OKLAHOMA COOPERATIVE EXTENSION SERVICE

PESTICIDE REPORTS

Division of Agricultural Sciences and Natural Resources • Oklahoma State University
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SYNGENTA OFFERING PARAQUAT TRAINING WEBINARS IN JULY

The Sygenta will hold five paraquat webinar trainings in July. This is one option to get the mandatory paraquat training to use paraquat. The date and times are listed below.

Dates	Times
July 03, 2024	1:00 PM Central Time
July 08, 2024	1:00 PM Central Time
July 09, 2024	1:00 PM Central Time
July 16, 2024	1:00 PM Central Time

The registration link will require the following: first and last name, email address, state, and certification license #. This will allow a report to be send to EPA and to your state for certification credits (if applicable).

There is a mandatory quiz at the end of the webinar that will be conducted thru zoom, so make sure trainees know to stay on until the end of the webinar.

Link to the training
https://syngenta.zoom.us/webinar/register/WN_Gh1T5t4tTS-S3QbFJUJe-w#/registration

For more information contact Bart Clewis at bart.clewis@syngenta.com.

Paraquat training is also available at the Extension Foundation website https://campus.extension.org/login/index.php

(OSU PSEP)

EPA OPENS PUBLIC COMMENT PERIOD FOR PROPOSED DICAMBA HERBICIDE FROM BASF

The U.S. Environmental Protection Agency (EPA) has received an application from BASF for a new product containing the currently registered active ingredient dicamba. The product proposal includes over-the-top application of dicamba on both dicamba-tolerant cotton and soybeans. Because the application involves a new use pattern for dicamba, the Agency is providing a 30-day public comment period on the registration application consistent with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). EPA is also seeking comment on the associated draft labeling that BASF submitted, which is available in the docket.

The proposed labels would allow application to dicamba-tolerant soybeans before, during, and immediately after planting, and over-the-top of the soybean plant through the 'V2' growth stage (where the second set of three leaves of the plant are fully unfolded), but no later than June 12 of each year. Application to dicamba-tolerant cotton in this BASF proposal would be allowed before, during, and immediately after planting, and over-the-top of the cotton plant, but no later than July 30 of each year. Please review BASF's proposed label for additional details.

Like all opportunities for public comment associated with notices of receipt of applications, this action should not be interpreted as a registrant proposal that has been endorsed for future approval by EPA. Should EPA determine that this or any other registrant-submitted application including over-the-top dicamba meets the standard for registration of a new use under FIFRA, EPA will provide a separate opportunity for public comment on the proposed decision at a future time.

To read more about the registration application proposed by BASF and submit a comment, see docket EPA-HQ-OPP-2024-0154 on Regulations.gov. The public comment period will close on July 5, 2024, 31 days after the publication date in the Federal Register. EPA will review public comments as part of the proposed application process and incorporate any feedback into the registration decision.

Background

Dicamba is an herbicide registered for use at specified stages in agricultural crop fields of corn, cotton, sorghum, soybeans, sugarcane, and other crops. It was first registered for over-the-top uses on dicamba-tolerant cotton and soybeans in 2016. In 2017 and again in 2018, EPA amended the registrations of all over-the-top dicamba products following reports that growers had experienced crop damage and economic losses resulting from the off-site movement of dicamba. The U.S. Court of Appeals for the Ninth Circuit vacated the 2018 registrations in June 2020 on the basis that "EPA substantially understated risks that it acknowledged and failed entirely to acknowledge other risks." Days after the court's decision, EPA issued an order for the affected products that addressed existing stocks.

In October 2020, EPA issued new registrations for two dicamba products and extended the registration of an additional dicamba product until 2025. All three registrations included new measures that the Agency expected to prevent off-target movement and damage to non-target crops and other plants. Further state-specific amendments to the registrations occurred in 2022 and 2023.

