United States Department of Agriculture

Research, Education, and Economics
Agricultural Research Service

August 25, 2015

Jack E. Housenger
Director, Office of Pesticide Programs
Environmental Protection Agency
1200 Pennsylvania Ave. NW.
Washington, DC 20460-0001

Re: Comments on the EPA proposed rule: Mitigation of Exposure to Bees from Acutely Toxic Pesticide Products published in the Federal Register of May 29, 2015; EPA docket identification number EPA-HQ-OPP-2014-0818

Dear Mr. Housenger,

Thank you for the opportunity to comment on EPA's proposed rule to mitigate exposure to bees from acutely toxic pesticide products, published in May 29, 2015 in the Federal Register. Development of practical protections of managed-pollinators, deliberately brought on-farm to pollinate crops, from pesticides applied at bloom is an important challenge in endeavors to improve the overall health of managed-pollinators and ensure continuation of stable crop pollination services necessary for food production. USDA compliments EPA's efforts to find a balance between providing pollinator protection and effective pest management of agricultural crops requiring pollination service at bloom time.

However, USDA has concerns with proposed prohibitions and encourages a thorough evaluation of adverse effects reports associated with contracted pollination services to best understand where protection improvements can be made, rather than in enacting a complete prohibition in crop protection materials based on LD 50 toxicity ratings for individual bees without consideration of mitigating best management practices. USDA also encourages the Agency to consider the negative economic impacts this proposal may have on numerous specialty crop farmers and the rural economies they contribute to across the U.S. should it be implemented in its current form.

USDA also requests clarification as to why this is listed as a proposed rule in EPA documents posted in the docket in May, June, and July 2015? When this action was first published in the Federal Register on May 29, 2015, it appeared in the Proposed Rules section of the Register and not in the Notices section where four other EPA notices appeared that same day. If this is a proposed rule and not a notice, why did this not follow procedures as described in the Federal

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Insecticide, Fungicide, and Rodenticide Act (FIFRA)? An action such as this should be supported by an analysis of costs and benefits.

Our detailed comments are attached. Please let me know if you would like to discuss.

Sincerely,

Sheryl H. Kunickis

Sheryl H. Kunickis, Ph.D.
Director

USDA Comments on EPA's Proposal to Mitigate Exposure to Bees from Acutely Toxic Pesticide Products (EPA-HQ-OPP-2014-0818)

USDA is supportive of EPA's efforts to protect managed-bees from harms caused by exposure to pesticides used in agriculture and acknowledges that contract pollination services identifies a high-risk exposure scenario for managed-bees. USDA does not agree with the complete prohibition of foliar applications of acutely toxic materials (EPA Appendix A) during bloom time when bees are on-site under contract pollination services, as proposed by EPA. Principal concerns with the proposal in its current form are:

1) The Agency has not considered the economic impacts this proposal may have on numerous specialty crop farmers and the rural economies they contribute to across the U.S.;
2) The Agency has not established the need for such a prohibition with any analyses of bee kill incidents for crops under contract pollination services;
3) The proposed list of pesticides to be prohibited is based on LD 50 toxicity ratings for individual bees without consideration of application rate, product formulation, residual toxicity, and application timing, providing an inaccurate measure of potential harm to bees from pesticides; and
4) The proposed action denies farmers the use of established best management practices (BMPs) to mitigate harms to pollinators, providing little flexibility to farmers in managing pests at bloom time.

USDA encourages the Agency to carefully consider the economic impact (yield and market value losses) this proposal may have on numerous specialty crop farmers and the rural economies they contribute to across the US before enacting proposed label changes. Many seed, fruit, oil, and vegetable crop producers need to prevent pest injury at bloom time to produce marketable crops. This proposal has the potential to negatively impact these cropping systems, including organic production where alternatives to insecticides listed in Appendix A are few to non-existent. Additionally, USDA encourages EPA to investigate the proposed action's potential to adversely affect agricultural exports to foreign markets in which destination countries have contracts with producers requiring management of insect and disease pests that occur during bloom. Potential market losses for beekeepers in providing pollination services to farms electing to employ alternatives to contract pollination services also needs consideration.

As part of an effort to identify potential problem areas associated with pesticide use, and to improve upon implementation of practical protections, USDA encourages further EPA analyses of bee kill incidents for crops under contract pollination services for a more thorough understanding of the causes of adverse effects claims, and whether application of pesticides listed in EPA Appendix A are implicated and confirmed. The presence of bees on farm under contracted pollination services raises the farmer's awareness of the need to take every precaution to observe contract and pesticide label language designed to protect bees from unintended harm while protecting the crop. A thorough analysis of adverse effect reports would reveal real opportunities for improving precautions to enhance protections, and is more practical than an outright prohibition on the use of critical crop protection products.

