OKLAHOMA COOPERATIVE EXTENSION SERVICE

PESTICIDE REPORTS

Division of Agricultural Sciences and Natural Resources • Oklahoma State University

http://pested.okstate.edu

May, 2014 **CHEM**

MAY TEST HELP SESSION

The OSU Pesticide Safety Education Program will conduct the next test help session in May. The workshop will be held May 20th at the Oklahoma County Extension Center 930 N Portland in Oklahoma City.

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

EPA SEEKS COMMENT ON PROPOSED DECISION TO REGISTER ENLIST DUO HERBICIDE CONTAINING THE CHOLINE SALT OF 2,4-D AND GLYPHOSATE

The EPA is making available for a 30-day public comment period a proposed regulatory decision to register Enlist Duo containing glyphosate and the choline salt of 2,4-D for use in controlling weeds in corn and soybeans genetically engineered (GE) to tolerate 2,4-D.

Weeds are becoming increasingly resistant to glyphosate-based herbicides and are posing a problem for farmers. If finalized, EPA's action provides an additional tool to reduce the spread of glyphosate resistant weeds. To ensure that Enlist Duo successfully manages weed resistance problems, the proposal would impose requirements on the manufacturer including robust monitoring and reporting to EPA, grower education and remediation and would allow EPA to take swift action to impose additional restrictions on the manufacturer and the use of the pesticide if resistance develops.

EPA is making this action available for public comment because the choline salt of 2,4-D, which is less prone to drift and volatilization than its other forms, is not currently registered for these uses. Glyphosate, however, is already registered for several varieties of GE soybeans and corn. Since no new use pattern and no new exposures for glyphosate are being considered with this registration action, no further assessment is needed for glyphosate.

2,4-D is one of the most widely used herbicides to control weeds. 2,4-D has been registered for many years in the United States and is registered in dozens of countries, such as Canada, Mexico, Japan, 26 European Union Members, and many member countries of the Organization for Economic Co-operation and Development (OECD).

Public comments on the EPA's proposed regulatory decision must be submitted no later than May 30, 2014. Comments may be submitted to the EPA docket EPA-HQ-OPP-2014-0195 at www.regulations.gov .
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.

Questions and Answers about this proposal are available at:
http://www.epa.gov/pesticides/factsheets/2-4-d-glyphosate.html (EPA April 30, 2014)
http://yosemite.epa.gov/opa/admpress.nsf/bd4379a92ceceeac8525735900400c27/0f9f7b307992975d85257cca0069643f!OpenDocument

MORE CORN ROOTWORM RESISTANCE TO BT CORN REPORTED IN ILLINOIS

With the addition of three more counties, a total of five Illinois counties have now reported confirmed cases of field-evolved resistance to Bt corn (Cry3Bb1 protein) by Western corn rootworm, and a University of Illinois entomologist said now is the time to move forward aggressively with integrated pest management (IPM) strategies, according to the Illinois Ag Connection.

In August 2012, in cooperation with an Iowa State University lab, Mike Gray said he confirmed resistance in Henry and Whiteside counties in northwestern Illinois. Working with Joe Spencer of the Illinois Natural History Survey and utilizing single-plant bioassays with larvae collected last summer, Gray said resistance to the Cry3Bb1 protein has now also been confirmed in McDonough, Mercer, and Sangamon counties.

The suspected Bt-resistant larvae collected last summer were exposed to a hybrid expressing the Cry3Bb1 protein as well as its corresponding isoline (not expressing the Cry3Bb1 protein), Gray said. Larvae obtained from three control colonies of Western corn rootworms also were used in the bioassays. The control larvae had never been exposed to corn rootworm Bt protein and were provided by the USDA North Central Agricultural Research Laboratory in Brookings, SD.

