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U.S. Environmental Protection Agency
OPP Docket, EPA Docket Center (EPA/DC), 28221T
1200 Pennsylvania Avenue, NW
Washington, DC 20460-0001

Re: Oxamyl, EPA Docket ID: EPA-HQ-OPP-2010-0028, Comments on Proposed Interim Decision

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 oxamyl, EPA Docket number EPA-HQ-OPP-2010-0028, on behalf of Arizona agricultural stakeholders. In doing so, we wish to incorporate by reference one previously submitted EPA comment from 2017, identified by docket ID number HQ-OPP-2010-0028-0038 and a second comment, which was prepared in 2009 in response to a data request from the USDA Office of Pest Management Policy, which is available on the Arizona Pest Management Center website (https://cals.arizona.edu/apmc/docs/Oxamyl_Response_8-20-09.pdf). Herein, we summarize key points from those documents and add new information. The entirety of our comments combines stakeholder input received from University of Arizona Extension Specialists and licensed pest management professionals from Arizona and New Mexico, reported use data for oxamyl in recent years from the Arizona Pest Management Center Pesticide Use Database, and information from recent Lygus chemical efficacy trials conducted by Dr. Peter Ellsworth this year at the Maricopa Agricultural Center.

Key points from prior comments:

- Annual surveys of pest control advisors in Arizona confirm that, while Vydate C-LV is not often used in cotton, it is identified as a "go to" chemical for certain pest situations. This includes control of cotton leaf perforator (*Bucculatrix thurberiella*) infestations,

particularly in Pima cotton and non-Bt upland cotton. Experience has shown that Vydate C-LV has an almost unique capacity to resolve this very difficult pest situation.

- Oxamyl (Vydate C-LV) is a very effective control material for Lygus bug, the number one yield-limiting pest in Arizona cotton, and it remains on our recommendation list for Lygus control. However, its use has greatly diminished since the registration of flonicamid (Carbine) and sulfoxaflor (Transform), two selective chemistries that are very effective for Lygus control. If we were to have a catastrophic loss of Transform (e.g., due to continuing registration hurdles) or Carbine, either due to resistance, or other issues, Vydate C-LV would be among the very short list of effective Lygus control products in our system.
- Oxamyl is a key chemistry, and the only effective nematicide registered for use in peppers, against the root knot nematode. In combination with Verticillium wilt, nematodes pose the largest threat of yield loss to Chile peppers. Oxamyl is the cornerstone of their control program.

Key points from current comment:

- The maximum use rate in cotton for Vydate C-LV (34 oz) is needed to control cotton leaf perforators and / or Lygus bugs. Studies show that oxamyl is used on average at >80% of its maximum use rate when applied in mixtures with other insecticides and at >90% of maximum when applied alone (Fournier et al. 2007, 2008).
- Vydate C-LV, while used sparingly today, maintains very high efficacy against cotton's number one yield-limiting pest, *Lygus hesperus*, and is a critical alternative to sulfoxaflor and flonicamid, as shown in current testing.
- The aerial use pattern for Vydate C-LV must be maintained for Arizona cotton. >80% of applications targeting Lygus are made from mid-July to late-August and all cotton leaf perforator applications are made after mid-July, after layby. Thereafter, ground-based operations are not feasible due to the large canopy, wet soil conditions, and risks for crop damage. The irrigated, broad-acre system of cotton production requires the ability to apply pesticides by air.

As noted previously, and based on pesticide use data submitted to the state by growers for many applications maintained in the Arizona Pest Management Center Pesticide Use Database (Fournier et al. 2017), there is very little reported use of oxamyl in Arizona. It is used sparingly, mainly on melons and cotton, only when specific circumstances warrant it. The low use pattern does not reflect a lack of importance of this unique insecticide, which can be critical to us for certain pest situations. On the contrary, it remains a valuable tool that is very sparingly used. We do not need unlimited use patterns (i.e., multiple applications used repeatedly), but we do need to maintain the maximum rate for Lygus control in cotton, and we need this product for cotton leafperforator control. The proposed reduction from 8 to 4 maximum annual applications will not be problematic for us.