In response to a lawsuit against EPA concerning these registrations, on February 6, 2024, a ruling by the U.S. District Court of Arizona vacated the 2020 registrations for over-the-top dicamba products XtendiMax, Engenia, and Tavium. EPA issued an Existing Stocks Order on February 14, 2024 (later revised on March 12), to allow for limited sale and distribution of dicamba over-the-top products that were already in the possession of growers or in the channels of trade and outside the control of

pesticide companies. The order also prohibits the use of these dicamba products except where the use is consistent with the previously approved labeling, which included measures intended to reduce environmental damage caused by offsite movement of the pesticide.

For further information, visit EPA's page on Registration of Dicamba for Use on Dicamba-Tolerant Crops.

(EPA, June 4, 2024)
https://www.epa.gov/pesticides/epa-opens-public-comment-period-proposed-dicamba-herbicide-basf

EPA RELEASES UPDATES ON ORGANOPHOSPHATE PESTICIDES DICROTOPHOS, DIMETHOATE, AND TETRACHLORVINPHOS

The U.S. Environmental Protection Agency (EPA) has released the Proposed Registration Review Interim Decisions (PIDs) for dicrotophos and dimethoate, as well as an Interim Registration Review Decision (ID) for tetrachlorvinphos (TCVP), three organophosphate (OP) pesticides.

OPs are a group of pesticides used in agriculture (e.g. food crops) and non-agricultural sites (e.g., turf at golf courses, athletic fields, sod farms, industrial areas) that affect the nervous system, which makes them effective against insects but can also impact mammals, including humans, depending on the level of exposure. These pesticides are currently undergoing registration review, a process that reviews each registered pesticide every 15 years to ensure that the pesticide can carry out its intended functions without unreasonable adverse effects to human health and the environment.

EPA has evaluated a large number of studies for the OPs to ensure that they continue to meet federal standards to protect human health and the environment. Toxicity tests supporting pesticide registration provide information on a wide range of potential health outcomes in major organ systems, such as the nervous, digestive, circulatory, and urinary systems, across different animal species, lifestages, durations, and routes. For OPs, neurotoxicity occurring through interaction with the acetylcholinesterase (AChE) enzyme has been found to be the most sensitive effect, and EPA has a long history of using a 10% change in AChE levels as a basis for its OP human health risk assessments. EPA also evaluated the potential of these OPs to cause developmental neurotoxicity (DNT), which is an impact on the normal development of the nervous system during pregnancy or childhood.

For each OP, EPA examined the available epidemiological studies (investigation of human populations for patterns and causes of health outcomes), animal toxicity studies performed with laboratory animals, and a battery of 17 in vitro assays (testing with cells from the nervous system) that evaluate a wide range of potential impacts on processes critical to the development of the human nervous system (referred to as the DNT battery). Data from all three lines of evidence are used to evaluate DNT potential using a weight of evidence approach (WOE), which is a process that integrates all relevant evidence and considers the strengths and limitations of each line of evidence.

EPA uses the WOE evaluations of DNT potential and other considerations--such as completeness of the toxicological database, evidence of neurotoxicity, evidence of sensitivity/susceptibility, and residual uncertainty in the exposure database--to determine an appropriate Food Quality Protection Act Safety Factor (FQPA SF) for each OP. The FQPA SF is intended to provide an additional 10X margin of safety to account for any additional developmental risk during pregnancy or childhood, but it can be reduced when reliable scientific information demonstrates that no such additional risk exists.

Dicrotophos

Dicrotophos is used only on cotton for treating thrips, stink bugs, tarnished plant bugs, and other pests. The PID released today for dicrotophos relies on the 2015 ecological draft risk assessment and an updated human health draft risk assessment (HH DRA), which is also being released today. The 10X FQPA factor for

dicrotophos was retained because EPA concluded that there was not sufficient evidence to support its reduction at the time of the PID.

The updated HH DRA identified potential health risks of concern for neurotoxicity for workers and bystanders.

EPA is proposing the following mitigation measures for dicrotophos products to address worker, bystander, and ecological risks:

- Decreasing the single maximum application rate for aerial applications,
- Updating labels to include more up-to-date information related to worker personal protective equipment,
- Necessary and recommended drift mitigation, including buffers,
- Necessary runoff mitigation to reduce off-field movement of pesticides into surface water,
- Pollinator stewardship label language, including best management practices for pollinator protection,
- A link on product labels to EPA's Bulletins Live! Two, a web-based system for additional directions and restrictions to protect endangered species, and
- Guidance to users on how to report an ecological incident.