Gray said there continues to be some controversy regarding the most appropriate procedures (plant-based vs. diet-based bioassays) that should be used to confirm whether or not resistance to a Bt protein has developed by an insect population. Citing a University of Arizona study that defines key terms regarding resistance to Bt crops and pesticides, Gray offered the following definitions that are useful in communicating with producers who have experienced greater than expected levels of damage to rootworm Bt hybrids in their fields.They include:

- "Resistance: genetically based decrease in susceptibility to a pesticide"
- "Field-evolved resistance (= field-selected resistance): genetically based decrease in susceptibility to a pesticide in a population caused by exposure to the pesticide in the field"
- "Practical resistance (= field resistance): field-evolved resistance that reduces pesticide efficacy and has practical consequences for pest control"

"It has become increasingly evident that some producers have experienced a loss of efficacy with some Bt hybrids in their fields in recent years," Gray said. "To date, most of those fields have been in continuous corn production, and producers have not rotated traits. It's also clear that 'practical consequences' have resulted due to the loss of efficacy associated with some Bt hybrids in problem fields.

"The primary consequence so far has been an escalation in the use of planting-time soil insecticides with Bt rootworm hybrids. This practice may hasten the onset of resistance evolution to Bt proteins as outlined in a paper published last year," he added.

Other consequences of the evolution of practical resistance by the western corn rootworm has been the increased use of pyramided Bt hybrids, the use of seed blends as a primary refuge strategy, and a reduction in the size of the required refuge — from 20% to 5% for some products.

"The reduction in the refuge size remains troubling for many entomologists, especially in areas of the Corn Belt where resistance has been confirmed to one of the rootworm Bt proteins. Although a seed blend offers many advantages, including ensured compliance as well as improving the chances that Bt-susceptible and resistant adults will mate, increased selection pressure on the one effective Bt protein within a compromised pyramid, may be a primary consequence of a 5% refuge," he said.

To date, four Bt rootworm proteins have been registered for use in the United States: Cry3Bb1, Cry34/35Ab1, mCry3A, and most recently eCry3.1Ab. Gray said that Aaron Gassmann (Iowa State University) and his colleagues recently published a paper in which they confirmed the field evolution of resistance to the mCry3A protein. In the same journal article, they also confirmed cross-resistance between Cry3Bb1 and mCry3A proteins.

"These findings are troubling from many perspectives. For instance, pyramided Bt hybrids that are used in areas of the Corn Belt where practical resistance to the Cry3Bb1 and mCry3A proteins is a reality, may in fact be relying to a great extent upon the efficacy of Cry34/35Ab1 or eCry3.1Ab to ensure adequate root protection — again, at reduced refuge size requirements (5%)," he said.

Last summer, Gray reported on the failure of some Bt hybrids (Cry3Bb1) to provide adequate root protection in rotated corn in Kankakee and Livingston counties. Spencer will conduct plant-based bioassays on the offspring reared from the adults collected from these fields. Results from these bioassays will be in later this year.

“If the results confirm resistance to the Cry3Bb1 protein, it seems clear that a segment of the Western corn rootworm population can now overcome rotation and this protein. With cross-resistance within this population to the mCry3A protein a possibility, we begin to see how diminished our IPM tool box is for this insect pest,” Gray explained.

“As I have done in the past, I urge producers to implement a long-term integrated pest management approach for corn rootworms. This includes the use of multiple tactics (over time, not all in the same season), such as: use of a more diverse crop rotation system, use of a non-Bt hybrid in conjunction with a planting-time soil insecticide, rotation of pyramided Bt hybrids, and consideration of an adult suppression program in heavily infested fields,” he said.

(CropLife.com April 9, 2014)
http://www.croplife.com/crop-inputs/more-corn-rootworm-resistance-to-bt-corn-reported-in-illinois/

US EPA REJECTS REQUEST FOR MORE DRIFT PROTECTION

The US EPA has rejected a petition filed by environmental and farmworker groups calling for more stringent safety standards to protect children from pesticide drift. The Agency's current approach for addressing and regulating pesticide drift is working and does not warrant revisions, the EPA said in its March 31st response to the petition. A federal court ordered the Agency in November to formally respond to the petition (*Agrow* No 676, p 15).

