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Response to EPA Proposed Interim Decisions for Pyrethrins and Piperonyl butoxide (PBO)

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Re: Pyrethrins & Piperonyl butoxide, Comments on EPA Proposed Interim Decisions
Pyrethrins Docket ID: EPA-HQ-OPP-2011-0885
Piperonyl butoxide Docket ID: EPA-HQ-OPP-2010-0498

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 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 Decisions for Pyrethrins (EPA-HQ-OPP-2011-0885) and Piperonyl butoxide (EPA-HQ-OPP-2010-0498) on behalf of Arizona agricultural and mosquito vector control stakeholders.

Agricultural Uses

Arizona Use of Pyrethrins and PBO

Pyrethrins (EPA-HQ-OPP-2011-0885) and Piperonyl butoxide (PBO) are sometimes applied together in pre-mix products for insect management in organically grown crops. Based on the APMC Pesticide Use Database, which is made up of records submitted by growers to the Arizona Department of Agriculture, pre-mix products with pyrethrins make up 94% of reported uses of PBO. The other 6% of applications are standalone formulations of the PBO synergist. Records show light to moderate and declining use of PBO on agricultural crops in Arizona. Primary crops with repeated uses include cabbage (various types), collards, mustard greens, dandelion, kale, kohlrabi, potato, spinach, turnip and swiss chard. There are a few isolated

applications of PBO reported on alfalfa, arugula and cilantro. Uses of PBO across nearly all crops have declined since 2018.

Pyrethrins are reportedly used across a very wide variety of vegetable crops with only a limited number of applications in other crops, such as citrus and alfalfa. Vegetable crop uses, roughly in order of the number of reported applications in recent years, include lettuces, spinach, cole crops (cabbage, broccoli and cauliflower, including varieties grown for seed), Swiss chard, kale, arugula, mustard and other greens, celery, mizuna, and potato. Additional crops with relatively few reported uses include cilantro, endive, alfalfa, beets, carrots, leeks, citrus, and melons. Only 6.1% of reported pyrethrin applications are made in the form of a pre-mix product containing PBO.

It is important to note that only a portion of agricultural applications require reporting to the state, so our records may not represent all use patterns in Arizona. (For more information about reporting practices, see section below, "Our Data and Expert Information.")

Organic Vegetable Production in Arizona

The production of USDA certified organic lettuce, leafy vegetables and other vegetable crops continues to increase throughout all growing areas in Arizona. These organic crops are subject to the same intense insect pressures as conventional crops in Arizona, but must be managed with very few insecticide alternatives, particularly broad-spectrum insecticides. Field research has shown that pyrethrins are one of the few biopesticides that can provide reliable broad-spectrum contact activity against a range of economically damaging insect pests. Alternate biopesticides such as soaps and Azadirachtin are not as effective (Palumbo 2017). Organic growers across a broad range of crops rely primarily on pyrethrins to control numerous insect pests, including armyworm, loopers, diamondback moth, whitefly adults, flea beetles, bagrada bug, cucumber beetle, aphids, thrips and many others. Pyrethrins are the main management tool, and are used in combination with every viable cultural practice to reduce insect pest populations.

Proposed Use Cancelations: PBO

Kale and Kohlrabi. Based on information from the Arizona Pest Management Center Pesticide Use Database (Fournier 2017), premix products containing both pyrethrins and PBO have been commonly used for insect control in kale and kohlrabi, two crops in subgroup 22A. These are among very few vegetable crops that are targeted for cancellation, based on the Proposed Interim Decision. Given that there are few effective choices for broad-spectrum insect management in organic vegetable crops (Palumbo 2017), we urge EPA to reconsider cancellation of these particular uses of PBO.

Proposed Use Cancelations: Pyrethrins & PBO

Vineyard Grapes. Economic activity directly associated with wine grape production, winemaking and wine sales in Arizona in 2019 was $72.7 million. Statewide production in 2017 was estimated at 1,500 acres. As of 2019, there were 125 bonded wine producers in the state (Bickel et al).