The PID and updated HH DRA are posted to www.regulations.gov on docket #EPA-HQ-OPP-2008-0440. Upon publication of the Federal Register notice, these documents will be open for public comment for 60 days.

Dimethoate

Dimethoate is used to treat pests such as aphids, mites, beetles, weevils, and leafhoppers on agricultural crops including broccoli, corn, cotton, oranges, and tomatoes. The PID released today for dimethoate relies on the 2015 ecological draft risk assessment, and an updated HH DRA, which is also being released today. The updated HH DRA concluded that there are reliable data to support reducing the FQPA SF from 10X to 1X. While EPA 's review of the epidemiological data, animal toxicity studies, and DNT battery found the potential for DNT to occur during pregnancy or childhood, this evidence also showed that the DNT effect would occur at concentrations approximately 270-5,400 times higher than those that cause changes to AChE levels. Therefore, protecting people from neurotoxicity (shown by changes in AChE levels) will also protect them from DNT.

The updated assessment found there were no anticipated human health risks of concern when considering the protective measures currently in place on dimethoate labels.

EPA identified ecological risks of concern, and is proposing the following mitigation measures for dimethoate products:

- Cancellation of several agricultural and non-agricultural uses that have low benefits, including: asparagus, conifer seedling nurseries, cottonwood grown for pulp, pecans, wheat (spring and winter), broccoli, brussels sprouts, cantaloupe, cauliflower, corn, grapefruit, lemons, oranges, pears, soybeans, watermelon, honeydew melons, and other Brassicas (kale, mustard greens, turnip greens), as well as in nursery-grown ornamentals,
- Updating labels to include more up-to-date information related to worker personal protective equipment,
- Necessary and recommended drift mitigation, including buffers,
- Necessary runoff mitigation to reduce off-field movement of pesticides into surface water,
- Pollinator stewardship label language, including best management practices for pollinator protection,
- A link on product labels to EPA's Bulletins Live! Two, a web-based system for additional directions and restrictions to protect endangered species, and
- Guidance to users on how to report an ecological incident.

The PID and updated HH DRA are posted to www.regulations.gov on docket #EPA-HQ-OPP-2009-0059. Upon publication of the Federal Register

notice, these documents will be open for public comment for 60 days.

TCVP

TCVP is used to treat fleas, ticks, lice, and flies in or on livestock animals and their facilities, pets, garbage piles, kennels, residential lawns, and recreational areas. Today, EPA is releasing an ID for TCVP product registrations.

A PID for TCVP was released with an accompanying revised HH DRA in September 2023. The 10X FQPA factor for TCVP was retained because EPA concluded there was not sufficient evidence to support its reduction at the time of the HH DRA.

Potential risks of concern for neurotoxicity were identified for workers from exposure during treatment of livestock and livestock premises.

Ecological risks of concern were identified for birds, mammals, and freshwater invertebrates via runoff particularly from manure applications, and proposed mitigation measures were suggested.

In the ID finalized today, EPA outlines the mitigation measures identified as necessary to address risks, which include:

- Prohibiting application via foggers, misters, electrostatic dusters, and any other aerosolizing method,
- Prohibiting down-the-drain disposal,
- Increasing personal protective equipment requirements,
- Requiring label statements on protecting non-target organisms and water,
- A link on product labels to EPA's Bulletins Live! Two, a web-based system for additional directions and restrictions to protect endangered species, and
- Guidance to users on how to report an incident.

Consistent with EPA's commitment to improve the quality of pet product incident reporting sales data it receives from pesticide registrants, EPA is requiring updates to the terms and conditions of TCVP pet product registrations to include information on how to submit enhanced incident reports and annual sales information. These data collected for pet products will allow the Agency to review pet incidents across the most used registered pet products.

The TCVP ID is available in the TCVP public docket #EPA-HQ-OPP-2008-0316 at www.regulations.gov.

