

January 12, 2017

OPP Docket, Environmental Protection Agency  
Mailcode 2822IT  
1200 Pennsylvania Ave, NW  
Washington, DC 20460  
RE: Docket ID No. EPA-HQ-OPP-2015-0653-0402

To whom it may concern,

I am writing to comment on the Agencies petition to revoke all tolerances of chlorpyrifos on a number of important vegetable crops. I am a Professor of Entomology and Extension Specialist with the University of Arizona and have been conducting translational research programs in vegetables and melon crops in the southwestern U.S. for 25 years. I work closely with the Arizona and California vegetable industries and I am concerned that the proposed actions would seriously impact their ability to economically produce crops. It has been my experience that chlorpyrifos is very important to the industry and plays an important role in our integrated pest management programs. I would like to provide my perspective on why the present uses of the chlorpyrifos should be retained.

Chlorpyrifos is one of the few insecticides in our IPM arsenal that provides broad spectrum activity against a number of important pests, particularly in cole crops. It wasn't that long ago that chlorpyrifos was one of the primary products used against beet armyworm, corn earworm and diamondback moth in cole crops, applied as many as 10 times on a single crop. Since the registration of newer selective products (e.g., spinosyns, diamides), its use has decreased to as few as 1-2 times per season, but the compound is still an important component in our IPM program. Because chlorpyrifos has a short residual in the field, it is used effectively in our resistance management program as a rotational partner with the newer selective products.

The availability of chlorpyrifos is more important than ever because it provide growers with an effective alternative to control not only lepidopterous larvae, but other secondary pests important at stand establishment such as flea beetles, crickets, earwigs and other ground dwelling insects that the newer selective products won't control. Although, pyrethroids have traditionally been used to control these secondary pests, recent observations suggest that tolerance to the pyrethroids is rapidly occurring. Having a broad spectrum alternative like chlorpyrifos is critical to ensure stand establishment of cole crops.

Similarly, with the recent emergence of the invasive bagrada bug, *Bagrada hilaris*, on desert cole crops, growers have relied on contact insecticides like chlorpyrifos and pyrethroids early in the growing season to control migrating adult populations. If not controlled, bagrada bugs have the potential to reduce stands and yields by more than 50%. As a result, growers will typically make 4-6 insecticide applications per crop to protect against bagrada bug infestations. Because chlorpyrifos is one of the few products that will effectively control this pest, we currently recommend that growers rotate chlorpyrifos with pyrethroids and methomyl to mitigate resistance.

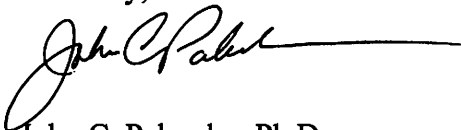


This past fall, Cole crop growers throughout the desert growing areas of Arizona and California have been battling diamondback moth (DBM). A population of DBM was introduced into desert crops via out-of-state transplants, and to date has resulted in significant yield losses. Growers have had difficulty controlling the pest with standard insecticide chemistries (spinosyns, diamides and avermectins). Preliminary lab bioassays have indicated that this invasive DBM population is moderately-highly resistant to at least two of these important chemistries. Furthermore, other studies found that older, contact materials such as chlorpyrifos (Lorsban Advanced) and naled (Dibrom) provided control of both the larvae and adult DBM. Growers are now integrating these two products into their spray rotations and successfully controlling DBM on cauliflower, broccoli and cabbage crops. Without the availability of chlorpyrifos, I'm not sure economic control of the pest could be achieved this season. It will be important to have these products available next season if this DBM population reappears.

In conclusion, the availability of broad spectrum products like chlorpyrifos is one of the central reasons why our present vegetable IPM programs have been so successful in the past few years. It is my opinion that the removal of tolerances in vegetable crops would be detrimental to Arizona and California growers. Not only would resistance management programs for Lepidopterous pests and bagrada bugs be in jeopardy with its loss, but in order too prevent economic losses growers would likely resort to using less effective compounds that would need to be applied at much higher frequencies. Finally, I don't foresee any future registrations of new alternative chemistries that would replace chlorpyrifos's role in the management of important pests such as flea beetle, crickets, and most importantly, bagrada bugs in Cole crops.

If you have any questions or would like to discuss this matter in more detail, please don't hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "John C. Palumbo", with a long horizontal line extending to the right.

John C. Palumbo, Ph.D.  
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Department of Entomology  
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University of Arizona