



Response to EPA Proposed Interim Decision for Spiromesifen

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Re: Spiromesifen, Comments on EPA Proposed Interim Decision
Docket ID: EPA-HQ-OPP-2014-0263

To Whom It May Concern:

The Arizona Pest Management Center is host to the University of Arizona's expert IPM scientists including Ph.D. entomologists, weed scientists and plant pathologists with expertise in the strategic tactical use of pesticides within IPM programs that protect economic, environmental and human health interests of stakeholders and the society at large. In coordination with the Western Integrated Pest Management Center, we contribute to federal comments on issues of pest management importance to stakeholders throughout the desert southwest including Arizona, New Mexico, Nevada, Colorado and the southeast desert regions of California.

At this time, we wish to respond to the Agency's Proposed Interim Decision for the insecticide spiromesifen, EPA Docket number EPA-HQ-OPP-2014-0263, on behalf of Arizona agricultural stakeholders. Our comments combine stakeholder input received from University of Arizona Extension Specialists, licensed pest management professionals from Arizona, and reported pesticide use data from the Arizona Pest Management Center Pesticide Use Database.

We wish to incorporate by reference (with minor corrections noted below) comments submitted by the Arizona Pest Management Center on July 6, 2020, in response to draft risk assessments for spiromesifen, comment ID# EPA-HQ-OPP-2014-0263-0028 (Fournier et al. 2020).

Spiromesifen use in Arizona Agriculture

Based on data from the Arizona Pest Management Center Pesticide Use database, nearly all reported uses of spiromesifen in Arizona agriculture are on corn, cotton or melons, with a moderate but significant portion of acres treated in each crop annually (Fournier et al. 2017).

Spiromesifen use in Arizona agriculture is limited to two formulations of the product Oberon. The first available formulation was Oberon 2SC, with 23.1% spiromesifen (2 lbs ai/gallon),

which has been used on mainly on corn, cotton and melons. The more concentrated 4SC formulation (45.2% spiromesifen, 4 lbs ai./gallon) became available in 2015. At that point, use in corn and cotton in Arizona rapidly shifted to the 4SC formulation, supplanting most 2SC use in these crops. There are no reported uses of the 2SC formulation in cotton after 2017. It is possible that this shift resulted from differences in price between the two formulations. The 4SC formulation is not labeled for melons, where use of the 2SC formulation has been continuous.

Product Formulations and Their Use in Arizona Cotton IPM

Based on field research from Dr. Peter Ellsworth, University of Arizona Professor, Entomologist and IPM Specialist, 8 to 10 fl.oz./A of Oberon 2SC (0.125-0.156 lbs ai/A spiromesifen) provides “fully selective” control of whitefly and mites while preserving natural enemies and other non-target organisms in our system (Ellsworth et al. 2014). Rates higher than this are considered “partially selective,” preserving some natural enemies in cotton, but not others (see table 1). However, higher rates are sometimes needed in our system for effective mite control.

Table 1. Percent of total spiromesifen uses by rate for each of two formulations of Oberon registered for control of whiteflies and mites on Arizona cotton. Lower rates are fully selective while higher rates are only partially selective. Fully selective rates are preferred and conserve key natural enemies in the system. Higher, partially selective rates conserve some natural enemies and not others, but are sometimes needed for effective control when mites and whiteflies occur together. Information on selectivity is based on field research conducted by Dr. Peter Ellsworth.

Name	Product	Formulation	Rate	lbs ai/gal	Mix in oz/A	%Use	%Use Cumulative	Safety to Preators	Comment
spiromesifen	Oberon	2 SC	0.125	2.00	8.0	10	10	Fully Selective	
spiromesifen	Oberon	2 SC	0.156	2.00	10.0	45	55	Fully Selective	
spiromesifen	Oberon	2 SC	0.168	2.00	10.8	10	65	Partially Selective	EPA Proposed Max
spiromesifen	Oberon	2 SC	0.188	2.00	12.0	16	81	Partially Selective	
spiromesifen	Oberon	2 SC	0.250	2.00	16.0	19	100	Partially Selective	
spiromesifen	Oberon	4 SC	0.125	4.00	4.0	0	0	Fully Selective	
spiromesifen	Oberon	4 SC	0.156	4.00	5.0	0	0	Fully Selective	
spiromesifen	Oberon	4 SC	0.168	4.00	5.4	1	1	Partially Selective	EPA Proposed Max
spiromesifen	Oberon	4 SC	0.188	4.00	6.0	8	9	Partially Selective	Rebuttal Max
spiromesifen	Oberon	4 SC	0.250	4.00	8.0	91	100	Partially Selective	