For more information on the registration review schedule for these and other organophosphate pesticides, please visit EPA's website.

(EPA, June 18, 2024)
https://www.epa.gov/pesticides/epa-releases-updates-organophosphate-pesticides-dicrotophos-dimethoate-and

FARMERS CAUGHT IN DICAMBA CROSSFIRE

The first week of June 2020 started like any other for Scott Trimble, tilling weeds and watering produce on his farm near Heyworth, Ill. The 2020 crop looked promising, as tomatoes, watermelon, peppers and cantaloupe would soon be ripe for harvest. A good year for sure — or so Trimble thought.

It was a brutally hot Midwestern day, but Trimble didn't mind. Sweat dripped from his brow. He'd spent decades building his McLean County produce and popcorn business.

"There's just something magical about putting that little bitty seed in the ground and watching it produce," Trimble says. "I would rather work 80 hours a week building my dream than 40 hours a week building somebody else's."

But that first week in June, his neighbor pulled a sprayer into the soybean field next door, and Trimble caught a smell he didn't recognize. That smell surprised him, given that he'd spent the first 40 years of his career raising corn and soybeans and spraying pesticides both privately and commercially.

"I thought, 'Boy, I sure hope that's not dicamba,'" Trimble recalls.

He watched helplessly while his neighbor sprayed the soybean field as winds blew over 15 miles per hour, on a 90-degree day, past V4 soybean stage, upwind of Trimble's rows of white plastic and mulch.

"I can count at least five to six label rules that he broke, possibly seven," he says. "I'm not even sure he had the proper spray license."

Within weeks, Trimble's produce field was decimated. And the guilty party? All evidence pointed to dicamba and to his neighbor's negligence.

Weed science warning

Kelly Robertson of Precision Crop Services in Benton, Ill., has been an agronomist for over 35 years, covering 23 counties in southern Illinois. Throughout his career, he's never seen anything like the damage, controversy and confusion surrounding dicamba.

"It was bad," he says. "It became neighbor against neighbor and farmer against the seed and chemical company. The volatilization and injury got to be such that people who didn't want to plant dicamba soybeans planted them just to avoid the injury."

Fast forward to 2024, and farmers have overwhelmingly switched to Enlist soybeans, including Robertson's customers.

"Southern Illinois farmers are over it — you'd be hard-pressed to find a single acre of dicamba beans here," Robertson says, reflecting on the regulatory confusion, drift damage and unresolved complaints of the previous years.

Robertson says 2021 was the last year dicamba use was widespread in his area, prior to some of the Illinois Department of Agriculture's first emergency administration rules.

"Unless something drastically changes on the regulatory side, I'd say dicamba soybeans are probably dead here," Robertson says. "Without a definite direction from EPA and IDOA, we just don't know what to do."

In February, the U.S. Court of Appeals for the 9th Circuit vacated registrations for three dicamba formulations: BASF's Engenia, Bayer's XtendiMax with VaporGrip Technology and Syngenta's Tavium Plus VaporGrip Technology.

Paul Rea, BASF senior vice president of agricultural solutions North America, disagrees with that ruling, and like Robertson, dislikes the ambiguity.

"We're really concerned for growers," he says. "That creates a lot of uncertainty. Farmers have come to rely on this technology in many parts of the country."

In a statement to Prairie Farmer, Bayer's spokesperson agrees, saying the company has asked U.S. EPA to swiftly prioritize a dicamba review "so growers have access to the technology as soon as possible."

Bayer continues to defend its technology: "We stand fully behind the technology and believe growers should continue to have access to vital crop protection tools."

Still, off-target dicamba damage continues to occur. Robertson says part of the blame falls on government agencies failing to properly regulate the product.

"How can the same agency that can bankrupt a farmer for trying to follow water regulations allow this to happen if they're that concerned about the environment?" Robertson asks.

Even more so, Robertson says EPA and IDOA have lost their credibility with farmers due to the back-and-forth restrictions and approvals.

"When the next big thing that comes out and you tell us it's safe, why should we believe you?" he asks.