The EPA acknowledged that it "shares the concerns expressed by the petitioners" about the risks from pesticide drift and volatilisation to children, but believes that the "registration review programme already in place is a timely, efficient and effective way to assess and take action on these risks".

The response did not sit well with the petitioners, who suggested they might continue legal action to get the Agency to change its approach to protecting children from pesticide drift. "We are deeply disappointed with this complete non-response from EPA," says Kristin Schafer, programme and policy director for Pesticide Action Network (PAN). "The Agency is completely disregarding the urgency of the risks these pesticides are posing, every day, to children's health."

PAN submitted the petition to the EPA in October 2009, along with United Farm Workers, AFL-CIO, the Farm Labor Organizing Committee and several other advocacy groups (*Agrow* No 578, p 17). The groups argue that the EPA has failed to protect children from pesticide drift in violation of the 1996 Food Quality Protection Act.

The Agency noted it is taking public comments on new methodologies it has developed for assessing risks from pesticide drift and volatilization. The EPA plans to use these methodologies during registration reviews "to address concerns it shares with the petitioners about drift and volatilization".

The EPA rejected outright the request that it develop a new process outside of the ongoing pesticide re-evaluation process to assess and manage spray drift and volatilization risks. "The petitioners suggest that the Agency should use alternative approaches that re-prioritize pesticides for registration review or speed up risk assessments," according to the EPA. "The Agency believes that such adjustments to the registration review process are not needed and do not represent an efficient use of limited Agency resources."

Many of the pesticides the petitioners specifically cited as being of "particular concern have already entered registration review, and the Agency intends to integrate consideration of drift and volatilization risks into its registration review human health risk assessments", the EPA said. The request for interim buffer zones for drift-prone pesticides was also rebuffed by the Agency, which said imposing such requirements was not "scientifically supportable or defensible".

(Pesticide & Chemical Policy/AGROW, April 4, 2014)

ON THE TRAIL OF FIRE ANT PHEROMONES

U.S. Department of Agriculture (USDA) scientists are developing innovative techniques to combat one of the world's worst invasive species, the red imported fire ant.

In the United States, fire ants cost $7 billion in control, damage repair and medical care each year. They infest millions of acres in urban, agricultural, wildlife, recreational and industrial areas.

Scientists at the Agricultural Research Service (ARS) Center for Medical, Agricultural and Veterinary Entomology in Gainesville, Fla., are investigating chemicals called pheromones that are secreted by the ants. Pheromones signal alarm, mark trails to food, attract workers to brood and the queen, and unite males and females for mating.

Entomologist Man-Yeon Choi and chemist Robert Vander Meer at the Gainesville center have shown for the first time that a neuropeptide called pheromone biosysnthesis activating neuropeptide (PBAN) activates production of trail pheromones in ants.

PBAN was first discovered by ARS scientists in Beltsville, Md., in the 1980s. They found that the hormone regulates sex pheromone production in female moths. Since then, scientists have found that other insects, including cockroaches, have this type of PBAN family peptides made of two or more amino acids.

Choi injected fire ant workers with PBAN peptides and found a significant increase in pheromone production. He and Vander Meer also identified the DNA sequence of both the PBAN gene and receptor gene, which allowed them to test the function of PBAN in trail pheromone production using a new technique called RNA interference (RNAi). This involves taking normally single-stranded RNA from a gene and making double-stranded RNA (dsRNA) that can be used to suppress that gene's expression.

When scientists injected dsRNA of either the PBAN gene or receptor gene into ants, they found that ants produced less trail pheromone. They also discovered that adult ants and larvae injected with PBAN-RNAi had significant mortality, compared to ants that didn't receive the injection. Pupae that received the treatment had delayed development and a high death rate.

Scientists plan to investigate whether other pheromones are activated by PBAN, and if dsRNA can be used for fire ant control.