Correction to APMC Prior Comments:

In our previous comments (Fournier et al. 2020), we mistakenly stated that the majority of spiromesifen applications made in Arizona cotton since 2015 (mainly Oberon 4SC) “are made at fully selective rates.” This is incorrect. Our previous analysis indicated that the majority of applications of the 4SC were made at the full label rate of 8 fl. oz, or 0.25 lbs ai/A. At these rates, the 4SC formulation is only partially selective (Table 1). Our previous analysis was re-confirmed in the preparation of these comments.

The Arizona Cotton IPM program recommends the use of fully selective rates of spiromesifen (0.125-0.156 lbs ai/A spiromesifen) whenever possible (Ellsworth et al. 2014). Dr. Ellsworth has recently recommended that spiromesifen rates in cotton should not exceed 75% of the full labelled rate, or 6 fl.oz. of the 4SC formulation (0.188 lb ai/A.), except where higher rates are needed for mite control (Ellsworth, personal communication). A large portion of 2SC applications in cotton (prior to 2015) were made at fully selective rates around 8 to 10 fl. oz/A,

with a median use rate of 0.155 lbs ai/A (table 1). However, our analysis shows that after users shifted to the 4SC formulation in 2015, higher use rates of spiromesifen ensued. The mean use rate of the 4SC formulation in cotton from 2015 to present is 0.240 lbs ai/A and the median rate is 0.249 lbs ai/A.

Comments on EPA’s Proposed Interim Decision

Cotton

Spiromesifen is a valuable and efficacious tool for control of mites and whiteflies, and is particularly useful at times when these pests occur together at levels requiring control in cotton. A single application of spiromesifen effectively controls both whiteflies and mites, with little or no impact on natural enemies in our system. In addition, spiromesifen represents a different mode of action than other commonly used mite and whitefly materials, and so plays a valuable role in resistance management. Where Oberon is used, typically a single application is made per growing season, but there are exceptions to this. Based on data collected from pest control advisors (PCAs) in annual Cotton Pest Losses surveys (WIPMC 2021), Oberon is rarely used twice or even three times per season (Ellsworth, unpublished data).

Although the EPA’s analysis indicates that less than 1% of cotton nationwide is treated with spiromesifen, this is not reflective of the use pattern in Arizona. Many growers rely on Oberon as an effective control for whiteflies and mites that helps to preserve natural enemies and thereby reduce the need for additional sprays. Based on an analysis of reported annual uses of spiromesifen and USDA-NASS annual cotton production estimates for Arizona, an average of 2.8% of acres are treated each year with spiromesifen. It is important to note, this is a conservative estimate of use, because by state statute, Arizona does not require reporting of most grower-applied pesticides. See Table 2.

Table 2. Reported annual use of spiromesifen in cotton in Arizona, based on USDA National Agricultural Statistics Service estimates of harvested acres. Because Arizona lacks 100% use reporting, these are expected to be conservative estimates of use. *Source: Arizona Pest Management Center Pesticide Use Database (Fournier et al. 2017).*

Year	Reported Acres Treated	% Arizona Acres	AZ Acres	NASS acres
2010	4109.57	2.10%	201458	195500
2011	9333.04	3.62%	266421	258000
2012	11139.23	5.49%	202467	203000
2013	6762.43	4.19%	166788	161500
2014	9987.39	6.05%	167873	165000
2015	3187.97	3.04%	105538	105000
2016	907.73	0.70%	128887	129000
2017	2492.13	1.42%	173369	175000
2018	1686.61	0.97%	170712	174500
2019	3396.25	2.03%	163904	167500
2020	1667.22	1.27%	128095	131500

We understand that Bayer, sole registrant for spiromesifen, has agreed to EPA's proposed reduction of the maximum single application rate to 0.168 lbs ai/A. However, there are situations in Arizona cotton where this rate may be insufficient to control mites. While our Cotton IPM Program advocates for lower, fully selective rates (up to 0.156 lbs ai/A) whenever possible for whitefly control, a rate higher than 0.168 lbs ai/A is more effective for spider mite control when whiteflies are also present. In this situation, we agree with the EPA's statement in the Proposed Interim Decision, that "the lower rate [in cotton] is unlikely to provide control of target pests and growers would have to use alternative forms of control" (p.27).