Regulatory intent

Brad Beaver, IDOA bureau chief of environmental programs, says the department took actions to implement restrictions at the height of dicamba use in Illinois. He

notes that for the 2023 growing season, dicamba complaints are at their lowest to date.

"Pesticide regulation is not intended to protect farmers or any one group of individuals," Beaver says. "With regard to farmland, it is about providing a framework for the safe use of products designed to improve crop yields and efficiency, while limiting exposure to unintended areas."

BASF's Rea maintains the technology does work and that it can be applied safely. He also says BASF has worked to control off-target problems by engineering formulations, adding training and investing in application technology.

"We can control drift by applying at the right time of day and using the right technology," Rea maintains. "By using them, we can have a good outcome."

Robertson isn't sold. He says distrust of EPA, IDOA and chemical companies is at an all-time high after university research was ignored showing dicamba's volatility and problems with postemergence soybean application.

"It makes us trust them even less because they hurt the people we trust," Robertson says. "They injured the reputation of our university researchers by trying to discredit any research that went against their narrative. And that's just wrong."

At the forefront of industry criticism was Aaron Hager, University of Illinois weed scientist, for his early and accurate warnings about dicamba's volatility. Since dicamba's approval, Hager has been vocal about the problems over-the-top soybean use would create for both cropland and nontarget species.

"I was hired to try to help farmers solve weed problems," Hager says. "Nearly every company at one point or another has come at me for not saying what they want me to say. If their messaging is contrary to what I think is in the best interest of the farmer, you're darn right I'll stand up and say something about it."

His university weed science colleagues have an annual call with EPA, where they give updates on dicamba damage in the countryside. No matter the number of complaints or red flags brought up by the weed science community, Hager says nothing was ever addressed by EPA.

"You simply cannot label off volatility," Hager says. "It's not based on labels. It's based on a chemistry and the environmental conditions in which it's applied."

How'd we get here?

With the extensive regulatory system in place in the U.S. for pesticide approval, Hager wonders how dicamba was ever approved for soybean use.

"We haven't really learned anything about dicamba that we haven't known for 50 years," he says. "Our federal agencies owe it to farmers and end users of pesticides that approvals and restrictions are based on science and not just assumptions."

Karen Corrigan, McGillicuddy Corrigan Agronomics, says earlier soybean planting, earlier spraying and Illinois' humid conditions created the perfect storm for dicamba drift.

"It's really the practices that have changed, not the product, and that's why we've seen so many more issues than we did in the past," Corrigan says.

To understand how dicamba was approved for soybean use, Corrigan says it's necessary to recognize herbicide research and resistance of the last 30 years — starting with glyphosate.

Glyphosate's effectiveness and low cost meant it was widely adopted in the countryside. Its popularity meant funding decreased for new herbicide research as other companies struggled to compete, stopping new chemicals and modes of action from being introduced.

Today, overreliance on glyphosate has led to herbicide-resistance issues, with nothing to take its place. Combined with EPA's stringent chemical approval process, herbicide development is at a stalemate.

"The faster pipeline is to get herbicide-resistant crops approved, like in the case of dicamba-resistant soybean varieties," she says.

In the wake of two dicamba court rulings against EPA, and pesticide renewals under the Endangered Species Act, dicamba's future remains unknown. Losing dicamba means having one less mode of action available in the countryside against weed resistance.

"The EPA has to do something, because they really cannot justify registrations that are in violation of ESA," Hager says. "And the courts are ruling against the agency in doing that."

Moving forward

Four years later, Scott Trimble is still recovering from the dicamba damage of 2020.

"I'm still struggling," he says. "Imagine any other farmer paying all the inputs for the whole entire year and then getting a 5% return and trying to farm the next year. Having that much of a loss and still moving forward is tough."

Trimble says the blame falls on his neighbor's shoulders for mishandling the product.

"I'm not against the chemistry or technology," he says. "I think it has its place if it's applied properly. Spring burndown and fall burndown are excellent times to use dicamba and not have such a liability issue to worry about. In-season application is nearly impossible to spray all your acres, stay on label, and worry about liability."

