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Director

Department of Pesticide Regulation



Arnold Schwarzenegger
Governor

California Notice 2009-02

POST UNTIL March 31, 2009

NOTICE OF DECISION TO INITIATE REEVALUATION OF CHEMICALS IN THE NITROGUANIDINE INSECTICIDE CLASS OF NEONICOTINOIDS.

Pursuant to Section 6220, et seq., Title 3, California Code of Regulations, the Director of the Department of Pesticide Regulation (DPR) notices her decision to initiate a reevaluation of certain pesticide products within the nitroguanidine insecticide class of neonicotinoids and containing the following active ingredients: imidacloprid, clothianidin, dinotefuran, and thiamethoxam. Interested persons may comment on this decision up to and including the date shown on the top-right corner of this notice to the Department of Pesticide Regulation, Pesticide Registration Branch, 1001 I Street, P.O. Box 4015, Sacramento, California 95812-4015.

REEVALUATION

DPR is hereby commencing a reevaluation of chemicals in the nitroguanidine insecticide class of neonicotinoids and containing the following active ingredients: imidacloprid, clothianidin, dinotefuran, and thiamethoxam. This reevaluation involves 50 registrants and 282 pesticide products. DPR determined that the number of products included in this reevaluation were too numerous to list within this notice. A list of products included in the reevaluation is available upon written request to the address listed above or on DPR's Web site at: <http://www.cdpr.ca.gov/docs/registration/reevaluation/chemicals/neonicotinoids.htm>.

BASIS OF REEVALUATION

In 2008, DPR received an adverse effects disclosure pursuant to Federal Insecticide Fungicide and Rodenticide Act (FIFRA) section 6(a)(2) and Food and Agricultural Code section 12825.5 regarding the active ingredient imidacloprid. The disclosure included twelve residue and two combination residue, honey, bumble bee studies of imidacloprid use on a number of ornamental plants. DPR's evaluation of the data noted two critical findings. One, high levels of imidacloprid in leaves and blossoms of treated plants, and two, increases in residue levels over time.

Imidacloprid levels in leaves and blossoms varied depending on the application rate and the type of plant, but the data indicate that residues in some plants measured higher than 4 parts per million (ppm). The data also indicate that when using soil application methods, imidacloprid residues remained relatively low for the first six months after application, followed by a dramatic increase that remained stable in some cases for more than 500 days after treatment. Where imidacloprid was applied to the soil, no significant decline in residue levels was observed in any of the studies, even in studies where residues were tested at 540 days after treatment. DPR found that the treatment rates used in the studies where high imidacloprid residue levels were found in



leaves and blossoms, were comparable to application rates found on currently registered labels for orchards, assuming the orchards were planted at a density of 200 trees per acre or fewer. The data indicate that use of imidacloprid on an annual basis may be additive, in that significant residues from the previous use season appear to be available to the treated plant. DPR also received preliminary information from a University of California at Riverside researcher who is investigating imidacloprid residues in eucalyptus nectar and pollen. The researcher's preliminary results indicate imidacloprid residues in eucalyptus nectar at levels of up to 550 parts per billion (ppb).

Based upon data on file, DPR estimates the lethal concentration of imidacloprid needed to kill 50 percent of a test population (LC_{50}) of honey bees is 185 ppb¹. In their everyday foraging and pollination activities, honey bees collect both nectar and pollen from flowering plants. If the imidacloprid residue levels in a plant's nectar and pollen are similar to those found in the leaves and blossoms of the plants described in the adverse effects data, the levels are well above the estimated LC_{50} for honey bees. The levels found in some of the plants were more than twenty times the estimated honey bee LC_{50} of 185 ppb.

All of the neonicotinoids share many of the same characteristics as imidacloprid. However, the three other neonicotinoids included in this reevaluation, clothianidin, dinotefuran, and thiamethoxam, are in the same chemical family (nitroguanidines) as imidacloprid. These three other active ingredients, in particular, have soil mobility characteristics and half-lives that are very similar to imidacloprid. Based on available data, DPR scientists believe these active ingredients would have the same potential residue concerns as imidacloprid. Data also indicate that these active ingredients are similar to imidacloprid in toxicity to honey bees. Due to the chemical and toxicological similarities between imidacloprid and the other neonicotinoids, DPR is providing those registrants with the option of generating data on their own chemicals or providing/relying upon data generated using a surrogate nitroguanidine.

DPR exempted the following formulation categories and product types from the reevaluation:

1. Formulated as a gel or impregnated in a strip;
2. Termiticide;
3. Flea control products combined with rodenticide;
4. Pet spot applications;
5. Ant and roach baits;
6. Premise application for control of nuisance pests; or,
7. Manufacturing use only products.

¹The LC_{50} was estimated by converting the acute oral LD_{50} (the amount of a material that causes the death of 50 percent of a test population) to a concentration in nectar using the standard consumption model used in bee feeding studies.

DPR exempted the above types of products from the reevaluation because the manner in which the products are formulated or applied makes it unlikely that the neonicotinoid will move into plants that bloom or be a source of forage for honey bees and pollinators.

DPR has not yet made a final decision as to the data it will require registrants to conduct pursuant to this reevaluation. In general, DPR intends to require registrants to analyze residues from the nectar and pollen of a representative number of crops grown in California in order to better understand the impact of neonicotinoids on honey bees. In addition, DPR plans to require acute toxicity studies on various honey bee life stages.

DPR plans to work closely with the United States Environmental Protection Agency's (U.S. EPA's) Office of Pesticide Programs throughout the reevaluation process. U.S. EPA's registration review docket for imidacloprid <http://www.epa.gov/oppsrd1/registration_review/imidacloprid/index.htm> opened in December 17, 2008, and the docket for nithiazine is scheduled to be opened in March 2009. In order to better ensure a "level playing field" for the neonicotinoid class as a whole, and to best take advantage of new research as it becomes available, U.S. EPA has scheduled the docket openings for the remaining neonicotinoids (acetamiprid, clothianidin, dinotefuran, thiacloprid, and thiamethoxam) for fiscal year 2012.

For information regarding the reevaluation process, please contact either Ms. Denise Webster, by e-mail at <dwebster@cdpr.ca.gov> or by telephone at (916) 324-3522, or Ms. Alveena Prasad, by e-mail at <aprasad@cdpr.ca.gov> or by telephone at (916) 324-3905.

Original signed by

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February 27, 2009

Date

cc: Ms. Denise Webster, Program Specialist
Ms. Alveena Prasad, Environmental Scientist