July 5, 2017

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SUBJECT: U.S. ENVIRONMENTAL PROTECTION AGENCY PRELIMINARY AQUATIC ECOLOGICAL RISK ASSESSMENT TO SUPPORT THE REGISTRATION REVIEW OF IMIDACLOPRID (CASE #7605, DOCKET IDENTIFICATION #EPA-HQ-OPP-2008-0844)

Please accept the following comments from the California Department of Pesticide Regulation (CDPR). The purpose of this letter is to provide the U.S. Environmental Protection Agency (U.S. EPA) feedback on its ecological risk assessment (ERA) for imidacloprid and the methodologies used in its exposure assessment for aquatic environments. CDPR generally agrees with the scientific approaches that were used in the ERA for assessing risks of imidacloprid use to aquatic life within the freshwater environment and supports U.S. EPA's consideration of this approach as the basis for future risk management decisions. CDPR uses the aquatic life benchmarks established by U.S. EPA in our own risk characterization and regulatory decision-making processes; we anticipate a significant change in the benchmark for imidacloprid given the data cited and conclusions drawn in this ERA. Overall, U.S. EPA's risk assessment approach for exposure assessment is a reasonable and scientifically sound method to estimate risk to aquatic organisms. However, as noted below, we believe that there are revisions and further considerations that may be made to improve the assessment.

We offer the following specific comments:

1. *Toxicity tests*: The study cited in the ERA used a 20% concentration typical end-use product (TEP) to identify the lowest acute and chronic toxicity values (Roessink et al., 2013). Conventional toxicity tests typically use the active ingredient (AI) without adjuvants or other additions to the toxicity test. Toxicity test results using a TEP could be different than results from a test using just the AI.

2. *Indoor uses*: When reviewing and assessing sources of surface water contamination, the risk assessment did not consider contributions by indoor uses (such as pet flea treatment) through down-the-drain transport to Publicly Owned Treatment Works (POTWs). Sadaria et al., (2016) suggest that such uses are indeed a source of surface water contamination

for imidacloprid. We encourage U.S. EPA to include indoor uses as potential contributors to surface water pollution in the ERA.

3. *Soil runoff modeling:* The assessment modeling assumes that soil injections below 2 cm or treated seeds planted 2 cm below the soil surface do not lead to surface water runoff. This result is not necessarily a model output; rather it is an assumption by the model that any applications at this depth will not carry into surface water. Applications below this depth could transport into groundwater. However, the Pesticide Water Calculator (PWC) version 1.52 used in the assessment does not consider subsurface flow (tile drains—a common feature of California agriculture—are a form of subsurface flow) because it assumes that anything applied at a particular depth will move to groundwater.

4. *Seed treatment runoff*: While the assessment suggests that seed treatment uses at planting depths of greater than 2 cm do not contribute to runoff, Hladik et al., 2014 found that pesticide detections in surface water can be associated with rainfall events following planting of treated crop seeds—thus linking seed treatments and pesticide detections in surface water. However, this study does not identify the depth the seed treatments were planted.

5. *Benchmark implications:* Using data and findings from this assessment, it is likely that the U.S. EPA will generate new aquatic life benchmarks for imidacloprid. The equation used to calculate benchmarks is available on the U.S. EPA benchmark website: Benchmark= toxicity value * level of concern (LOC), where LOC equals 0.5 and 1 for acute and chronic exposures, respectively. The assessment document sets the chronic toxicity value at the no observable adverse effects concentration (NOAEC) of 0.01 μg/L for aquatic insects. Thus, the expected new chronic exposure benchmark for aquatic insects will be 0.01 μg/L. For acute exposure, the toxicity value is set at the 96-hour LC50 of 0.77 μg/L, which sets the benchmark at 0.39 μg/L. The current acute and chronic invertebrate benchmarks are 34.5 and 1.05 μg/L, respectively.

   CDPR has been monitoring for imidacloprid in urban and agricultural surface waters for many years. Based on sampling results, detections and exceedances of the current imidacloprid chronic benchmark were more frequent in agricultural waters. In agricultural waters sampled between 2011 and 2016, imidacloprid was detected in 83% of samples whereas exceedance of the U.S. EPA chronic invertebrate benchmark occurred in 17.5% of samples. Between 2011 and 2016, imidacloprid was detected in 53% of urban surface water samples while <2% of those samples exceeded the benchmark. If the benchmark is revised according to the data in the risk assessment, then the exceedance frequencies will dramatically increase.

CDPR hopes that U.S. EPA will consider these comments to strengthen the ERA and inform the eventual risk management document on imidacloprid. At this time, CDPR will continue to monitor for imidacloprid in urban and agricultural surface waters throughout the state. Ultimately, we hope that an improved ERA approach will be used to support future U.S. EPA risk management decisions for all neonicotinoids and all use patterns.

We appreciate the opportunity to comment on this preliminary ERA. If you have any questions, please contact Scott Wagner of my staff by phone at 916-324-4087 or e-mail at <scott.wagner@cdpr.ca.gov>.

Sincerely,

Original Signed by

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References:

Hladik, ML; Kolpin, DW; and Kuivila, KM. 2014. Widespread occurrence of neonicotinoid insecticide in streams in a high corn and soybean producing region, USA. *Environmental Pollution*. 193: 189-196.

Roessink, I; Merga, LB; Zweers, HJ; and Van den Brink, PJ. 2013. The neonicotinoid imidacloprid shows high chronic toxicity to mayfly nymphs. *Environmental Toxicology and Chemistry*. 32: 1096-1100. DOI: 10.1002/etc.2201.

Sadaria, AM; Sutton, R; Moran, KD; Teerlink, J; Brown, JV; and Halden, RU. 2016. Passage of fiproles and imidacloprid from urban pest control uses through wastewater treatment plants in northern California, USA. *Environmental Toxicology and Chemistry.* DOI: 10.1002/etc.3673.