Trimble's neighbor offered to pay for a biological product that claimed to lessen damage, but Trimble called it a Band-Aid for a gunshot wound.

"You'd think it'd hurt the relationship with my neighbor, but we didn't really have one to begin with," he says. "They live 45 minutes from here. This was a 'let's get it done and get out of here' kind of thing."

Trimble spent months on the phone with his neighbor's insurance company, caught in the crossfire of volatility, application negligence and unanswered questions.

"It's still in litigation," Trimble says. "Insurance companies do not want to settle, even though it's blatantly my neighbor's fault. They offered me $7,000 on a six-figure loss."

IDOA came to Trimble's farm and confirmed the worst. It was off-target dicamba damage. They could fine the farmer and pull his license; nothing else could be done.

"Long story short, if your produce gets hit by dicamba, just plow it under," Trimble says. "It ain't worth trying to save."

That's tough crossfire for a farmer who just wants to plant a seed and watch it produce.

(Farm Progress, June 13, 2024)
https://www.farmprogress.com/crops/0610h1-3201-slideshow

NATURAL ENEMIES CLOSE IN ON FIRE ANTS, USDA REPORTS

Hunting for natural enemies of the red imported fire ant is paying off for Agricultural Research Service (ARS) scientists. Their latest discovery — a new virus found in fire ants from Argentina—has the potential of becoming a biological control agent against the red imported fire ants infesting the United States.

When the red imported fire ant, Solenopsis invicta, invaded the United States in the 1930s, it left most of its natural enemies behind in South America. The pest quickly spread throughout the southeastern United States, reaching populations up to 10 times those found in its native country, Argentina. Today, these ants are a serious threat to human and animal health; the damage that they cause and efforts to control them cost over $6 billion annually.

"In Argentina, the fire ant is not really a problem because it has many natural enemies there," says entomologist Steven Valles, with ARS Center for Medical, Agricultural, and Veterinary Entomology (CMAVE) in Gainesville, Florida. "But in the United States, this ant is a serious problem because populations are growing unchecked. There's nothing to constrain them."

At CMAVE's Imported Fire Ant and Household Insects Research Unit, work involves identifying natural enemies—pathogens and parasites—that can be released safely into the United States and used as a natural control that's sustainable. The biocontrol agents that have been released into the United States were first demonstrated to be specific to fire ants and harmless to other organisms. These agents spread naturally after release and will continue to negatively affect fire ants as long as they have fire ants to infect or parasitize.

A New Virus Contender

The recently discovered virus, called Solenopsis invicta virus-5 (SINV-5), may be a good candidate as a biological control agent. It's found naturally in fire ants in South America, but not in North America, Valles explains.

In their study, published in PLOS ONE in 2018, Valles and his Argentine collaborators gathered 180 native colonies from across Formosa, Argentina, and used genetic techniques to discover SINV-5. Their next step is to characterize the virus—find out what it does by examining its biology, ecology, and impact on U.S. fire ants.

Valles and his team previously discovered five other viruses that are present in both U.S. and Argentine fire ant populations. Some of these viruses reduce fertility and lower body weights in infected queens—reducing the possibility of establishing a successful colony and altering worker ant feeding behavior, which causes colony starvation.

Taking the Fight to a New Battlefield

Until recently, CMAVE scientists have concentrated on decreasing fire ant populations in Florida and other southeastern states. In 2014, they staked out a new battleground in California, collaborating with the Coachella Valley Mosquito and Vector Control District, to help control fire ants using natural enemies.

The team released three biological control agents: a parasitic fungus, Kneallhazia solenopsae; a different virus, Solenopsis invicta virus-3 (SINV-3); and two species of fire ant decapitating phorid flies.

"This is the first time we've released these biological control agents in a desert climate," says CMAVE entomologist David Oi. "In the desert climate of the Coachella Valley, fire ants generally inhabit irrigated, urban landscapes. With this project, we wanted to determine if these biocontrol agents could also survive in that environment."

