

PESTICIDE REPORTS

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



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of the application records will need to be sent to the Department.

**Do Not Apply from May 1 to October 15.
Greer, Harmon, and Kiowa counties:
Dicamba and 2,4-D esters.**

**Jackson and Tillman: Dicamba, 2,4-D,
picloram, triclopyr or clopyralid.**

(PSEP)

HERBICIDE RESTRICTED AREAS IN EFFECT

A rule concerning the use of certain herbicides in Greer, Harmon, Kiowa, Jackson and Tillman counties went into effect May 25, 2006. This rule does not prohibit the use of these herbicides. The rule lists specific herbicides by their active ingredient. You will need to look closely at the herbicides you use to determine if they apply. Your pesticide dealer or County Extension Educator can help if you are not sure. If you need to apply the regulated herbicides between May 1 and October 15th you will need to notify the Department of Agriculture, Food and Forestry of your intent to make the application on the approved Notification form and after the application is made then a copy

SPRAY DRIFT RISK BROCHURE AND POSTER AVAILABLE

ODAFF has just released a spray drift risk brochure and poster. These documents are to help in making applicators aware of sensitive areas to certain types of herbicides. The brochure and poster can be found at the ODAFF web page <http://www.oda.state.ok.us/cps-forms.htm> or the OSU PESTICIDE SAFETY EDUCATION website <http://pested.okstate.edu/>. All applicators should follow these guidelines to avoid drift and damaging susceptible crops and plants. An example has been attached at the end of the newsletter. (PSEP)

RECKITT BENCKISER WON'T IMPLEMENT BRODIFACOUM MITIGATION MEASURES, AWAITS CANCELLATION HEARING

Attorneys representing Reckitt Benckiser say the company will not comply with the actions required in EPA's risk mitigation decision (RMD) for brodifacoum and instead will wait for the agency to start cancellation proceedings against products containing the active ingredient, such as the company's d-Con bait products.

"We look forward to challenging the merits of the RMD. We look forward to proving that the RMD is bad science," Ronald Schechter, a partner with the law firm Arnold & Porter, tells Pesticide & Chemical Policy.

In May 2008, EPA issued an RMD for brodifacoum and nine other rodenticides, outlining actions manufacturers had to take to reduce risks, such as selling residential bait products as a block or paste packaged with an approved bait station. In addition, products containing the second generation anticoagulants brodifacoum, bromodiolone, difenacoum and difethialone could no longer be marketed to residential consumers.

"At the same time EPA is taking second generation anticoagulants away from consumers for residential uses, it continues to permit use in rural and agricultural settings," Lawrence Cullen tells P&CP. "It seems illogical to take away indoor residential uses yet keep uses that are out of doors in rural areas," Cullen says, noting EPA's rationale includes potential effects to non-target organisms -- wildlife effects.

Reckitt has long been after EPA to initiate cancellation proceedings against its products not in compliance with the RMD -- it's a process that will allow the company to challenge the agency's decision before an administrative law judge. EPA sent a letter in June 2008 to registrants affected by the RMD, advising them that products not in

compliance were to be amended, and those registrants who did not intend to amend their registrations were to submit a voluntary request for cancellation; otherwise, as of June 4, 2011, the agency indicated it might pursue additional regulatory action, possibly including cancellation. EPA warned it would consider products not in compliance after that date as misbranded.

Reckitt told EPA it would not amend its registrations and asked the agency to initiate cancellation proceedings, but EPA declined, and Reckitt filed suit in district court asserting the agency was attempting to do an end-run around the company's due process rights under FIFRA.

After an initial dismissal, which was reversed by the D.C. Circuit Court of Appeals, the U.S. District Court for the District of Columbia ultimately ruled EPA could not bring a misbranding or other enforcement action against Reckitt for failing to comply with the RMD requirements until the agency has completed administrative cancellation procedures under FIFRA Section 6 (see P&CP Feb. 4, Page 1).

EPA did not appeal the decision.

As of April 8, EPA says on its website that manufacturers of household rodenticide products that do not meet the agency's new risk reduction goals "will face EPA actions to remove those products from the market" after June 4.

Given the court ruling, Schechter says the only such action EPA can take is to initiate cancellation "in our view." (Pesticide & Chemical Policy, April 15 2011, Volume: 39 Issue: 20)

PURDUE ENTOMOLOGIST WARNS OF BT "REFUGE IN A BAG" RISKS

Bags of corn seed mixing genetically engineered hybrids with and without insect-killing Bt toxins provide farmers easier compliance with federal regulations, but they could, over time, hasten insect

resistance to Bt, warns a Purdue University entomologist.