(PCT Online, April 28, 2014)
http://www.pctonline.com/USDA-fire-ant-pheremone.aspx

PESTICIDE INDUSTRY WANTS MORE TIME TO REVIEW US WPS

Pesticide industry trade groups are urging the EPA to afford stakeholders more time to comment on proposed changes to federal farmworker protection

rules, arguing that the complexity of the revisions warrants an extended deadline. CropLife America (CLA) and Responsible Industry for a Sound Environment (RISE) have asked the EPA for an additional 90 days to comment on the proposed changes to the Worker Protection Standard (WPS). The Agency announced its planned overhaul of the WPS in February (Agrow No 683, p 14). The public comment period is currently set to end on June 17th.

The proposal marks the first time the EPA has tried to revamp the WPS in more than two decades. Enacted in 1992, the WPS requires workers to receive basic pesticide safety training, restricts worker access to treated fields, mandates that protective equipment is used and calls for medical assistance to be provided in case of emergency.

The CLA and RISE argue that 90 days are insufficient time to adequately review the proposal. "The public inspection document is over 300 pages long, is technically dense and practically impactful and therefore requires a range of expertise for development of comments," writes Barbara Glenn, the CLA's senior vice-president of science and regulatory affairs.

The CLA is currently "gathering this expertise and would appreciate a longer timeline to pull this expertise and their comments together," Ms Glenn comments. "Much of the expertise needed from agricultural stakeholders comes at the busiest time of the year for agriculture, during spring planting."

RISE president Aaron Hobbs echoed that request. His group represents specialty pesticide and fertilizer products used in forestry, nurseries, greenhouses and turf farms. Mr Hobbs says such uses may have "unique circumstances that need to be considered" and contends that the documentation for the proposal is "lengthy and complex."

(Pesticide & Chemical Policy/AGROW, April 22, 2014)

COCKROACHES INJECTED WITH DNA NANOBOTS

Bioengineers have successfully injected them with nanorobots made from DNA that can unfold to dispense drugs, Discovery News reports.

The nanoscale robots were made using DNA strands that fold and unfold like origami. They can function like mini-computers, carrying out simple tasks. One day similar nanorobots could be programmed to seek out diseases inside humans and treat them at the site, with medical precision.

The work is being led by Daniel Levner from Wyss Institute at Harvard University and scientists at Bar Ilan University in Israel. He and his colleagues programmed the DNA nanorobots to interact with each other and move around inside a living cockroach.

The programs were simple logical operations that directed the DNA to unfold and release a molecule, for example, when it encountered a specific protein. (PCT Online April 23, 2014) http://www.pctonline.com/Cockroaches-DNA-Nanobots.aspx

US CWA PROPOSAL DRAWS IRE

US pesticide interests and agricultural groups are voicing fierce opposition to new guidance that could expand the reach of the Clean Water Act (CWA). They argue that the proposal is unnecessary and does little to quell confusion over the extent of waters protected under the federal statute.

At issue is guidance issued late last month by the US EPA and the US Army Corps of Engineers, the two agencies tasked with implementing the CWA. The proposal aims to redefine the scope of the law and will likely lead to stricter protections for some wetlands and streams currently beyond the reach of the statute. “We are clarifying protection for the upstream waters that are absolutely vital to

downstream communities," said EPA Administrator Gina McCarthy.

The Agency acknowledged that the effort intends to address the long-running controversy over which waters fall under the jurisdiction of the CWA. Ms McCarthy says that during the past decade the CWA has been "bogged down by confusion".

At its core, the 1972 law makes it illegal to discharge dredged soil or fill material into "navigable waters" - or waters, including wetlands, adjacent to navigable waters - without a permit. But the definition of the waters that can be regulated has been subject to an array of interpretations and legal challenges. Two Supreme Court rulings, one in 2001 and the other in 2006, added to the controversy. The rulings recognized limits on the government's authority to regulate waters, but failed to define if the agencies had the power to impose restrictions on isolated wetlands and waterways with no direct connection to navigable waters.