Scientists surveyed several sites in the Palm Springs area in 2014. They collected ants and tested them for the presence of pathogens or flies. Both K. solenopsae and SINV-3 were detected at three sites, but there was no evidence of phorid flies in any of the samples.

Although K. solenopsae was introduced into ant colonies at one site, which had a low prevalence of the pathogen, "it seems to have established naturally in the Coachella Valley," Oi says. "It was found in 75 percent of the nests we sampled 7 miles away from the site where we released infected ants."

A Fly with an Appetite for Ants

Since the 1990s, ARS scientists have been working with USDA's Animal and Plant Health Inspection Service (APHIS) and the Florida Department of Agriculture and Consumer Services (FDACS) in rearing South American parasitic phorid flies. The fly lays an egg inside the ant. The egg hatches into a larva, which moves into the ant's head, where it develops and then decapitates its host.

"We wanted to know if phorid flies survive in California," Oi says. "There are no records of phorid flies ever being in California, and all attempts to establish them there have been unsuccessful."

Scientists collected fire ants at three Coachella Valley sites, shipped them to Florida, and exposed the ants to two species of decapitating flies at the FDACS/APHIS rearing facilities. Ants infected with fly larvae were then shipped back to California and released at the same sites as their mother colonies. Since then, male and female flies have been collected at one site. Flies trapped in 2017 were as far as one-eighth of a mile away from this site.

All three biological control agents were found in ant colonies 2 to 3 years after they had been introduced in the Coachella Valley and had spread from their original release locations.

"These natural fire ant enemies were able to survive in the extreme heat of California's desert climate," Oi says. "They are not in huge numbers, but they are spreading slowly. In the future, we can resurvey to see if they have spread even more."

(PCT, June 11, 2024)
https://www.pctonline.com/news/natural-enemies-fire-ants-usda/

HOW WATER IMPACTS HERBICIDE PERFORMANCE

Early growing-season discussions often center on scant or excessive water for crops. This year, though, talks about water and herbicide applications are intertwined.

That's because some Iowa communities earlier this year restricted water usage. This may spur farmers and applicators to use alternative water sources for herbicide applications. Subbing treated rural water for untreated surface or well water may raise concerns about how debris or suspended solids in water and water hardness may impact herbicide efficacy.

"Something as simple was pouring water into a Mason jar can be used to check for debris or suspended solids," says Meaghan Anderson, Iowa State University Extension agronomist.

There's an old joke about well water being so hard you can almost hear iron chunks coming out of the pump. Seriously, at-home kits and laboratories can reveal water pH and water hardness, depending upon the preciseness of data needed. Retailers that sell swimming pool supplies offer at-home kits that are fairly inexpensive. Download this Purdue publication for more information on testing options.

When to use AMS

Much confusion reigns in the marketplace regarding AMS (ammonium sulfate), nitrogen replacement water conditioners and other additives that are marketed to mediate water hardness, says Mark Storr, BASF technical service representative. If a herbicide label says to use AMS to curb water hardness, use AMS, Storr says. In Liberty's (glufosinate's) case, AMS not only mediates water hardness, but also helps improve herbicide performance.

"The ammonium ion that's in AMS is actually responsible for some of the weed control that glufosinate provides," Storr says. "When you add AMS, you provide a source of ammonium nitrogen within the weed itself and helps it kill the weed. That cannot be provided by a nitrogen replacement water conditioner."

Glyphosate's label also specifies the use of AMS to manage water hardness. "Glyphosate is certainly the poster child for weak-acid herbicides that can be negatively affected by water hardness," Anderson says.

Use 'Goldilocks' water temperatures

Remember the children's story "Goldilocks"? A portion of it concerns Goldilocks finding porridge that was initially too hot and later, too cold before finding a bowl that was "just right."

In a sense, that applies to the temperature of water used as a herbicide carrier. Purdue University researchers found two Goldilocks temperatures out of four they tested that include:

- 41 degrees F
- 72 degrees
- 102 degrees

- 133 degrees

They discovered that the coldest and hottest temperatures reduced herbicide performance. Meanwhile, the two middle temperatures — 72 and 102 degrees — did not negatively impact performance. Read more in the Purdue University Extension publication "Water Temperature and Herbicide Performance: A First Look at New Research," available as a free download.