Although "refuge-in-a-bag" seed technology has been approved for use by EPA, questions still remain over its long-term effect on corn rootworms, the main pest targeted by the technology, says Christian Krupke in a press release issued by the university on Wednesday.

"Is a guarantee of 100% grower compliance with refuge regulations for corn rootworms worth a bit of a risk in terms of resistance development?" Krupke asks. "For many the answer is yes, because compliance has been declining in recent years."

Refuge-in-a-bag products contain 90% Bt corn seed with 10% non-Bt "refuge" seed. Under EPA rules, farmers who plant Bt corn also must plant next to or around such corn non-Bt hybrids equaling 20% of the Bt acreage. With refuge-in-a-bag, farmers plant all the seed together. Refuge corn is interspersed in the field with Bt corn.

The new seed technology covers only below-ground feeding rootworms at this time, however. Farmers growing Bt corn still need to plant a separate 20% refuge for corn borers, but that will change next year with a new product offering refuge-in-a-bag for all corn pests, Krupke says.

Biologically speaking, refuge corn works in concert with Bt corn to maintain the durability of the genetic traits in controlling many corn-feeding insects. "In the absence of refuge corn, any insects that survive exposure to Bt corn would mate with one another and pass along the genetic traits that helped them survive," Krupke warns. "Refuge corn dilutes these genes with susceptible ones from beetles that fed on non-Bt corn and, therefore, should be susceptible."

Refuge-in-a-bag does not completely remove the risk of Bt-immune insect populations, he says.

Sub-lethal exposure

"The concern with refuge-in-a-bag, or seed mixes, has always been sub-lethal exposure with toxic

plants and non-toxic plants standing side-by-side," Krupke says. "You could have a young corn rootworm beetle larva emerge, feed on a toxic plant but not die, and then move over to a non-toxic plant and feed until reaching adulthood. The larva now has sub-lethal exposure to Bt. That's one of the ways that resistance can develop in an insect population more rapidly.

"It's that old adage that whatever doesn't kill you makes you stronger. We could be giving those larvae selective advantage in the long term. That was one of the reasons this technology wasn't embraced initially."

Sub-lethal exposure works the other way as well, Krupke says. Larvae could feed on a refuge corn plant and become larger, then move to a Bt plant to continue eating. Because the larvae are larger and it takes more Bt toxin to kill bigger insects, larvae might not ingest enough toxin to die, he said.

On the other side of the ledger, refuge-in-a-bag offers advantages to the traditional Bt/refuge planting system, Krupke said, adding, "Compliance is unquestionably the main advantage. There's no doubt about it. This way a grower can dump the seed into the planter and go. There's no changing out seed or calculating refuge acres.

"One of the other advantages with having Bt and refuge plants mixed together in a field is that you get the rootworm beetles closer together, which facilitates mating between beetles that might be Bt-resistant and those that are susceptible from the refuge."

By doing some of the matchmaking work for resistant and non-resistant insects, the ratio of Bt to non-Bt seed in refuge-in-a-bag products can be reduced to 9-to-1, Krupke says. Refuge-in-a-bag is available on a limited basis this crop season, with more seed brands expected to add the technology in coming years. About 65% of the corn grown in the United States is Bt hybrids, he reports. (Pesticide & Chemical Policy, April 15 2011, Volume: 39 Issue: 20)

WEED RESISTANCE TO HERBICIDES SEEN INCREASING IN UNITED STATES

Due to the almost universal adoption of biotech corn and soybeans tolerant of the herbicide glyphosate, weeds resistant to glyphosate continue to thrive and are getting worse, speakers told a March 31 conference, in Davenport, Iowa, according to an account of the meeting in *Wallaces Farmer* magazine.

Summing up his own presentation and those of other university researchers, Mike Owen, an Iowa State Extension weed scientist, reportedly said glyphosate-resistant populations of weeds are continuing to evolve and develop resistance to herbicides other than glyphosate. For example, resistance to HPPD inhibitor herbicides has been documented in seed corn fields, he reported. "I suspect resistance to this herbicide group is more widely distributed than most farmers realize," he is quoted as saying.

Owen said it's critical for farmers, chemical dealers, crop consultants and everyone involved in weed management to take steps to help prevent further spread or development of herbicide resistant weeds. Proper weed management will make farmers more money every year than managing any other pest, he said.

