



# Chemically Speaking

## Spring 2016 - Table of Contents:

EPA Plan for Sulfoxaflor Includes Added Pollinator Protections.....	2
EPA Takes Strong Steps to Prevent Poisonings and Protect Workers from Paraquat.....	3
Ortho Dropping Chemicals Thought Harmful to Bees.....	4
Perfect Herbicide: Don't Expect Help from New Chemistry and This Is Why.....	5
EPA Moves to Cancel the Insecticide Flubendiamide.....	7
Pesticide Registrations and Actions.....	8

Visit *Chemically Speaking* on the Web at: <http://pested.ifas.ufl.edu/newsletter.html>

"Chemically Speaking", is produced by F. Fishel and L. Kubitz, Pesticide Information Office.  
Pesticide Information Office / P. O. Box 110710 / Building 164 / Gainesville, Florida 32611-0710 / Tel. (352) 392-4721

An Equal Opportunity Institution.

The Institute of Food and Agricultural Sciences (IFAS) is authorized to provide research, educational information and other services only U.S. DEPARTMENT OF AGRICULTURE, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF FLORIDA, IFAS, FLORIDA A. & M. UNIVERSITY COOPERATIVE EXTENSION PROGRAM, AND BOARDS OF COUNTY COMMISSIONERS COOPERATING.

## **EPA Plan for Sulfoxaflor Includes Added Pollinator Protections**

Additional protections for pollinators are included in an EPA proposal that would allow use of sulfoxaflor, whose registration was pulled last year after the U.S. Court of Appeals for the 9th Circuit ruled the agency had not properly evaluated the insecticide's effects on pollinators.

The proposed amended registration, made available May 17, also would prohibit use of the sulfoximine-class insecticide (trade name: Transform) on five crops for which it had previously been registered: citrus, cotton, cucurbits (gourd plants such as squash and pumpkins), soybeans and strawberry.

Cotton and citrus growers have found the chemical useful in battling pests. In interviews after the court decision in September, two entomologists told Agri-Pulse that sulfoxaflor was critical to these producers.

Michael Rogers, director of the Citrus Research and Education Center at the University of Florida, said sulfoxaflor is one of only two effective controls for Asian psyllids - which cause citrus greening - during the six- to eight-week bloom period. Gus Lorenz, an extension entomologist and distinguished professor at the University of Arkansas, said “it's very, very difficult for [cotton growers] to get control of plant bugs” without sulfoxaflor.

EPA called the proposed registration “very protective of pollinators,” citing conditions that will not allow use of the insecticide on “bee-attractive” crops before and during bloom. Applications also would be prohibited on crops grown for seed production.

“Additional measures are being proposed to reduce spray drift: prohibiting applications if wind speeds are above 10 mph and requiring the use of medium to coarse spray nozzles,” EPA's Office of Pesticide Programs (OPP) said.

EPA is asking for comments by June 17 on two provisions: “One that would impose a downwind, 12-foot, on-field buffer zone when there is blooming vegetation bordering the treated field and the second would prohibit tank mixing sulfoxaflor with other pesticides. Comments may be submitted to the sulfoxaflor docket [EPA-HQ-OPP-2010-0889](https://www.regulations.gov) at [www.regulations.gov](http://www.regulations.gov).

“These restrictions practically eliminate exposure to bees in the field, which reduces the risk to bees below EPA's level of concern such that no additional data requirements are triggered,” OPP said.

In the proposed registration, EPA categorized the crops proposed for registration by their attractiveness to bees:

Not Bee Attractive:

- Barley, triticale, wheat
- Turf grass

Harvested Before Bloom:

- Brassica leafy vegetables
- Bulb vegetables
- Leafy vegetables (non-Brassica) and watercress • Leaves of root and tuber vegetables • Root and tuber vegetables

Bee Attractive but Applications Post-Bloom Only:

- Berries (Grape, Blueberry, Cranberry)
- Canola
- Fruiting Vegetables (Tomato, Pepper, Eggplant) and Okra • Pome fruit • Ornamentals • Potato • Stone Fruit • Succulent and Dry Beans • Tree nuts and pistachio  
(Agri-Pulse Communications, Inc., 5/18/16)

## **EPA Takes Strong Steps to Prevent Poisonings and Protect Workers from Paraquat**

The U.S. Environmental Protection Agency (EPA) is proposing to take action to stop poisonings caused by accidental ingestion of the herbicide paraquat, which can also cause severe injuries or death from skin or eye exposure.

