



Pollinator Stewardship Council

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Lois Rossi
Office of Pesticide Programs, EPA
Mail code 28221T
1200 Pennsylvania Ave, NW
Washington, D.C. 20460-0001

Re: EPA-HQ-OPP-2013-0226-Public Participation Memorandum for New Active Ingredient Flupyradifurone

Dear Ms. Rossi,

The Pollinator Stewardship Council is gravely concerned another systemic insecticide with similar insecticidal activity to neonicotinoids is being proposed for foliar treatments and soil drench across a variety of crops, and as a seed treatment on soybeans. This new insecticide is proposed for use before, during and after bloom, three to five times per season.

Our concerns are derived from EPA's own analysis of this butenolide insecticide. Flupyradifurone has greater persistence in the water column than sediment, thus exposing honey bees through the ingestion of water with a Flupyradifurone half-life of 330.1 days. Flupyradifurone is very highly toxic to freshwater insects, and the chemical is mobile and persistent in the water. You clearly state "methodologies are not available to determine the distance that is needed to eliminate the risk concern from transport to runoff."

What is also concerning is the research appears to show this systemic insecticide may not be acutely toxic upon the first exposure, but the second and third applications show effects upon honey bee mortality, behavior, brood development, and food storage. You also stated there is a "potential for effects of Flupyradifurone to non-target terrestrial arthropods" "at or below proposed application rates."

Flupyradifurone degrades into four other products: 6-chloronicotinic acid (6-CAN- which is a degradate for Flupyradifurone, acetamiprid, and imidacloprid); difluoroacetic acid (DFA); BYI 02960-succinamide (M48); and BYI 02960-azabicyclosuccinamide (M47). These degradates you state are persistent in aquatic environments with half-lives of 3-951 days. Additionally, Flupyradifurone and its degradates were found in the "top 15 cm" of soil, but as deep as 40cm. A "portion of applied Flupyradifurone does have the potential to build up in soil with subsequent applications from year to year." The degradates may not appear to be more toxic than their parent chemical, but you acknowledge "toxicity studies with transformation products were not

carried out at high enough concentrations to definitively conclude that they are not of equal or greater toxicity to the organisms tested as compared to the parent compound.”

The research concerning the residues of Flupyradifurone in nectar and pollen found different levels of the chemical in pollen and nectar, the level varied per plant, and if the plant had extra nectaries. Pollen appeared to contain higher levels of Flupyradifurone, than nectar (3.5-106x), and the levels increased with the number of applications of Flupyradifurone. Table 28 in your documentation further highlights this concern as your comments to studies and pollen in various crops shows the increase of Flupyradifurone at the second, and third applications during the same growing season. Further, the concentration remains high for 1-7 days after the second and third applications (depending on the crop). If residues of Flupyradifurone take 7-14 days to dissipate in the pollen and nectar, beekeepers will have to remove their bees during this timeframe in order to protect them. However, moving honey bees away from a blooming crop is not a reasonable mitigation measure. The crop will lose 7-14 days of pollination if beekeepers are required to move their livestock to protect them from exposure to this systemic insecticide.

Studies of caged honey bees fed Flupyradifurone do not reflect the real world of honey bees. Flupyradifurone will be utilized in a tank mix, and effects of Flupyradifurone, its degradates, mixed with herbicides, and fungicides is unknown. The synergistic effects of these chemicals upon honey bees is unknown; yet that will be how honey bees will encounter this compound. While a ten-day honey bee feeding study was conducted, what happened at day 16, 21, and 24—developmental stages of honey bees? To state there were “no consistent adverse effects” except “some increases in mortality and decreases in foraging activity immediately following applications . . . and in some cases there was recovery from the effects on mortality by test termination,” does not inspire confidence in the use of this compound. You further state you question the “large variation in starting colony size” and the “low number of replicates per treatment group” limit the ability to detect the effects of Flupyradifurone. One study mixing Flupyradifurone with a tebuconazole formulation enhanced the toxicity of Flupyradifurone increasing the toxicity “116-fold and 6.1 fold via the contact and oral routes.” Relying on the label guideline to protect against mixing Flupyradifurone with azole fungicides is unrealistic.

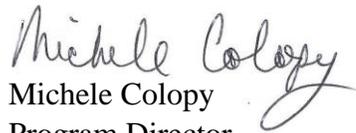
This statement on page 79 is worrisome, “Maximum residues in comb pollen, nectar, and wax varied, but generally occurred one week to several months after the second application indicating that residues were translocated within the hives to varying extents.” Flupyradifurone appears to have pre-lethal effects which long term, replicated studies would reveal. Even when the studies prescribed Flupyradifurone based on the body weight of the honey bee there was increased worker mortality, decreased flight activity, and brood numbers varied widely during the evaluation periods and after over-wintering. In one study it showed the “mortality of the test group was 5 times greater than the control group during the 7-day period after 3rd (full bloom) application.” In one study, the bees chose not to forage on the Flupyradifurone test area, and “were clearly foraging on alternative food sources (non-oil-seed rape) based on pollen analysis.”

While Flupyradifurone is “practically non-toxic to bees on an acute contact exposure basis,” “the greatest area of uncertainty surrounding the potential risk to bee pollinators is for foliar application at full bloom.” “In addition, pollen, nectar, and wax residue data from one of the full field studies with Flupyradifurone (MRIDs 48844517) indicate that average residues did not reach their maxima until up to several months after the pesticide was applied.

The Pollinator Stewardship Council has grave concerns over the use of Flupyradifurone upon such a wide array of crops. As a systemic insecticide it will translocate to pollinator forage areas developed through Federal and State initiatives. Its mobility in water will affect honey bees, and other pollinators. The repeated use of Flupyradifurone has shown to increase its toxicity with each application with a half-life of one application lasting 3-951 days in the plants, soil, and water. The use of this compound will further exacerbate the concerns over the honey bees' food supply: pollen, nectar, and water.

We strongly urge the EPA to reject this petition to establish tolerances for the chemical Flupyradifurone.

Formally,


Michele Colopy
Program Director