"Weeds represent the most important and economically damaging pest that Iowa soybean and corn farmers face every year," he said, stressing that diversity of management tactics is the key.

Evolving resistance

Evolving resistance to herbicides continues to escalate in Iowa, Owen reported. Glyphosate-resistant populations of waterhemp are widespread and increasing. Likewise, glyphosate resistance in giant ragweed and marestail are becoming increasingly important. Last year, resistance to HPPD inhibitor herbicides, such as Laudis, Callisto

and Impact, was documented in seed corn production fields, he reported.

"I suspect that resistance to this herbicide group is more widely distributed than most growers realize. Thus, in Iowa, we have resistance in waterhemp to the triazine herbicides (atrazine), ALS inhibitors (Pursuit), PPO inhibitors (Phoenix), glyphosate [Roundup] and now the HPPD inhibitor herbicides," he is quoted as saying.

Many populations of waterhemp have multiple herbicide resistance, Owen reports. "If you are not sure if waterhemp in your fields is herbicide resistant, you are better erring on the side of being conservative," Owen is quoted as saying. "You should presume resistance exists and manage accordingly."

Owen reportedly offered the following recommendations to farmers and weed management advisers:

Don't use only one management tactic or herbicide to control weeds;

Do use tank mixes of herbicides with different mechanisms of action (MOAs) that will control the weeds of concern. Tank mixes are better than rotation of MOAs. Refer to the herbicide group number (voluntarily included on many herbicide labels) to determine if the herbicides have different MOAs;

Do scout for weeds early in the spring and continue to scout throughout the season. While you may not think weeds exist in the untilled fields, look closer, because they are there, and they will cost you money if you do not manage them prior to or immediately after planting;

Do use a soil-applied residual herbicide on all acres regardless of crop or trait. Whether you plan to till the fields or not, it would be worthwhile to include a residual herbicide that controls the weeds that will germinate first, are most populous, and are of greatest concern; and

Do know what herbicides you are planning to use, what they control (and do not control), what replant restrictions exist and if there is significant potential for crop injury.

"Anything that is suggested to be simple and convenient -- herbicide, crop trait, whatever -- will inevitably fail and cost you yield potential," Owen warned. "No single tactic will protect the potential crop yield nor deter the evolution of herbicide-resistant weed populations. Be proactive and manage herbicide resistance before it becomes a major problem. Diversity of tactics is the key to consistent weed management and high crop yields." (Pesticide & Chemical Policy, April 15 2011, Volume: 39 Issue: 20)

FARMWORKERS SUE TENNESSEE FARM, ALLEGING ACUTE PESTICIDE EXPOSURE

Southern Migrant Legal Services has filed a lawsuit on behalf of 15 migrant farm workers against a Tennessee tomato farm, alleging Fish Farms "flagrantly violated" federal agricultural guest worker program standards by subjecting the workers to "intolerable working and housing conditions, including acute exposure to pesticides."

The plaintiffs contend that on repeated occasions they were exposed to pesticides from spraying both in close proximity to their living quarters and in the fields while they worked. They allege Fish Farms failed to: monitor and supervise pesticide applicators; provide applicators and farm workers with adequate safety training; provide decontamination facilities; and provide workers with personal protective equipment. In addition, restricted entry intervals were violated, and pesticides were misused.

The plaintiffs also claim their housing was unsound, unsafe and unsanitary, and that they were denied adequate and convenient potable water as well as laundry facilities.

According to the complaint, the plaintiffs consulted with legal counsel and filed complaints with the Tennessee Department of Agriculture and the U.S. Department of Labor, requesting anonymity to protect against retaliation. However, they say they were wrongfully terminated and discriminated against for filing the complaints -- claiming violations of the Fair Labor Standards Act, the U.S. Code section on equal rights under the law, the Tennessee Public Protection Act and the Tennessee Human Rights Act.

Each plaintiff is seeking compensatory and punitive damages in excess of \$75,000. The case was filed April 12 in the U.S. District Court for the Eastern District of Tennessee at Greeneville.

"These men followed the law in coming to this country, and in return for playing by the rules, Fish Farms abused them because they were Mexican and fired them because they complained about their treatment," Matthew Piers, president of the firm Hughes Socol Piers Resnick & Dym, which is representing the plaintiffs, says in an April 12 statement.