The court decisions "narrowed legal protections and muddled everyone's understanding of what waters are - or are not - covered under the law", Ms McCarthy wrote in an opinion explaining the proposal. "Protections have been especially confusing for those smaller, vital, interconnected streams and wetlands."

The proposal specifically targets some 60% of the miles that are defined as streams in the US flow seasonally or after rain "but have a considerable impact on the downstream waters", the EPA says.

Ms McCarthy said the rule will provide regulatory "certainty" and that it will not expand the CWA's reach on farmers and developers.

But those parties - and CropLife America (CLA) - are unconvinced. American Farm Bureau Federation president Bob Stallman called the proposal a "serious threat" to farmers, ranchers and other landowners. "Under EPA's proposed new rule, waters - even ditches - are regulated even if they are miles from the nearest 'navigable' waters," he says.

CLA argues the proposal looks like it creates "additional unnecessary regulatory burdens for the agricultural community and applicators of pesticide products."

The pesticide industry trade group contends that the guidance tilts the regulatory balance away from states and gives the federal government too much authority. "The jurisdictional reach of the Clean Water Act is the foundation of federal control over private property and business activity," CLA president and CEO Jay Vroom says.

(Pesticide & Chemical Policy/AGROW, April 16, 2014)

EU STUDY: HONEY BEE DEATH RATES LOWER THAN THOUGHT

BRUSSELS — A pioneering European Union survey into the impact of pests and diseases on honey bees found death rates were lower than feared, in part countering concerns about the collapse of colonies of the crop-pollinating insects, the Chicago Tribune reported.

The study of 32,000 bee colonies across 17 EU member states from late 2012 until summer 2013 found winter mortality rates ranged from 3.5 percent to 33.6 percent.

The winter of 2012-13 was particularly cold and the highest mortality rates were in northern countries with harsher climates.

During the beekeeping season, when the insects are active, mortality rates were between 0.3 percent and 13.6 percent. (PCT Online April 30, 2014) http://www.pctonline.com/EU-study-bee-deaht-rates.aspx

EPA ANNOUNCES VOLUNTARY PROCESS TO PROVIDE APPLICATORS WITH ONLINE ACCESS TO PESTICIDE LABELING

Today, EPA is launching a new voluntary process by which registrants can opt to make legally valid pesticide labeling accessible online. Until now, no version of online labeling has been legally valid for the purpose of making a pesticide application. This Web-distributed labeling system will initially focus on agricultural and industrial pesticides and professional applicators.

Electronic or online labeling – called Web-distributed labeling – will allow pesticide applicators to download streamlined labeling, including instructions specific to the state and the use site where an application will be made. Labels accompanying pesticide products in stores can include more than 30 pages of instruction. This new process will allow for online access to portions of the label such as directions for use, first aid and environmental statements for certain use sites.

Web-distributed labeling should provide:

- Improved compliance with the instructions on pesticide labels by making labels easier to access, read and comprehend;
- Quicker implementation of measures to protect public health and the environment;
- Faster access to new pesticide uses, and
- Lower costs for Industry and the EPA

The actual labeling on the container will not be shortened in any way with the addition of Web-distributed labeling. The Pesticide Registration Notice (PR Notice 2014-1) (13 pp, 2.7 MB, About PDF) is effective immediately.

For more information, please see the announcement in the Federal Register or http://www.epa.gov/pesticides/regulating/labels/distribution/. (EPA April 4, 2014) http://www.epa.gov/oppfead1/cb/csb_page/updates/2014/pesticide-labeling-online-access.html

In-State and Neighboring CEU Meetings

Date: July 24, 2014
Title: BWI Tulsa Summer Seminar
Location: Linnaeus Gardens Tulsa OK
Contact: Kelly Keech (918) 693-6461
Course #: OK-14-058
www.bwicompanies.com

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

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 2014 are as follows:

May			June	
8	Tulsa		2	OKC
12	OKC		3	Goodwell
22	Tulsa		12	Tulsa
27	OKC		23	OKC
29	Enid		26	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