In our annual Cotton Pest Losses and Impact Assessment Workgroup, funded through a USDA-NIFA Western IPM Center Signature Program (Western IPM Center 2018), we collect data on pest occurrence, yield losses and economic impacts in cotton. We also engage in detailed discussions with licensed pest control advisors (PCAs) who make pesticide decisions on behalf of cotton growers. PCAs reported this year that they believe that cotton leaf perforator (CLP)

populations are on the rise, following an increase in Pima cotton and non-Bt upland cotton acres, after the historic and successful eradication of pink bollworm from Arizona. Cotton leaf perforator is a leaf-mining lepidopteran pest which can reduce cotton yields. Their mining behavior makes them difficult to control with insecticides, and their populations interfere greatly with efficient defoliation because of their feeding practices. As noted in our previous comments, "Vydate C-LV has an almost unique capacity to resolve this very difficult pest situation."

The most significant yield-limiting pest in all types of Arizona cotton remains the Lygus bug, *Lygus hesperus*, which, until the registration of flonicamid (Carbine) in cotton in 2006, was only controlled by application of broad-spectrum pesticides, including oxamyl. With the use of flonicamid and sulfoxaflor (Transform), the latter currently available for Lygus control in Arizona cotton under a Section 18 exemption (Ellsworth & Peterson 2017), we have seen dramatic reductions in use of broad-spectrum insecticides for Lygus control. This is important because use of these reduced-risk insecticides helps to maintain beneficial predatory insects in the cotton system which suppress Lygus and whiteflies, our two key pests, while minimizing insecticide use. These are the only two reduced-risk chemistries currently available to us to control Lygus in cotton, and there have been reports of reduced efficacy of Carbine in our system.

In 2018, Dr. Peter Ellsworth, University of Arizona Entomologist and IPM Specialist, conducted efficacy trials for Lygus which included Vydate C-LV as a one of the treatments, after many years of not testing this compound. Importantly, Vydate C-LV ranked second in terms of yield, and was not statistically different from Transform used alone at 2 oz / A or a rotation of Transform to Carbine (Figure 1). In this trial, all experimental treatments were sprayed 4 times due to the high Lygus pressure, common in late-planted cotton. Clearly, this product still performs well in Arizona, and this performance is particularly critical given that sulfoxaflor is only available to us under a Section 18 exemption and given concerns about reductions in efficacy of Carbine.

Cotton is a broad-acre crop grown throughout the desert Southwest under irrigated conditions and during the summer monsoon season. Once the canopy is about to close (layby), final tractor operations (e.g., cultivation and use of soil-directed herbicides) are conducted. Thereafter, ground-based operations are not feasible due to the large canopy, wet soil conditions, and risks for crop damage. Moreover, there is not sufficient ground sprayer capacity in the industry to reach the hundreds of thousands of planted acres with a timely spray for Lygus or cotton leaf perforator, or indeed any insect, weed, or pathogen pest. The cotton industry of the West, therefore, depends on timely application of pesticides, especially insecticides by aerial applicators (planes and helicopters). **It is critical that Vydate C-LV maintain a label that permits aerial applications.**

The vast majority of pesticide applications are made by air in Arizona cotton (Fournier et al. 2007, 2008). Generally, meteorological conditions are excellent for on-target deposition of pesticides to crop plants by air and we have an excellent track record for safe use of pesticides by air. Economic populations of cotton leaf perforator almost always occur late in the growing season, when there are no alternatives to aerial application (> mid-July). About 80% of Lygus

applications occur between mid-July and late-August, during the monsoon season and after layby when fields are too wet for field entry by ground equipment (Fournier et al. 2007, 2008).

Safe use of oxamyl has been demonstrated for more than four decades in Arizona cotton. It is only occasionally called for, resulting in few acres sprayed today. However, its function as a key chemical control for cotton leaf perforator, an unusually difficult lepidopteran to control in Pima and non-Bt cottons, and as an insecticide with important efficacy against cotton's number one yield-limiting pest, *Lygus hesperus*, makes this a critically important, if not niche, compound for Arizona cotton. The maximum label rate of 34 oz / A is needed, when Vydate C-LV is used by our growers (Fournier et al. 2007, 2008). And, aerial application is paramount for mid- to late-season pesticide uses in Arizona's irrigated cotton, which is grown on over 150,000 acres and which cannot be adequately covered with ground-based application systems without significant damage to the crop and lasting structural damage to the soil due to compaction.