Most farms requiring contracted pollination services have long-established relationships with the beekeepers providing the pollination service. EPA maintains in its "(3) Problem Statement" section of the proposed action "...that there are often inadequate relationships and a lack of suitable communication mechanisms in place at the local level between and among beekeepers, growers, and pesticide applicators to assure that pesticides needed to protect crops can be applied in ways that are not harmful to bees." USDA believes this depiction may be more applicable to non-contractual relationships where educational efforts to inform growers of the need to engage in BMPs to protect bees at bloom can be focused. The proposed restrictions have the potential to damage relationships between farmers and beekeepers, hampering on-going collaborations designed to mitigate potential harms to bees on a broader scale than just the limited contract scenario. Farmers will be eager to have the beekeeper move contracted bees off of their property as soon as the contract has been satisfied, and may also be less willing to allow non-contracted access to their property, with the potential to reduce beekeeper access to forage for honey production.

Additionally, USDA has concern with how the list of prohibited materials was derived and would be enforced. EPA is surely aware that potential risk to bees only exists when (1) an active ingredient is sufficiently toxic to bees, and (2) bees are actually exposed to (*i.e.*, come into contact with) a sufficient quantity of bioavailable active ingredient. This is a simple restatement of the risk assessment paradigm used extensively by EPA, which holds that risk is the product of hazard (or toxicity) and exposure. In other words, where exposure is low or negligible, there is no risk. USDA is concerned that the list of prohibited materials is based exclusively on the active ingredients' LD50, a crude measure of their toxicity to individual bees, which does not consider whether a given formulation and use pattern can result in a level of exposure harmful to bees.

As such, simple use of LD 50 toxicity ratings for individual bees without consideration of application rate, product formulation, residual toxicity, and application timing provides an inaccurate measure of potential harm to bees from pesticides, since it fails to recognize that many formulations and use patterns may not result in any significant exposure of bees to the active ingredient. The prohibition of all applications of pesticides on the acutely toxic list (appendix A) fails to consider IPM programs and best management practices developed to protect bees by minimizing or eliminating their exposure to potentially harmful pesticides. Extension publications providing detailed information on pollinator protection have been developed by land-grant extension scientists in collaboration with State Departments of Agriculture, USDA ARS scientists, farmers, beekeepers, and NGOs (Hooven *et al* 2013, May *et al* 2015, Curtis *et al* 2014).

Specific examples of how application timing reduces potential for exposure can be found with the three herbicides listed in Appendix A, bensulide, diuron, and sethoxydim. Bensulide is a soil-applied preemergence herbicide applied before or at-planting of specialty crops and before bee colonies would be present. Diuron is applied well ahead of the blooming period, usually as a dormant season treatment, or applications can be targeted to control weeds only in the row of tree crops. Sethoxydim is a post-emergence herbicide most often applied before flowering or introduction of pollinator colonies. In addition, herbicide treatments generally must be directed

toward the ground in order to effectively control the target weeds which would reduce potential for exposure.

The proposed EPA action does not allow consideration for use of well-practiced BMPs for pollinator protection and will negatively impact IPM programs of many crops requiring contracted pollination services. It also denies a bee keeper and grower the right to fashion a contract which would permit the use of a pesticide with risks and accompanying losses acceptable to the bee keeper. Under a market-oriented scenario, the grower would pay a higher price that is acceptable to the bee keeper. Bee keepers willing to take such risks would be able to step-forward to offer such a service. The proposed EPA action also provides little flexibility for farmers in responding to management of invasive insect pests, such as the Asian citrus psyllid (Homoptera: Psyllidae), the spotted wing Drosophila (*Drosophila suzukii*) and the brown marmorated stink bug (*Halyomorpha halys*). Allowances should also be made for state and federal quarantine eradication programs, which may demand a rapid response to prevent wide-spread infestation of invasive pests.

State Managed-Pollinator Protection Plans (MP3s)

USDA is supportive of the EPA-led effort to work with state and tribal lead agencies to facilitate adoption of and compliance with MP3s that reflect public stakeholder processes. USDA is further supportive of efforts to further develop and disseminate crop-specific BMPs to protect pollinators, and for an educational outreach effort to disseminate these products. As these plans are developed, USDA urges careful consideration of the pesticides and critical application windows required for effective insect, disease, and weed control.

Concerns with specific proposal language:

- Site: What is the enforcement area targeted by this proposal? If there are multiple crops/cultivars with different bloom periods on the contracted farm, can a grower apply pesticides to the non-contracted crops on that farm?

- Contract: Does the proposal apply only to written contracts, or are verbal agreements included? This designation needs to be very specifically defined for enforcement to be practical.

Uncertainties:

Indeterminate bloom: A greater understanding of the flowering cycles that individual indeterminate blooming crops undergo daily affecting nectar production and, hence, attractiveness to pollinating bees, needs to be developed and disseminated. This knowledge can be used in the development of BMP's in these crops to allow pesticide use to manage pest injury or control weeds, while mitigating harms to pollinators.