Fish Farms attorney Jay Mader could not be reached for comment by press time, but he reportedly told The Associated Press that the farm will respond to the allegations in court. (Pesticide & Chemical Policy, April 22 2011, Volume: 39 Issue: 21)

U.S. DISTRICT COURT ISSUES TEMPORARY RESTRAINING ORDER IN FIPRONIL CASE

GREENSBORO, N.C. – The ongoing patent infringement litigation between BASF and Makhteshim Agan of North America and its U.S. subsidiary Control Solutions, Inc., took a dramatic turn recently when Judge William L. Osteen, Jr. granted a Temporary Restraining Order (TRO) preventing Makhteshim from "using, importing, marketing, offering to sell, or selling" any fipronil-related product that infringes on BASF's '010 and '743 patents.

The patents at the center of the recent action are BASF's "perimeter use patents" owned by Bayer S.A.S. and exclusively licensed by BASF Agro. According to court documents, the TRO will remain in effect "until further order" of the U.S. District Court for the Middle District of North Carolina, where the case is being tried.

The TRO, executed on April 4, is the latest chapter in legal proceedings that began more than a year ago when BASF filed two separate patent-infringement lawsuits in U.S. District Court. Since the original court filings on April 8, 2010, more than 110 different motions, court orders and other related legal actions have taken place as the parties – BASF Agro, Cheminova A/S and Makhteshim Agan of North America, along with its U.S. subsidiary, Control Solutions, Inc. – jockey for position in the high-stakes litigation that will have wide-ranging implications for the pest management industry, whatever the ultimate outcome.

Termidor, BASF's flagship termiticide, generates more than \$75 million in annual revenues, representing about 35 percent of the U.S. termite control market and approximately 65 percent of the liquid termiticide market. More than 4 million structures have been treated with the non-repellent termiticide since it was introduced to the industry 10 years ago. As a result, there's a lot at stake in any litigation relating to the future of fipronil.

At the center of the proceedings are several fipronil-related patents, the broad-spectrum phenylpyrazole insecticide found in Termidor, the most widely used liquid termiticide in the United States. One of those patents ('940), covering the fipronil molecule itself, expired on Aug. 3, 2010. Two additional manufacturing process patents ('943 and '945) will expire in 2023 and 2025, respectively, while the method-of-use patents – sometimes referred to as "perimeter use patents" – will expire in 2017. Joining BASF as a plaintiff in the lawsuits is Bayer CropSciences, which exclusively licenses two of the patents to BASF.

In October, Makhteshim Agan of North America and Cheminova agreed not to introduce any fipronil-related products that would infringe on

BASF's "process patents." At the time, Jan Buberl, head of BASF's Specialty Products Division, called it a "major milestone for defending our intellectual property."

He said the action indicated that BASF's intellectual property "is respected by the competition" and "awarded certain protections" by the courts. "It means we'll be able to continue to offer new technology long-term for this industry," Buberl said, as evidenced by the company's introduction of Termidor*DRY* earlier this year, the first brand extension of the Termidor line.

While BASF continues to invest in creative ways to enhance and expand the use sites for its flagship product, the company's patent for technical fipronil expired in August 2010, increasing the likelihood a generic fipronil-based technology would one day enter the pest control marketplace. While Makhteshim has secured a technical registration for fipronil, Buberl says it has a "narrow spectrum" of uses. "They cannot sell it into the Perimeter*Plus* market, which is our protected technology," he said.

Mark Boyd, president of Control Solutions, said Makhteshim's "legal team is working to resolve the disputes," but the Temporary Restraining Order "will not keep CSI from launching" its fipronil-based termiticide in late May or early June. "The only issue being disputed is some of the language on the label," Boyd said, and "the outcome of legal battles and opinions will determine the language on the label for the short-term."

BASF requested the TRO when it became apparent Makhteshim Agan had "taken concrete steps" and "made meaningful preparation" to introduce a fipronil-based termiticide that would potentially infringe its patents. BASF claimed such actions would cause "irreparable harm" in the absence of preliminary relief, according to court documents.

While the court recognized "the record in this case is not yet fully developed," it granted the TRO based on four key criteria, which represent the "legal standard" for issuing a Temporary Restraining Order. They include:

• **Plaintiffs are likely to succeed on the merits** – In order to satisfy the first prong of the test for preliminary relief, BASF had to show that Makhteshim would infringe on at least one valid and enforceable patent claim. The court concluded that BASF had “sufficiently demonstrated, for purposes of obtaining a TRO, that their patent claims are valid” and Makhteshim’s master label for its termiticide “will induce infringement of the ’010 patent and the ’743 patent,” the so-called perimeter use patents.