A pest control advisor who manages pests on several vineyards for the Arizona wine industry emphasizes the importance of maintaining access to post-harvest applications of both pyrethrins

and PBO in grapes. Grapes for wine production are harvested in blocks. Post-harvest applications on vines (including unharvested fruits) are commonly used to manage and prevent movement of certain pests from harvested blocks into unharvested blocks. Pests treated after harvest include *Amphicerus cornutus*, a species of Bostrichidae (Powder-Post Beetles) known to be a vine borer in vineyards. Beetles burrow into the vines both before and after harvest, and can cause significant economic damage in vineyards (Allen et al 1991). Vinegar flies (fruit flies) also need to be controlled on fruits that remain in the field following harvest, to prevent reproduction and movement of flies into unharvested blocks. **We are not certain whether these uses fall under EPA's consideration as "post-harvest applications on grapes" but wish to make the EPA aware of these practices and the importance of controlling these pests to limit economic losses in vineyards.**

Spray Drift Management: Pyrethrins & PBO

A grower who manages production of a diverse range of vegetable crops in Arizona noted the critical importance of maintaining access to aerial applications in organic vegetable production. Due to weather events and the need for frequent irrigation on most of these crops, it can be very difficult to manage insect pests strictly using ground applications. Conditions often limit access to fields, and applications would need to be carefully timed. Some infestations cannot wait two or three days before spraying while a field dries out, or insect populations may inflict significant damage (including the transmission of plant viruses, in some cases). Aerial applications in Arizona are made both by helicopter and fixed-winged planes. Growers and pest control advisors have reviewed the proposed spray drift management language in the PID and agree with the importance of implementing practices to minimize spray drift. We are pleased that EPA's Proposed Interim Decision (PID) retains access to aerial applications, which are critical for us.

Mosquito Vector Control Uses

Pyrethrin and PBO Use in Arizona Vector Control

Due to high populations of *Aedes aegypti* and *Culex* mosquito in parts of Arizona, including densely populated urban areas, effective mosquito management is critical to reduce potential transmission of human diseases such as dengue, chikungunya, and Zika and West Nile viruses. According to the Center for Disease Control, Maricopa County currently has among the highest concentration of reported West Nile cases in the country (CDC 2021).

Maricopa County Environmental Services conducts year-round surveillance and abatement of mosquitoes. The Vector Control Division employs a comprehensive management approach, including monitoring of adult and larval populations, public education emphasizing source reduction and the use of repellants (Maricopa County 2021) and active control programs for adult and larval mosquito populations. *Culex* mosquitoes are tested for West Nile and St. Louis encephalitis viruses and *Aedes aegypti* mosquitoes are tested for Chikungunya, Dengue and Zika viruses.

According to James Will, Managing Supervisor of Maricopa County Vector Control Division, the program employees many strategies to control and reduce larval populations of mosquitoes, including an array of reduced-risk insecticides and biological control, using *Gambusia* fish.

However, options for adult mosquito control are extremely limited. They use ULV wide-area ground-based treatments of pyrethrins mixed with PBO synergist, rotated with occasional use of malathion (an organophosphate), for resistance management. These insecticides are effective, and greatly reduce populations of adult mosquitoes, and so serve as an invaluable public health tool. They do not make aerial applications for vector control.

Comments on Proposed Interim Decisions

We note that the Proposed Interim Decision for PBO specifies that the proposed addition of a PF10 respirator requirement for applicators making ULV wide area vector control applications with a truck-mounted fogger *applies specifically to open-cab vehicles*. The PID directly states, "The presence of closed cabs fully addresses the risks of concern." The PID for Pyrethrins lacks this specificity, and would appear, based on wording, to apply to enclosed as well as open-cab applications.

All vector control applications made by Maricopa County containing pyrethrins also contain PBOs, and vice-versa. The synergist is an essential component that increases efficacy of the applications. All applications are made in trucks with enclosed, air-conditioned cabs. The air intake for the a/c is in the front of the vehicle and drivers are trained to "drive in, spray out" for cul-de-sacs or other enclosed spaces. The cab's a/c units are also equipped with the ability to recirculate air within the cab, closing outside ventilation if needed.

We seek clarity from EPA on the difference between the PF10 respirator requirements in the two PID documents, specifically, whether the respirator requirement for pyrethrins would apply to applications made in trucks with enclosed cabs. If this is in fact the case, it will require a significant cost and investment in training and fit-testing for about 30 employees. Currently, only 3 employees are trained and fit-tested for the use of respirators. Besides the time invested, the fit-testing alone costs about $600 per employee. These costs are prohibitive, and not a part of the current budget for the program. Given the public health importance of ongoing vector control and also the importance of worker safety, the county will comply with any new requirements, but requests clarification on the point above.

We have reviewed and agree with the proposed spray drift mitigation practices listed for wide area ULV applications of PBO.

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 L-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) agricultural 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.

Thank you for the opportunity to comment. Please contact me if you have any questions.

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