



Prometryn Use in Arizona Crops
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Summary

- EPA is seeking public comments on draft human health and ecological risk assessments for prometryn, a broadleaf herbicide.
- At this time, our goal is to inform EPA about specific uses of prometryn in Arizona cropping systems.
- Based on the Arizona Pesticide Use Database, prometryn is commonly used in cotton, celery, fennel, cilantro, and to a lesser extent in parsley and carrots.
- Use in cotton has declined from previous years, but it remains important, and a standard use in some areas of the state. It is used as a post-emergent herbicide at layby, as post-directed sprays at the base of the cotton plants. Cotton has a high tolerance for this chemistry, which makes this practice viable for us. Use of prometryn may be increasing in importance again, because of concerns with glyphosate-resistant Palmer amaranth.
- Prometryn is one of few registered herbicides in cilantro, and the only one registered for pre-emergent use that works for Arizona cilantro producers.

Prometryn use in Arizona

Based on the Arizona Pesticide Use Database (Fournier et al. 2017), prometryn is commonly used in cotton, celery, fennel, cilantro, and to a lesser extent in parsley and carrots.

Cotton

Arizona often leads the world in cotton yield per acre (>1550 lbs.), nearly twice the U.S. average, contributing 9,000 jobs and \$700 million to Arizona's economy in 2011 (Anonymous 2012). In 2016, cotton was ranked third for production value in Arizona, after lettuce and alfalfa hay, with a combined value of over \$162 million for cotton and cotton seed production (USDA-NASS 2017).

Prometryn is an herbicide that is commonly used in Arizona cotton, although to a lesser extent than in the past. It remains a staple herbicide in cotton in some areas of the state. It provides

versatile broadleaf weed control and is especially important in cotton, because cotton plants have a high tolerance to the herbicide. It can be applied as a pre-emergent on finished cotton beds (often mixed with trifluralin or pendimethalin), and this used to be a standard practice for control of morning glory. With the availability of Round-up Ready cotton, this pre-emergent use of prometryn has declined in Arizona, but it is still used as a post-emergent herbicide at layby, as a post-directed burn-down material sprayed at the base of the cotton plants. According to University of Arizona Extension Weed Specialist, Dr. William McCloskey, this practice is becoming increasingly important because of concerns with glyphosate-resistant *Amaranthus palmeri* S. Watson. For resistant weed management in cotton, this is a very effective material. It is also important for good weed resistance management that we maintain multiple modes of action among the herbicides we have available in cotton and other crops.

Cilantro, Celery and Carrots

Prometryn is currently one of very few herbicides registered for use in cilantro in Arizona. Caparol 4L is applied in cilantro as a pre-emergent, after planting, at the 1 quart rate. A single application provides very good weed control. According to one pest control advisor, "This is the only herbicide we have. We couldn't grow cilantro without it." Prometryn is also used in celery, fennel, cilantro and carrots. In carrots, it is used post-emergence, at the early stages of the plant development (before 6-leaf stage). A different pest control advisor we spoke with ran trials with it last year and said it provided very effective weed control. He said they will continue using it, because there not many herbicides registered for use on carrots. Linuron (Lorox) is the only other herbicide they are using. Caparol is used in carrots at the lower end of the label rate for coarser soils, and only a single application is used. This PCA commented that having prometryn available as an alternate herbicide in carrots greatly improves weed control, and reduces weed misses, common with single product use, as well as providing benefits in terms of weed resistance management.

Who We Are

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.

Dr. Peter Ellsworth is Director of the APMC, State IPM and Pesticide 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. Dr. Al Fournier is Associate Director of the APMC / Adjunct Associate Specialist in Entomology, holds a Ph.D in Entomology, and has expertise in evaluating adoption and impact of integrated pest management and associated technologies. He serves as a Comment Coordinator for the Western IPM Center, representing stakeholders in the desert Southwest states. 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 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) 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.

References Cited

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