Regarding uncertainties on tank mixes of insect growth regulators and fungicides addressed on Page 14 of the EPA proposal, USDA has concerns about the loss of fungicides used as stand-alone crop protection products and combined with other pesticides as tank mixtures applied

during the blooming period in crops. Fungicides are important in managing diseases to control source of infection occurring at bloom stage. Flowers serve as a primary source of infection or inoculum, and provide susceptible tissue for fungal and bacterial pathogens to gain entry through the ovaries to consequently cause fruit infections. This is exemplified by diseases such as blossom and brown rot in stone fruits, mummy berry in lowbush berries and Botrytis rot/gray mold in small fruits.

Fungicides reduce the risk of an epidemic when used preventatively and delay the onset of fungicide resistance. Certain plant diseases (*e.g.*, powdery mildews, leaf spots and downy mildews of cucurbits and other fruiting vegetables) are at risk to reach epidemic conditions in the field during the flowering period when favorable conditions exist (temperature, humidity, wetness, *etc.*), and when susceptible varieties are planted. In addition, fungicides applied when the disease has progressed to an advanced stage (applied curatively) will likely pose heightened concerns of fungicide resistance development in the field.

Fungicides offer crops protection during flowering to mitigate seed-borne diseases. Certain plant diseases, when infection occurs at flowering stage, can become seed-borne, and the pathogen becomes seated deep into the embryo and seed tissues that, causing potential trade barriers, especially if the disease does not currently occur in the destination country. This is the case for blackleg of rapeseed or canola, spring black stem and leaf spot in alfalfa grown for seeds.

Studies on interaction effects of IGRs and fungicides are limited and uncertain. The adverse interaction effects of IGRs and fungicides such as pyraclostrobin (FRAC Group 11) plus boscalid (FRAC Group 7), propiconazole (FRAC Group 3), and iprodione (FRAC Group 2) on managed bees are limited at field-rate concentrations, including the quantitation of actual exposure to these formulated products on overall colony health. There is still a wide disparity on the adverse effects on honey bees at sublethal exposure causing colony declines. Further, there is a research gap on risk assessment studies on honey bee colonies over longer periods that reveal chronic sublethal effects of fungicides on queen health and bee behaviors.

It is USDA's position that a current lack of peer-reviewed studies on the effects of fungicides tank-mixed with IGRs and applied during bloom period on overall honey bee colony health are an inadequate basis upon which to establish regulatory decisions. Valid inferences of this cause-effect relationship are still uncertain.

Below are recent published scientific information that could be useful in addressing specific uncertainties:

Johnson, R.M., Dahlgren, L., Siegfried, B.D., & Ellis, M.D. 2013. Acaricide, fungicide and drug interactions in honey bees (*Apis mellifera*). PLoS ONE 8(1):e54092. doi:10.1371/journal.pone 0054092.

Johnson, R.M. and Percel, E.G. 2013. Effect of a fungicide and spray adjuvant on queen-rearing success in honey bees (Hymenoptera: Apidae). J. Econ. Entomol. 106(5): 1952-1957.

Johnson, R.M., Riusech, N.S., Wransky, M.E., Pillajo, J.O.Q, & Percel, E.G. 2014. Effect of insecticides and fungicides applied to almonds during bloom on honey bee queen and worker development and survival. Poster presented at 2nd International Conference on Pollinator Biology, Health and Policy, Aug. 14-17, 2013. Pennsylvania State University.

Melathopoulos, A.P., Tyedmers, P., and Cutler, G.C. 2014. Contextualizing pollination benefits: effect of insecticide and fungicide use on fruit set and weight from bee pollination in lowbush blueberry. Ann. Appl. Biol. 165:387-394.

Park, M.G., Blitzer, E.J., Gibbs, J., Losey, J.E., & Danforth, B.N. 2014. Negative effects of pesticides on wild bee communities can be buffered by landscape context. Proc. Royal Soc. B 282:20150299.

Simon-Delso, N., San Martin, G., Bruneau, E., Minsart, L.A., Mouret, C., & Hautier, L. 2014. Honeybee colony diosorder in crop area: the role of pesticides and viruses. PLoS ONE 9(7):e103073. doi 10.1371/journal.pone 0103073.

BMP References:

Curtis, R., G. Ludwig and D. Veenstra. 2014. Honey Bee Best Management Practices for California Almonds, Almond Board of California, http://www.almonds.com/pollination#tc-BeeBMPs

Hooven, L. R. Sagili and E. Johanson. 2013. How to Reduce Bee Poisoning From Pesticides, Pacific Northwest Extension Publication 591, *extension.oregonstate.edu/crook/sites/.../bee2.pdf*

May, E. J. Wilson and R. Isaacs. 2015. Minimizing Pesticide Risk to Bees in Fruit Crops, Michigan State University Extension Bulletin E3245