“We are taking tough steps to prevent people from accidentally drinking paraquat and to ensure these tragic deaths become a thing of the past,” said Jim Jones, assistant administrator for the office of chemical safety and pollution prevention. “We are also putting safety measures in place to prevent worker injuries from exposure to this pesticide.”

Since 2000, there have been 17 deaths – three involving children caused by accidental ingestion of paraquat. These cases have resulted from the pesticide being illegally transferred to beverage containers and later mistaken for a drink and consumed. A single sip can be fatal. To prevent these tragedies, EPA is proposing:

- New closed-system packaging designed to make it impossible to transfer or remove the pesticide except directly into the proper application equipment;
- Special training for certified applicators who use paraquat to emphasize that the chemical must not be transferred to or stored in improper containers; and
- Changes to the pesticide label and warning materials to highlight the toxicity and risks associated with paraquat.

In addition to the deaths by accidental ingestion, since 2000 there have been three deaths and many severe injuries caused by the pesticide getting onto the skin or into the eyes of those working with the herbicide. To reduce exposure to workers who mix, load and apply paraquat, EPA is proposing:

- Prohibiting application from hand-held and backpack equipment, and

- Restricting the use to certified pesticide applicators only (individuals working under the supervision of a certified applicator would be prohibited from using paraquat).

Paraquat is one of the most widely-used herbicides in the U.S. for the control of weeds in many agricultural and non-agricultural settings and is also used as a defoliant on crops such as cotton prior to harvest. The proposal will be available for a 60 day public comment period. EPA will consider all public comments before finalizing these proposed actions later this year.

Actions on specific pesticides are one way that EPA is protecting workers from pesticide exposure. EPA's [revised Worker Protection Standard](#) and [proposed Certification and Training Rule](#) will also protect farmworkers and pesticide applicators. (EPA Pesticide Program Updates, 3/3/16)

## **Ortho Dropping Chemicals Thought Harmful to Bees**

The Marysville-based lawn and garden company is moving away from neonicotinoids, or neonics, a class of chemicals that some think have [decimated beneficial insects such as bees and butterflies](#).

Scotts launched a line of its popular Ortho pest control products this year without neonics, and next year the entire Ortho lineup will eliminate the chemicals.

Neonics have been studied for years to assess whether they play a role in declining populations of pollinators like bees and butterflies. The chemicals have been banned in Europe but remain legal in the United States. Advocacy groups have long called for the U.S. to echo Europe's ban.

"We just decided it was time for the Ortho brand to move on," said Tim Martin, general manager of Ortho at Scotts. "We've been talking about this for about two years."

The news was cheered by local beekeepers.

"It's actually rather exciting," said Tim Arheit, president of the Ohio State Beekeepers Association. "It is great to see a corporation taking the lead."

Scotts is the first major lawn and garden company in the U.S. to ban the use of the chemicals.

Ortho products will still kill insects, including bees, but they will work differently, Martin said. Neonics worked by being absorbed through a plant's root system, causing much of the plant to carry the chemical and transmit it to insects that come into contact with the plant.

New Ortho products will employ conventional insecticides that need to be sprayed on actual insects, Martin said. That might mean more spraying to kill the bugs consumers don't want, but it should also spare the bugs consumers do want.

"In the world of insecticide, it is always a dual-edged sword," Martin said. "We want to give homeowners a solution that works, and consumers are increasingly aware of and care about their impact on the environment."

The Ortho change will benefit urban and suburban beekeepers the most since that is where most of the retail lawn and garden products like Ortho are used, Arheit said. Rural populations still have to contend with larger-scale agricultural use of neonics.

"It's a good step in the right direction," Arheit said. "Hopefully it will start some kind of trend and others will follow suit."

The U.S. Environmental Protection Agency is still reviewing the safety of neonics, but it released a report in January that cited the neonic imidacloprid as a threat to honeybees, one of the most important crop pollinators. The EPA assessment found that imidacloprid residue poisons bees. The sickened bees can then carry the insecticide back to their hives, where it affects the overall health of the hive.