• **Plaintiffs are likely to suffer irreparable harm in the absence of preliminary relief** – The court ruled that BASF had “made the requisite showing of patent validity and infringement,” and Makhteshim had “to this point offered very little evidence to rebut the presumption of irreparable harm.”

• **The balance of equities tips in Plaintiffs’ favor** – The court ruled that in the absence of preliminary relief, BASF would lose the value of their patent(s), whereas a TRO would “merely deprive” Makhteshim of “the ability to go on to the market and begin earning profits earlier. Court documents state, “For these reasons, this court concludes that, for TRO purposes, the balance of equities weighs in the Plaintiffs’ favor.”

• **A TRO is in the public interest** – The court ruled BASF had “adequately demonstrated that their patents are likely to be valid” and that Makhteshim is “likely to infringe those patents.” Therefore, the court concluded that a TRO preventing such infringement is “in the public interest.”

In addition to issuing the TRO, the court required BASF to secure a \$1 million bond to pay Makhteshim’s court costs and damages in the event – at the conclusion of the litigation – the company is found to have been wrongfully restrained.

The next critical phase of the litigation is what is known as a “Markman hearing” (see related story below), which currently is scheduled for May 2. A Markman hearing – also known as a “claim construction hearing” – is a pretrial hearing in patent infringement cases where a judge examines

evidence from all the parties on relevant key words used in a particular patent claim.

Based on court documents, some of the key words and phrases at issue in the litigation are “compound,” “in the presence of,” “corrosion inhibiting compound,” “knock down effect,” “around or under/around and under,” “treated locations/untreated locations” and “total perimeter of the building.”

Interestingly, all of the parties involved in the lawsuit at one time or another during the past year have filed motions for summary judgment, a procedural device used during civil litigation to promptly and expeditiously dispose of a case without a trial. It is used when there is no dispute as to the material facts of the case and a party is entitled to judgment as a matter of law. Up to this point, the Court has not acted upon those requests, allowing the litigation to proceed. A trial date is currently set for July 5.

Whatever the ultimate outcome of the litigation, it’s clear that with so much at stake all of the parties are in it for the long haul. “It’s fair to say that BASF hasn’t changed its attitude to vigorously defend its intellectual property to the ultimate end,” Buberl said. “IP is the backbone of BASF’s innovation strategy, and we will continue to aggressively protect our investments in new technology, research and development, and existing products.”

Boyd said, “This is the way corporate battle is done these days. The dispute is over some of the language with how a post construction application might be made and the latitude which the operator can apply. CSI/MAI will move aggressively to the market within the limitations the courts decide. The ‘rodeo’ continues.” (www.pctonline.com)

In-State CEU Meetings

Date: June 15, 2011

Time: 8:20am-2:00pm

Title: Turfgrass Pest Management Field Day

Location: Oklahoma State University Botanic

Gardens Education Center and Turfgrass

Research Center, Stillwater, OK

Contact: Damon Smith

405-744-9960 or damon.smith@okstate.edu

Course #: OK-11-062

CEU's: Category(s):

4 3A

4 10

ODAFF Approved Online CEU Course Links

Wood Destroying Organism Inspection Course

www.nachi.org/wdocourse.htm

CTN Educational Services Inc

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 May/June 2011 are as follows:

| May | June |
|----------|------------|
| 5 Enid | 6 OKC |
| 9 OKC | 7 Goodwell |
| 12 Tulsa | 9 Tulsa |
| 24 OKC | 23 Tulsa |
| 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.

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

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

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

**Pesticide Safety
Education Program**

SPRAY DRIFT RISK



HERBICIDE APPLICATORS

Be aware of herbicide-sensitive crops being grown in your area, especially cotton, grapes and canola, before any weed herbicide application. These crops are very sensitive to certain herbicides, especially products containing 2,4-D.

PLAN BEFORE YOU SPRAY

- 1 Know what your neighbor has planted.
- 1 Check your nearest Mesonet weather station information, the Mesonet Drift Risk Advisor and the ODAFF Sensitive Crop Viewer.
- 1 Consider wind speed, temperature, humidity and atmospheric inversion conditions.
- 1 Avoid application during hot or humid parts of the day.
- 1 Use low-drift nozzles.
- 1 Consider newer technology products that have lower drift and crop damage capabilities.

