



Imidacloprid Use in Arizona Citrus
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Comments submitted by the Arizona Pest Management Center
University of Arizona

EPA Docket: EPA-HQ-OPP-2008-0844

EPA is currently seeking public comment on their draft pollinator-only ecological risk assessment for the registration review of imidacloprid. Table 1-2 of the draft risk assessment lists citrus fruits as a crop group for which “Tier II” colony risk is indicated. The Arizona Pest Management Center provides information below to explain when, how and why imidacloprid is currently used in Arizona citrus.

Who We Are

The Arizona Pest Management Center is host to the University of Arizona’s expert IPM scientists including more than a dozen Ph.D. and other entomologists with expertise in the strategic tactical use of insecticides within IPM programs that protect economic, environmental and human health interests of stakeholders and the society at large.

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. 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. 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. This report includes information based on comments from a grower, several pest control advisors (PCAs), two extension entomologists / specialists (one in AZ and one in CA) and a representative of the state regulatory agency responsible for the Asian Citrus Psyllid monitoring program. The comments within are based on the data contained in the Arizona Pest Management Center Pesticide Use Database, collected summary input from stakeholders and the expertise of APMC member faculty.

Imidacloprid Use in Citrus

Imidacloprid is used in Arizona citrus for the control of two key citrus pests: citrus nematode and the Asian citrus psyllid. The reported use level is quite low. According to the Arizona Pest Management Center Pesticide Use Database, 193 acres of citrus were treated in 2014.

Citrus nematodes are microscopic plant parasitic unsegmented roundworms that attack citrus roots. High levels of the nematodes cause stunting of growth and reduced fruit yield and quality. Some Arizona orchards are prone to high population levels, which are suppressed using soil applications of imidacloprid in combination with foliar applications of spirotetramat (Movento). One PCA investigated a number of alternative chemistries and discussed options with manufacturers before concluding that imidacloprid in combination with spirotetramat was the best alternative for citrus nematode. Imidacloprid is used after petal fall when nematodes are active and when pollinators are not foraging in the crop. Only soil applications are used.

Perhaps of greater concern to our growers is the significant threat of Citrus Greening, also known as Huanglongbing (HLB) or yellow dragon disease, vectored by the invasive insect pest, Asian Citrus Psyllid (ACP). Infected trees produce misshapen and unpalatable fruits that cannot be sold to any market. Once a tree is infected it will eventually die, sometime in just a few years. This disease devastated the Florida citrus industry. ACP is a pest of concern that is monitored in Arizona by the cooperative efforts of the Arizona Department of Agriculture and USDA Animal and Plant Health Inspect Service, specifically because of concerns about potential HLB transmission. Brian McGrew, Quarantine Program Coordinator, Plant Services Division of the Arizona Department of Agriculture, manages the program activities for the state. He indicated that ACP counts in the current season have already more than doubled those of the previous year. (In 2015, 67 ACP were collected statewide.) So ACP numbers are increasing in Arizona, along with the risk of HLB transmission. This was confirmed by a grower I spoke with who said populations were many times higher than previous years.

According to the Area Wide Control of Asian Citrus Psyllid (*Diaphorina citri*) Technical Working Group Report, imidacloprid is recommended as an effective systemic treatment against ACP to help limit the spread of HLB. The USDA Treatment Manual developed by the Plant Protection and Quarantine group also lists imidacloprid as an APHIS-approved insecticide for both soil and foliar uses to control psyllids in citrus. Mr. McGrew indicated that drenches with

imidacloprid targeting feeding juveniles and adults are part of the standard treatment regime for nursery stocks of exported citrus, prior to shipping. Other systemic treatment options for citrus are very limited. PCAs we contacted confirmed that soil treatments with imidacloprid are being used to control confirmed populations of ACP, only where they occur. Sometimes imidacloprid is used in combination with other active ingredients applied foliarly. PCAs indicated that soil applications of imidacloprid are the most effective approach because of the longer residual, and they said that these treatments are only done in areas where there is access to microsprinklers or drip irrigation. One PCA predicted there would be a significant increase in imidacloprid use this year, due to higher population levels of ACP. He added, "Imidacloprid is also an important tool because of MRLs that restrict the use of some alternative products for some markets. This is a tool we would like to maintain in our arsenal to protect the AZ citrus industry against potential infection with HLB, citrus greening, and also as another product to rotate to, for resistance management."

Dr. Beth Grafton-Cardwell, IPM Specialist and Research Entomologist with University of California Riverside is an expert in the management of ACP and other citrus pests. She emphasized the importance of imidacloprid as a management tool for ACP. She works directly with growers in CA, who exercise great care in their use of products. Imidacloprid is only applied after declaration of bloom and petal fall in CA citrus. She believes growers need the flexibility of maintaining availability of both soil and foliar uses of imidacloprid. Soil applications are not effective for all soil types. While some alternative chemistries are effective against ACP, imidacloprid also controls other important pests such as leafminer. There are situations where imidacloprid is the best choice.

EPA's preliminary pollinator assessment to support the registration review of imidacloprid indicates that there is some uncertainty regarding the potential risks to pollinators of soil applied imidacloprid due to a lack of available citrus pollen data in the studies. However, imidacloprid use in Arizona citrus appears to be confined to soil applications that are applied after petal fall when bees are not actively foraging, and only for the control of these two key pests, when present. We believe the current use pattern is well justified given the pest concerns involved and the relative low number of acres treated for these pests.

References

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Disclosures

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. Any products, services, or organizations that are mentioned, shown, or indirectly implied in this document do not imply endorsement by the University of Arizona or USDA.

Submitted 4/14/2016