The neonics Scotts will ban include imidacloprid, clothianidin and dinotefuran.

Scotts' ban of neonics is less science than it is marketing, said Barbara Bloetscher, the state apiarist at the Ohio Department of Agriculture. Studies have not proven that neonics are the cause of bee and butterfly declines, Bloetscher said.

"There have been studies both ways," she said. "(Scotts) is trying to appease their clients."

As part of the ban on neonics, Scotts is also working with the Pollinator Stewardship Council, an advocacy group, to help educate consumers about the proper use of pesticides that might come in contact with pollinators. The two will create literature and other media to help consumers use insecticide safely.

On the shelf though, the non-neonic products do not call attention to themselves, Martin said. The EPA won't allow Scotts to label the products as free of neonics, so consumers need to know to look at the ingredients if they want such a product.

"We made a slight adjustment, the top of the label is a lighter color," Martin said. "I'd like it to be easier to tell them apart." (The Columbus Dispatch, 5/24/16)

## **Perfect Herbicide: Don't Expect Help from New Chemistry and This Is Why**

Let's say we want to try to bring new herbicide chemistry to the farm today and make that perfect herbicide. What do we need to do?

Perfect herbicide: Don't expect help from new chemistry and this is why we almost have it ... but wait.

Ever wonder why weed scientists are so aggressive about protecting herbicide chemistry? Growers are constantly being told to protect the chemistry available today because who knows when, or if, they will get anymore. But why is that? In short, any new chemistry would have to be 'the perfect herbicide.'

But let's say we want to try to bring new chemistry to the farm today and make that perfect herbicide. What do we need to do?

To get our new herbicide chemistry venture started, we need at least \$250 million. After Brad Haire (reporter for Southeast Farm Press) donates the money, we will begin our research and development of the perfect herbicide. Brad needs to understand he will have to wait 10-15 years to begin getting any of his investment back and then only has 14 years before others can start selling the same product.

Let's say by some miracle Brad coughs up the \$250 million. What do we need to do next to get to growers new herbicide chemistry?

Environmentally friendly is a requirement for our new product. It cannot pose a threat to surface waters, ground waters, wild life, fish and most every other critter on earth. And for sure, it cannot pose any risk to endangered species: to plants as well as animals that eat plants.

Of course, the user of the new chemistry product and the consumer of the crops that we treat with it must be protected. Acute or chronic toxicity issues are absolutely forbidden. Our product must be harmless to all humans who could come in contact with it directly or indirectly.

Persistence of the herbicide also must be understood early in development, or in other words we need the herbicide to last just long enough to help growers, but then we need the herbicide to break down into friendly natural compounds that will not harm the environment or people. The herbicide certainly can't pose any carryover risk to the crops our growers rotate into either!

Additionally, we have to:

- 1) Make sure the product does not cause unacceptable crop injury under a million different environmental conditions and grower production practices.
- 2) Make sure the product has an extended shelf life for storage, so it doesn't go bad in a few years or separate out in the tank.
- 3) Understand how soil/water pH, as well as other water and soil characteristic, influence the activity or life of our product.

We need to focus on making sure our new herbicide chemistry does not have any potential for an unfriendly odor or be prone to volatilization or drift. And, of course, we have to check every

potential tank mix partner for compatibility and impact on spray droplet size. If a mixture influences droplet size by just the tiniest amount, we may have the EPA increasing our buffers as well as restricting our use pattern, which could threaten a grower's ability to implement a sound weed management program.

As our product is nearing commercialization, we will need to develop a resistance management plan and strategically figure out the most effective use patterns to maximize weed control, minimize crop injury and prevent resistance development.

We have to make sure we can produce the appropriate amount of the product and have perfect, timely distribution across the world, because we'll need access to the global market if we hope at all to get our initial investment back.

We're almost there. We almost have the perfect herbicide. But wait, there's one more hurdle and it can come out of the blue at any time: We better be prepared for various groups to challenge our label in the Ninth U.S. Circuit Court of Appeals of California in attempts to delay or prevent our new tool getting to the growers who desperately need it as they strive to feed the world.

"Hmmm.....maybe those weed science guys are on to something. Seems pretty smart to protect the herbicide chemistry we have today by making wise decisions, implementing diversified herbicide modes of action into an integrated program that uses cover crops, tillage and/or hand weeding." At least we hope this is what you are thinking now if you haven't thought something similar already.

