Subcommittee of the Pesticide Registration and Evaluation Committee

Implementation of the Pesticide Contamination Prevention Act

Imidacloprid: Subcommittee Findings and Recommendations
May 17, 2022

The California Department of Pesticide Regulation (DPR) conducted groundwater sampling studies between 2003 and 2021 in different areas of the state where agricultural products containing the active ingredient imidacloprid were legally used. Laboratory analyses confirmed detections of imidacloprid in samples collected in several counties.

According to DPR's "Legal Agricultural Use Determination for Imidacloprid Detections in California" (September 2021) and "Evidence Requested by the Subcommittee for Phase 2 of the Hearing on Imidacloprid Detections in Groundwater," (April 2022),[1] DPR's Groundwater Protection Program (GWPP) analyzed more than 700 groundwater samples from over 400 wells for imidacloprid. Some wells were sampled multiple times while other wells were sampled once. Some samples were analyzed using an imidacloprid-specific method while others used a multianalyte method, and some samples were analyzed using both methodologies. Between 2014 and 2021, DPR's GWPP detected imidacloprid above the reporting limit in 16 wells in Fresno, Santa Barbara, and Tulare counties, with concentrations ranging from 0.022 to 5.97 ppb. The highest concentration (5.97 ppb) was detected in 2017 in Well 29, which at the time served a vacant home. DPR evaluated these detections and determined them to have resulted from legal agricultural uses of imidacloprid. DPR also analyzed 144 well samples for imidacloprid degradates, but there were no detections.

In compliance with Food and Agricultural Code section 13149(c) and pursuant to California Notice 2022-03 "*Notice of Public Hearing Pertaining to Imidacloprid Product Residue Detections in Groundwater"* this subcommittee held hearings on March 22-23, 2022. During this Phase 1 hearing, state agencies and implicated registrants presented evidence regarding the continued agricultural use of imidacloprid for the subcommittee to determine if agricultural use of imidacloprid can continue, and if so, under what conditions. The public also had an opportunity to submit comments. Pursuant to California Notice 2022-04 "*Notice of Agenda for Phase 2(a) of Public Hearing Pertaining to Imidacloprid Product Residue Detections in Groundwater"* this subcommittee held a rebuttal hearing on April 19, 2022. The Phase 2(a) hearing was limited to receiving rebuttal evidence from hearing participants and receiving comments from the public.

[1] DPR's *Legal Agricultural Use Determination for Imidacloprid Detections in California* (September 2021) is available at: https://www.cdpr.ca.gov/docs/emon/grndwtr/imidacloprid/imidacloprid_lau.pdf and *Errata* available at: https://www.cdpr.ca.gov/docs/emon/grndwtr/imidacloprid/imidacloprid_lau_errata.pdf. DPR HHA's *Evidence Requested by the Subcommittee for Phase 2 of the Hearing on Imidacloprid Detections in Groundwater* (April 2022) available at: https://www.cdpr.ca.gov/docs/emon/grndwtr/imidacloprid/evidence_requested_phase2.pdf.

DISCUSSION

While the detections of imidacloprid in California groundwater are sufficient to conclude that they were the result of legal agricultural use of imidacloprid, the subcommittee has concerns about relying on the single detection point of 5.97 ppb in Well 29 as the basis for regulatory action. This is due to the anomalous nature of this detection in relation to all other detections, both within the same well and within all other wells with imidacloprid detections. First, the 5.97 ppb detection is much higher in magnitude compared to all other imidacloprid detections in this same well. Imidacloprid residues in Well 29 ranged from "non-detect" in 2014, "trace" in 2015, "non-detect" in 2016, 5.97 ppb in 2017, 0.095 ppb in 2018, "trace" in 2019, 0.053 ppb in 2020, and 0.045 ppb in 2021. The imidacloprid detection in 2017 (5.97 ppb) dropped to less than 2% of that level in 2018 (0.095 ppb) and to less than 1% of that level in 2019 (trace), 2020 (0.053 ppb), and 2021 (0.045 ppb). The magnitude of this drop is not consistent compared to the remaining reported imidacloprid detections. Second, the detection of 5.97 ppb in Well 29 is far greater than imidacloprid detections in any other wells. The detection in Well 29 is almost 10-fold higher than the second highest imidacloprid detection of 0.665 ppb in 2015 in Well 18. The 0.665 ppb detection is also more consistent in magnitude with the next highest detections of imidacloprid in other wells, including 0.644 ppb in 2016 (Well 47) and 0.536 ppb in 2018 (Well 23). Finally, DPR's GWPP noted in its September 2021 Legal Agricultural Use Determination for Imidacloprid Detections in California (LAU), "[t]he highest concentration of 5.97 ppb was detected in a well that serves a vacant home. The sampled water from this well appeared murky and may not reflect the detectable residues in active domestic wells." (LAU, p. 6.) Murkiness was not a characteristic of any other well samples.