References

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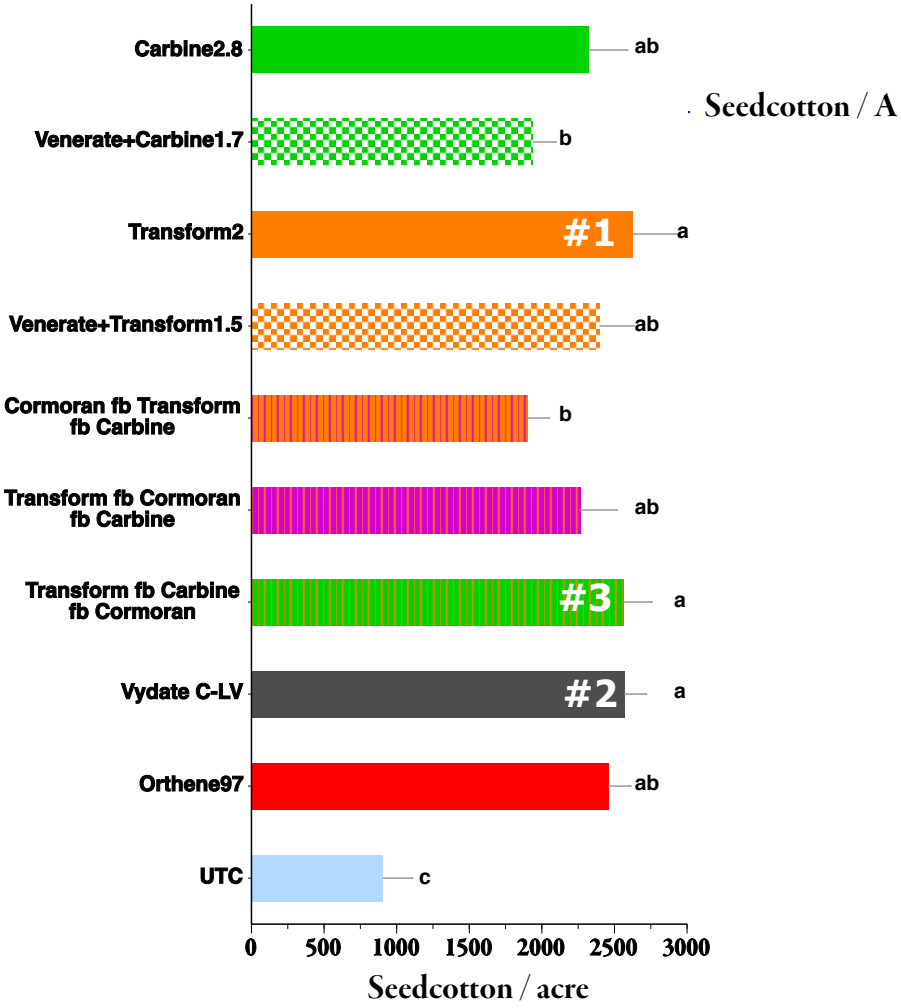

	Trt	Trt ID	Sdctn/A
1	3	Transform2	2630
2	8	Vydate C-LV	2571
3	7	Transform fb Carbine fb Cormoran	2563
4	9	Orthene97	2460
5	4	Venerate+Transform1.5	2399
6	1	Carbine2.8	2322
7	6	Transform fb Cormoran fb Carbine	2264
8	2	Venerate+Carbine1.7	1942
9	5	Cormoran fb Transform fb Carbine	1901
10	10	UTC	909

Figure 1. Results from 2018 Lygus efficacy trial conducted at University of Arizona Maricopa Agricultural Center. Note the performance of oxamyl (Vydate C-LV, 34 oz / A), which placed second in yield in the trial. Each treatment was sprayed four times due to very high Lygus pressure nearly tripling the yield over the UTC. fb, followed by. Tukey's HSD, $P<0.05$ (Ellsworth, unpubl. data).

Please feel free to contact me with any questions.

Sincerely,

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