



# California Environmental Protection Agency Department of Pesticide Regulation



## Environmental Monitoring of Insecticides Used to Manage Red Imported Fire Ants

Environmental Monitoring and Pest Management Branch  
830 K Street  
Sacramento CA 95814

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This is the first in a series of periodic reports on the Department of Pesticide Regulation's (DPR) program to monitor residues of insecticides used in the State's red imported fire ant (*Solenopsis invicta*; RIFA) treatment project. Red imported fire ant is a pest long established in 11 southeastern states in the US. Infestations were recently discovered in residential, park and plant nursery areas in California including Orange, Los Angeles, Riverside, San Diego, and San Bernardino counties. These ants, about 1/8-inch to 1/4-inch-long and reddish-brown in color, can produce several underground nests in almost any type of soil. However, they prefer open, sunny areas such as pastures, lawns, and cultivated fields where irrigation occurs. The aggressive ants can sting and bite their victims several times. RIFA disrupt outdoor activities, damage gardens, and harm native wildlife.

To manage infestations, the California Department of Food and Agriculture (CDFA) and several county and local agencies perform ground applications of several insecticides including bifenthrin, chlorpyrifos, diazinon, fenoxycarb, hydramethylnon, and pyriproxyfen. The wholesale/production nurseries also treat for RIFA with insecticides such as bifenthrin and chlorpyrifos before plants can be shipped under the federal quarantine requirements.



Red Imported Fire Ant workers in Orange County

DPR plans to monitor a representative sample of the treatments to measure concentrations of chemicals in surface water, soil, and turf. This information will help DPR to assess potential exposure of humans, fish and wildlife to these chemicals. Determining insecticide concentrations in surface water from irrigation and storm runoff is a priority. However, DPR's monitoring plan also allows for additional air, ground water, turf, and soil sampling as the treatment gets underway. DPR also will sample turf, soil, and surface water to determine the length of time a chemical remains in these media.

Since some of the insecticides are potentially toxic to aquatic life, DPR will collect water samples to determine their effect on aquatic organisms, such as the water flea. The water flea is sensitive to the presence of pesticides in water and represents a group of organisms common in water bodies. The California Department of

Fish and Game will conduct the toxicity testing.

DPR staff also will measure other water quality characteristics that affect the survival of fish and wildlife in the water, including acidity or alkalinity, the level of salts, and the amount of oxygen dissolved in the water.



Hand shaker application of Amdro (hydramethylnon) bait at a school field in Azusa.

In consultation with the Department of Fish and Game, the Regional Water Quality Control Board and other stakeholders, DPR selected sampling sites on surface waterways, such as local streams and channels. These waterways will be monitored monthly to determine chemical concentrations that leave the treatment areas. In addition, DPR may sample some sites more than once after the initial treatment to determine how long these chemicals persist in surface runoff and standing water bodies.



A selected monitoring site at East Garden Grove Drainage Channel.

During storms, DPR will monitor selected sites to determine levels of insecticides that wash off surfaces such as lawns and soil.

DPR began its full-scale surface water monitoring in late September 1999. DPR will continue to report on the progress of this monitoring project and all monitoring results in subsequent newsletters and online at <http://www.cdpr.ca.gov>.

DPR routinely shares information and monitoring results with other government agencies, insecticide users, and other stakeholders. If monitoring should indicate levels of concern, DPR will work cooperatively to identify the sources of the problem and to investigate how to best resolve them.

If you would like to have a copy of the detailed monitoring plan (protocol), please visit [www.cdpr.ca.gov/docs/emppm/pubs/rifa/rifamenu.htm](http://www.cdpr.ca.gov/docs/emppm/pubs/rifa/rifamenu.htm) or contact Kean S. Goh at (916) 324-4072, [kgoh@cdpr.ca.gov](mailto:kgoh@cdpr.ca.gov), or Madeline Brattesani at (916) 324-4082, [mbrattesani@cdpr.ca.gov](mailto:mbrattesani@cdpr.ca.gov).

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