At both Phase 1 and Phase 2(a) hearings, DPR's Human Health Assessment Branch (HHA)[2] and the Office of Environmental Health Hazard Assessment (OEHHA)[3] provided testimony regarding a range of health screening levels for imidacloprid in drinking water. DPR's HHA testified that it evaluated a total of 3,499 published toxicity studies, including the eleven studies cited by OEHHA in their February 16, 2022, document entitled, "OEHHA's Findings on the Health Effects of Imidacloprid Relevant to Its Identification as a Potential Groundwater Contaminant." DPR's HHA testified that it determined that several of the studies cited by OEHHA had experimental design, reporting, or statistical issues that precluded their use as the basis for a regulatory action. Based on a review of the remaining studies, health screening levels (Public Health Protective Concentration [PHC]/Human Health Reference Level [HHRL]) for imidacloprid in groundwater ranged between 10 ppb and 283 ppb.

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[2] DPR HHA's *Updated Risks from Human Exposure to Imidacloprid Residues in Well Water* (April 2021) is available at: https://www.cdpr.ca.gov/docs/emon/grndwtr/imidacloprid/imidacloprid_risks_memo.pdf. *See also* Footnote 1, above, for citation to DPR HHA's *Evidence Requested by the Subcommittee for Phase 2 of the Hearing on Imidacloprid Detections in Groundwater* (April 2022).

[3] OEHHA's *Findings on the Health Effects of Imidacloprid Relevant to Its Identification as a Potential Groundwater Contaminant* (February 2022) available at: https://www.cdpr.ca.gov/docs/emon/grndwtr/imidacloprid/oehha_findings_health_effects.pdf.

FINDINGS

After considering the evidence and public comments presented in the March 22-23 and April 19 hearings, the subcommittee determined at the Phase 2(b) public hearing on May 17, 2022, that the presence of imidacloprid in the groundwater of the state has not polluted and does not threaten to pollute based on the definition of "pollute" in the law (Food and Agricultural Code, § 13150, subd. (c)(1)). The law defines "pollute" as "… to introduce a pesticide product into the groundwaters of the state resulting in an active ingredient, other specified ingredient, or a degradation product of a pesticide above a level that does not cause adverse health effects, accounting for an adequate margin of safety." (Food and Agricultural Code, § 13142, subd. (j).

The subcommittee based their finding on the following information:

1. The highest concentration of imidacloprid detected in California groundwater was 5.97 ppb reported in 2017 in Well 29. However, as discussed above, the subcommittee has concerns about relying on this single concentration as the basis for regulatory action due to the anomalous nature of this concentration in comparison to others for this well and with all other concentrations from sampled wells. The second highest concentration of imidacloprid detected in groundwater was 0.665 ppb, which is consistent in magnitude with maximum concentrations of imidacloprid in other wells.

2. Calculation of health screening levels (PHC/HHRL) for imidacloprid in drinking water derived from available toxicological information using established approaches results in a range between 10 ppb and 283 ppb. Establishment of an updated health screening level for imidacloprid in drinking water will await publication of DPR's revised imidacloprid risk characterization document, which is subject to peer review by OEHHA pursuant to Food and Agricultural Code section 11454.1.

3. Since all imidacloprid detections in groundwater fall below the range of health screening drinking water levels derived from available toxicological information using established approaches, the subcommittee concludes that imidacloprid has not polluted groundwater.

4. Although there has been use and detections of imidacloprid in some of the most vulnerable groundwater areas in the state (i.e., Fresno and Tulare counties), the subcommittee concludes that imidacloprid does not threaten to pollute the groundwater of the state under current labeled use conditions.

RECOMMENDATIONS

Based on the above findings, the subcommittee recommends that the Director allow the continued registration, sale, and agricultural use of imidacloprid products. As required by Food and Agricultural Code section 13152(a)(1), DPR will continue to conduct ongoing groundwater monitoring for imidacloprid in DPR's Well Network, which focuses monitoring in vulnerable areas, and continuously review new science and data that could impact the validity of the subcommittee's findings. The subcommittee recommends that DPR considers study designs for groundwater monitoring for imidacloprid to incorporate pounds of active ingredient applied to soil used per section, combined with an assessment of depth to groundwater and vulnerable soil types to determine priority monitoring wells. If DPR determines that there is new science or data that could impact the validity of the above findings, the Director will act as provided in Food and Agricultural Code section 13152(a)(2) to mitigate or re-review the threat of pollution to groundwater presented by imidacloprid use based on the new data.

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