmon and GM apples, decisions that may actually help critics of biotech foods.

More than 60 retailers, including Target, Giant Eagle and Whole Foods, have already pledged not to sell the GM salmon.

"Consumers are understandably concerned," says Lisa Archer, director of the food and technology program with Friends of the Earth. "We believe these companies are responding to that."

Environmental groups take a similar view of the GM apple, which USDA's Animal and Plant Health Inspection Service (APHIS) is predicted to approve this year.

McDonalds and Gerber have suggested they have little interest in the apple -- modified to prevent browning and bruising -- and several apple grower groups have voiced opposition to the biotech fruit.

"It is clear consumers and prominent companies are already saying 'this is not necessary,'" Ms Archer says of the GM apple. "It is unfortunate that our regulators are failing us, but in that absence we do believe that the market will reject this and other whole GMOs."

## **Regulatory frustration**

Biotech advocates, however, contend regulators are failing in a markedly different manner, namely by delaying approval of new crops. Industry frustration boiled up last year when APHIS delayed deregulation of new GM crops, opting to develop

environmental impact statements (EIS) to better understand any potential environmental concerns.

The delays are hurting US farmers, says Ms Enright, who notes that one of her organization's top priorities is a "predictable, transparent regulatory" framework.

But the APHIS is expected to approve several new GM crops in 2014, notably varieties of soybeans and corn tolerant to the herbicide, 2,4-D.

Proponents argue the new strains are needed to help combat growing weed resistance to glyphosate, the most widely-used herbicide in the U.S.

The APHIS completed the EIS for the 2,4-D resistant crops earlier this month and found no concerns, a decision that could see the seeds available in the US in 2015. Environmentalists have already promised to challenge such approval in federal court, making it difficult to predict if or when the seeds may actually be available to U.S. farmers.

"Industry is pushing for even more controversial use of genetic engineering at a time when consumer confidence in GE and biotech is at an all-time low," Mr O'Neil says.

Herbicide resistance to biotech crops will continue to be a major issue this year, regardless of the approval of any new crops, according to Greg Jaffe, biotechnology director at the Center for Science in the Public Interest.

A report released last month found such glyphosate-resistant weeds now affect more than 60 million acres of cropland across the nation.

The USDA and the EPA should take far more active roles in tackling the problem, Jaffe says.

"First and foremost they need to restrict the use of herbicides in combination with herbicide-tolerant crops," he tells PCP. "Left to their own devices, farmers seem to be using the same herbicide over and over again. The rotation of crops and modes of action is not happening voluntarily, so that needs to happen through the regulatory process."

Mr Jaffe is also hoping the USDA will make strides on its agricultural coexistence strategy, but is skeptical of the agency's commitment.

The USDA is taking public comments on how to improve coexistence between biotech, conventional and organic crops, with little indication of what it might do beyond listening to stakeholders.

"Asking for comment is not action," Mr Jaffe says. "They need to elevate this issue."

(Pesticide & Chemical Policy/AGROW, January 20, 2014)

## **CHICAGO TOPS ORKIN'S LIST OF 50 BED BUG CITIES**

Chicago tops the 2013 Bed Bug Cities List, released today by Orkin. The Windy City's bed bug problem was serious enough that the City Council passed an ordinance in July 2013 requiring condo associations to have a formal management plan in place for the detection, inspection and treatment of these pests.

In the South, two major cities had the biggest jumps on the list from 2012 to 2013 -- Nashville moved up 17 spots while Charlotte climbed 18 spots. Other cities that made notable leaps up the list include Champaign/Springfield, Ill., Pittsburgh and Greenville/Spartanburg/Asheville, S.C. On the other end of the spectrum, Omaha, Neb., Colorado Springs/Pueblo, Colo., Lexington, Ky. and Buffalo, N.Y. settled into significantly lower spots on the list than last year. Of the five new cities on the list, three are in the Midwest -- Toledo, Ohio, Peoria, Ill. and Davenport, Iowa/Moline, Ill. New Orleans and Kansas City took the final two spots on the list as new entries. On the east coast, six cities took positions lower on the list, including three cities in New York -- Albany, Buffalo and New York City.

Bed bugs continue to bite their way across the country as evidenced by the more than 20 percent increase in Rollins', Orkin's parent company, bed bug business compared to 2012. The nationwide resurgence of the bed bug population prompted the Centers for Disease Control and Prevention (CDC) and the U.S. Environmental Protection Agency

(EPA) to release a joint statement in 2012 advising the public of the emerging health issues associated with bed bugs.

"While studies show that bed bugs do not spread disease, the physical and mental health consequences are well documented and of serious public concern," said Orkin entomologist and Technical Services Director Ron Harrison, Ph.D. "Once bed bugs are inside your home or business, they can reproduce quickly and can travel from place to place in personal belongings and even on people. They can also move from place to place on their own, independently of objects."

Because every bed bug scenario is different, it's important for homeowners to call on a professional who can create a solution tailored to their home's needs.

See the link below for the complete list of ranked cities. (PCT Online January 21, 2014)  
<http://www.pctonline.com/Orkin-top-50-bed-bug-cities-Chicago.aspx>

## **In-State CEU Meetings**

### **Date: February 11, 2014**

Title: Lawn Care Management  
Location: Stephens County Fairgrounds  
Contact: Max Gallaway Stephens County (580) 255-0510 or Marty New Comanche County (580) 355-1176  
Course #: OK-13-108

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

### **Date: February 11, 2014**

Title: CPS Dumas CEU's  
Location: 287 Roadhouse Restaurant Dumas TX  
Contact: Robbie Cartrite (806) 935-3165  
Course #: OK-14-010

CEU's:	Category(s):
2	A
4	1A

### **Date: March 5, 2014**

Title: 2014 OKVMA Spring Conference  
Location: Embassy Suites Norman OK  
Contact: Kathy Markham (918) 256-9380  
Course #: OK-13-130  
[www.okvma.com](http://www.okvma.com)

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

**Date: March 12, 2014**

Title: Ewing Irrigation Turf & Ornamentals Management

Location: Bass Pro Broken Arrow OK

Contact: Angi Sullivan (602) 437-9530

Course #: OK-14-003

www.ewingeducationservices.com

CEU's:                   Category(s):

4                           3A

**Date: March 13, 2014**

Title: Target Specialty Oklahoma City Workshop

Location: Reed Center Midwest City OK

Contact: Jennifer Gonzalez (800) 352-3870

Course #: OK-14-021

www.target-specialty.com

CEU's:                   Category(s):

4                           3A

## **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](http://www.allstarce.com)

**Wood Destroying Organism Inspection Course**

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

**CTN Educational Services Inc**

[http://www.ctnedu.com/oklahoma\\_applicator.html](http://www.ctnedu.com/oklahoma_applicator.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 February/March 2014 are as follows:

February		March	
6	Enid	3	Atoka
10	OKC	4	Goodwell
13	Tulsa	10	OKC
24	OKC	11	Hobart
27	Tulsa	13	Tulsa
		26	OKC
		27	Tulsa

Altus: Western OK State College  
2801 N Main, Room A23

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, Annex Rm.  
920 S. Sheridan Road.

OKC: Oklahoma County Extension Office,  
930 N. Portland.

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

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

ATOKA KIAMICHI TECH CENTER 1301  
W Liberty Rd, Seminar Center

Ardmore Carter County Extension Center

# Pesticide Safety Education Program