Spiromesifen is at least partially selective towards beneficials even at higher rates, whereas most alternative miticides are more broad-spectrum (e.g., fenpyroximate, abamectin), harmful to natural enemies, yet ineffective against whiteflies. Etoxazole provides a good selective alternative for mite control, but has no practical whitefly efficacy in cotton, so additional sprays are needed when both pests occur together. The other broadly toxic miticides, like abamectin, also tend to be less expensive than Oberon. Our concern is that by eliminating the option of a higher rate of spiromesifen in situations when mites are present with whiteflies, growers will opt for lower-priced, non-selective miticides, reducing populations of natural enemies and potentially leading to additional sprays to control whiteflies, lygus and the other pests no longer under natural controls.

We propose that a rate of 0.188 lbs ai/A of spiromesifen would give our growers sufficient flexibility to achieve effective control in these situations while also significantly lowering the single application rate in Arizona.

Melons

Spiromesifen is one tool used to control sweetpotato whitefly in order to help limit Cucurbit Yellow Stunting Disorder Virus (CYSDV) infections in melons. CYSDV can have severe impacts on melon yield and quality (Fournier et al. 2020).

Proposed wording changes from "per season" to "per year" on labels are not expected to impact use in melons in Arizona. Based on feedback from Dr. John Palumbo, University of Arizona Professor, Entomologist and Vegetable IPM Extension Specialist, the proposed change to annual use rate from 0.40 to 0.35 lbs ai/A is not seen as problematic for our growers.

Who We Are

Dr. Alfred Fournier is Associate Director of the APMC / Associate Specialist in Entomology, and has expertise in evaluating adoption and impact of integrated pest management and associated technologies. He serves as a Southwest Region IPM Network Coordinator for the Western IPM Center, representing stakeholders in the desert Southwest states. Dr. Peter Ellsworth is Director of the APMC, State IPM Coordinator for Arizona and Professor of Entomology / Extension IPM Specialist with expertise in developing IPM systems in cotton and other crops and measuring implementation and impact of IPM and pest management practices. Mr. Wayne Dixon holds a B.S. in Computer Information Systems and develops tools and data

used in IPM research, education and evaluation, including management of the APMC Pesticide Use Database.

These comments are the independent assessment of the authors and the Arizona Pest Management Center as part of our role to contribute federal comments on issues of pest management importance and do not imply endorsement by the University of Arizona or USDA of any products, services, or organizations mentioned, shown, or indirectly implied in this document.

Our Data and Expert Information

Through cooperative agreements with Arizona Department of Agriculture, the Arizona Pest Management Center obtains use of, improves upon, and conducts studies with ADA's Form 1080 data. Growers, pest control advisors and applicators complete and submit these forms to the state when required by statute as a record of pesticide use. These data contain information on 100% of custom-applied (i.e., for hire) pesticides in the state of Arizona. Grower self-applied pesticide applications may be under-represented in these data. In addition, the Arizona Pest Management Center is host to scientists in the discipline of IPM including experts in the usage of this compound in our agricultural systems. We actively solicit input from stakeholders in Arizona including those in the regulated user community, particularly to better understand use patterns, use benefits, and availability and efficacy of alternatives. The comments within are based on the extensive data contained in the Arizona Pest Management Center Pesticide Use Database, collected summary input from stakeholders and the expertise of APMC member faculty.

Through the Crop Pest Losses and Impact Assessment program (WIPMC 2021), a Signature Program of the Western IPM Center, the Arizona Pest Management Center conducts annual surveys with state-licensed pest control advisors (PCAs), who are the primary pest management decision makers, in consultation with growers. The surveys, conducted at face-to-face meetings, provide detailed information on crop yield losses to specific insect pests, weeds and diseases, control costs, and pesticide use for the key crops, cotton and lettuce. Cotton data have been collected since 1991 and lettuce data since 2005. Data are collected for all of Arizona and neighboring production regions of California, with typical responses representing up to 65% of acres planted in Arizona. These data provide detailed information on shifting pest trends, chemical use and costs, and often compliment and augment information from the APMC Pesticide Use Database, particularly for pesticide uses for which the state does not mandate reporting.

We hope the EPA will take these factors into consideration in the final interim decision for spiromesifen.

Thank you for the opportunity to comment.



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