Of course, we still need to be concerned that even if our growers do all the right things to protect current herbicide chemistries in the field today, will the products we do have now survive the current rigorous regulatory processes.

As you can see, to develop and then bring to market a new herbicide chemistry is nothing short of miraculous, which is why we haven't had any new chemistry in more than two decades. A new chemistry today would have to be perfect. And very few things are perfect.

If agriculture and those who like to eat can't come together to support the development of new effective tools that are friendly within sound-science reason to the consumer, the environment or for our growers, wonder who really will feed our kids and grandkids.

They'll have to do it 'perfectly.' (Southeast Farm Press, 1/18/16)

## **EPA Moves to Cancel the Insecticide Flubendiamide**

The U.S. Environmental Protection Agency (EPA) is issuing a notice of intent to cancel all Bayer CropScience, LP and Nichino America, Inc., flubendiamide products that pose a risk to aquatic invertebrates that are important to the health of aquatic environments.

Required studies showed flubendiamide breaks down into a more highly toxic material that is harmful to species that are important part of aquatic food chains, especially for fish, and is persistent in the environment. EPA concluded that continued use of the product would result in unreasonable adverse effects on the environment. EPA requested a voluntary cancellation in accordance with the conditions of the original registration.

EPA had issued a time-limited registration to the companies with conditions that were understood and agreed upon. If unreasonable adverse effects on the environment were found by EPA, the companies would submit a request for voluntary cancellation of all flubendiamide registrations within one week of EPA notification.

After being informed of the EPA's finding on January 29, 2016, the companies were asked to submit a request for voluntary cancellation by Friday, February 5, 2016. They rejected EPA's request to submit a voluntary cancellation. Subsequently, EPA initiated cancellation of all currently registered flubendiamide products for the manufacturers' failure to comply with the terms of the registration.

Flubendiamide is registered for use on over 200 crops, including soybeans, almonds, tobacco, peanuts, cotton, lettuce, alfalfa, tomatoes, watermelon, and bell peppers, with some crops having as many as 6 applications per year.

Crops that have been properly treated with flubendiamide or that may be treated with existing stocks can still be sold legally. Provisions on handling existing stocks of the pesticide will be finalized once the products have been cancelled. (EPA Pesticide Program Updates, 3/1/16)

## **Pesticide Registrations and Actions**

- On February 29, the Florida Department of Agriculture and Consumer Services (FDACS) approved the Section 18 emergency exemption for the use of tolfenpyrad to control various thrips (including *Thrips palmi*, *Frankliniella schultzei*, and *F. occidentalis*) on fruiting vegetables crop group 8-10. The product, Torac® Insecticide, EPA Reg. No. 71711-31, containing 15.0% tolfenpyrad, is manufactured by Nichino America, Inc. (FDACS letter, 2/29/16)
- On April 7, the FDACS modified the duration of water use restrictions and posting for the state experimental use permit of Tigr® Herbicide (sethoxydim), EPA Reg. No. 7969-58-67690 FL15-EUP-01 for selective control of invasive grasses, such as torpedograss, West Indian marsh grass, para grass, and Tropical American water grass, in ponds, lakes, swamps, riparian areas, wetlands, marshes, reservoirs, and other areas adjacent to aquatic sites in Florida. (FDACS letter, 4/7/16)

- On May 5, the FDACS accepted Syngenta's request to amend the Florida Tenacity® Herbicide (mesotrione), EPA Reg. No. 100-1267 SLN 24(c) label (EPA SLN No. FL-140010) for further clarification of the directions for use regarding application timing and crop safety for control of goosegrass on Bermudagrass athletic fields and golf courses (except greens) in Florida. (FDACS letter, 5/5/16)
- On March 4, the FDACS declared a crisis exemption for the use of streptomycin sulfate (FireWall 50 WP® EPA Reg. No. 80990-3), oxytetracycline hydrochloride (FireLine 17 WP® EPA Reg. No. 80990-1), and oxytetracycline calcium complex (Mycoshield® EPA Reg. No. 55146-97) to control *Candidatus Liberibacter asiaticus* (CLas) bacterium, the cause of citrus greening disease, in Florida citrus. (FDACS letter, 3/4/16)