Be careful cutting water volume

Take care when cutting water volume, because volume provides more herbicide coverage. "Bear in mind that with the postemergence products that we use nowadays, more volume is generally our friend, to an extent," Anderson says. "When we rely more heavily on contact herbicides, coverage [through sufficient water volume] is critical to getting good control."

In the contact herbicide Liberty's case, use at least 15 gallons per acre, Storr says. "Twenty [gallons per acre] is better," he adds.

What should I do if I'm still unsure?

Read the label, Anderson says. "Some labels recommend use of specific products to address certain water quality concerns, while others will prohibit certain products," she says.

Pay particular attention to mixing order of herbicides and accompanying products, such as adjuvants and water conditioners, Anderson says. Mixing them in the wrong order can create a cottage cheese-like concoction in a spray tank.

(Farm Progress, June 6, 2024)
https://www.farmprogress.com/crops/how-water-impacts-herbicide-performance

CEU Meetings

Please note that some of these meetings are virtual using Zoom or Microsoft Teams. Please contact the meeting host directly if you have any questions.

Date: August 14, 2024
Title: 2024 Oklahoma Fumigation Workshop
Location: Horticulture Education Center at The Botanic Garden
Contact: Edmond Bonjour (405) 744-8134
https://secure.touchnet.com/C20271_ustores/web/store_cat.jsp?STOREID=15&CATID=45

CEU's:	Category(s):
2	7A
3	7C
5	10

Date: October 1, 2024
Title: ENSYSTEX 2024 Workshop
Location: TBA Tulsa OK
Contact: Don Stetler (281) 217-2965
https://ceuworkshop.com/

CEU's:	Category(s):
1	7A

ODAFF Approved Online CEU Course Links

Online Pest Control Courses
https://www.onlinepestcontrolcourses.com/

PestED.com
https://www.pested.com/

Certified Training Institute
https://www.certifiedtraininginstitute.com/

WSU URBAN IPM AND PESTICIDE SAFETY EDUCATION PROGRAM
https://pep.wsu.edu/rct/recertonline/

CEU University
http://www.ceuschool.org/

Technical Learning College
http://www.abctlc.com/

All Star Pro Training
www.allstarce.com

Wood Destroying Organism Inspection Course
www.nachi.org/wdocourse.htm

CTN Educational Services Inc
http://ctnedu.com/oklahoma_applicator_enroll.html

Pest Network
http://www.pestnetwork.com/

Veseris
http://www.pestweb.com/

AG CEU Online
https://agceuonline.com/courses/state/37

Target Specialty Products Online Training
https://www.target-specialty.com/training/online-training

MarKev Training **https://www.markevtraining.com/**

For more information and an updated list of CEU meetings, click on this link:
http://www.kellysolutions.com/OK/applicators/courses/searchCourseTitle.asp

ODAFF Test Information

Testing will be done at testing centers in multiple locations around the state by PSI Services LLC.

For more information and instructions, please go to https://bit.ly/3sF4y0x.

Reservation must be made in advance at www.psiexams.com/ or call **855-579-4643**

PSI locations.

Oklahoma City 3800 N Classen Blvd, Ste C-20, Oklahoma City, OK 73118

Tulsa 2816 East 51St Street, Suite 101, Tulsa, OK 74105

McAlester 21 East Carl Albert Parkway (US Hwy 270), McAlester, Oklahoma 74501

Woodward 1915 Oklahoma Ave, Suite 3, Woodward, OK 73801

Lawton Great Plains Technology Center, 4500 West Lee Blvd Building 300- RM 308, Lawton, OK 73505

Enid Autry Technology Center, 1201 W. Willow Rd, Enid, OK 73703

Ponca City Pioneer Technology Center, 2101 N Ash, Ponca City, OK 74601

If you have questions on pesticide certification. Please email or call:
Kevin Shelton
405-744-1060 kevin.shelton@okstate.edu or

Charles Luper
405-744-5808 charles.luper@okstate.edu

Pesticide Safety Education Program