



C. A. Reynolds, UC IPM

Figure 1. The reservoir at the top of this KM AntPro bait dispenser contains liquid bait. Ants can enter the dispenser's interior feeding area at any point around the base where it meets the reservoir.

## Using Bait Dispensers for Ant Management

Are some of your clients asking you to control Argentine ants using less toxic methods? One alternative is low-toxicity liquid baits such as borates. These baits do not pose the water quality concerns associated with other common ant treatments such as sprays of pyrethroid insecticides or fipronil and have a very low toxicity to people and pets.

### Tips for success

Research by John Klotz, Mike Rust, and others at UC Riverside has shown liquid baits can be effective in many situations. However, success depends on several factors:

- An effective insecticide at an effective rate that does not ... continued on Page 2

## UC IPM Resources for Urban Pest Management Professionals

This issue of the *UC IPM Green Bulletin* for pest management professionals focuses on environmentally sound methods for managing ants. Later issues will discuss other tools and techniques pesticide applicators can use to reduce environmental problems associated with pesticide use in urban landscapes and structures, especially those related to pesticide runoff in water.

Coordinated by the University of California Statewide Integrated Pest Management Program (UC IPM), the newsletter involves contributions from many experts within and outside the University of California.

UC IPM is a statewide program dedicated to “making ecosystem-based integrated pest management THE way Californians manage pests.” IPM programs focus on long-term prevention of pests or their damage through a combination of techniques including building out pests, modifying maintenance practices, and planting resistant plant varieties. Pesticides are part of IPM programs but are used only when needed. Products are selected and applied in a manner that minimizes risks to human health, beneficial and nontarget organisms, and the environment.

### Numerous resources

UC IPM has many resources for professionals seeking to carry out IPM programs. These include books, co-sponsored workshops, and many Internet resources. Using IPM programs will reduce environmental problems associated with pesticides. A good way to find out about IPM is to explore the UC

IPM Web site at [www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu). It includes a wealth of information for many audiences.

The Homes, Gardens, Landscapes, and Turf section, [www.ipm.ucdavis.edu/PMG/menu.homegarden.html](http://www.ipm.ucdavis.edu/PMG/menu.homegarden.html), includes information on identifying and managing pests in landscapes and around homes and structures. The Household Pest section includes information on more than 60 common household pests that will be useful to structural professionals

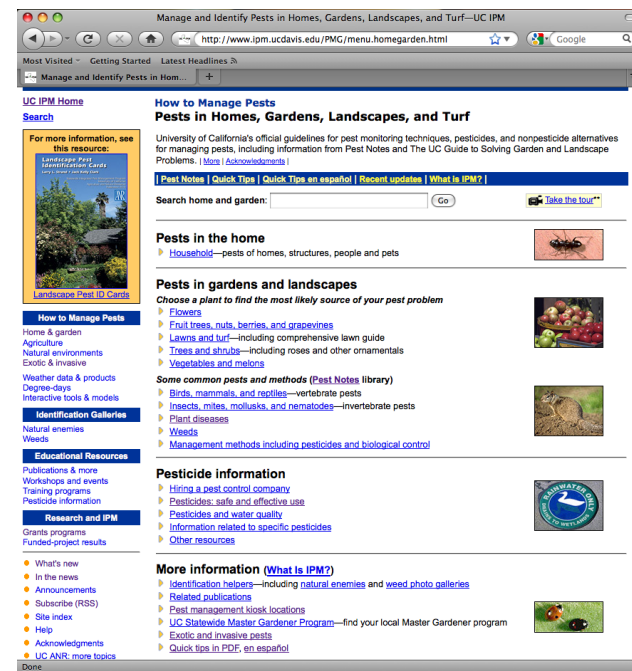


Figure 1. The UC IPM Web page has much to offer urban pest management professionals.

as well as their clients. The Pest Notes are also a key resource for landscape pest management professionals complete with nonchemical and pesticide tips. The plant lists on this page help you diagnose your problems. In the tree and shrubs section, you can choose from more than ... continued on Page 3



J. K. Clark, UC IPM

**V**iew the video at [www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7411.html](http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7411.html) to see a demonstration about how to fill, place, and use bait dispensers.

## Ant Bait Dispensers

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*kill ants prematurely.* For borates such as disodium octaborate tetrahydrate, a 0.5% to 1% solution is most effective. Although higher rates will kill ants, they kill them before they can distribute the bait within the colony.

■ *An effective attractant in the bait.* For Argentine ants, a 25% sucrose in water solution has been shown to be most effective.

■ *A bait dispenser that can hold sufficient liquid with little to no evaporation.* Argentine ants can consume a lot of liquid rapidly. Baits in small containers often fail, because the liquid is exhausted before the problem is controlled.

■ *Proper placement and maintenance of bait stations.*

### KM AntPro

The bait dispenser used most extensively in experimental tests is the KM AntPro (Fig. 1). It releases bait only when ants trigger it at the feeding area around the base. As a result, there is little loss of liquid to evaporation or leaks, bait remains at a proper concentration for an extended time, and ants do not drown and accumulate in the bait.

The dispensers hold 19 ounces of liquid and are sturdy, weatherproof, and secure. Special locking versions can be ordered for sites such as schools.

For most effect, place dispensers next to structures where ants

are trailing, out of the sun, beneath shrubs if possible, and at sites where they will not be submerged in water. Locations where walls come together to make a right angle are ideal. Usually one dispenser on each side of a residential home is recommended; Figure 2 shows a typical placement.

Check bait stations regularly to see if ants are trailing into them and if they still contain bait. Tap the sides to determine the level of bait. In warm weather when ant populations are high, ants can consume 16 ounces of bait within 2 weeks. Refill the dispensers as needed until the problem is eliminated.

### What else can I do?

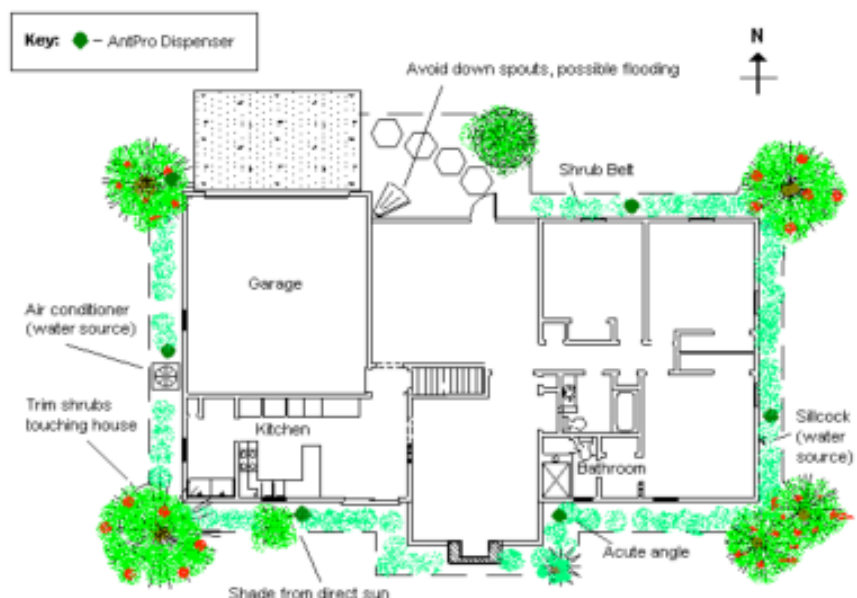
Use bait dispensers as part of an integrated pest management program that includes sealing up entryways into buildings,

removing nesting materials and limiting moisture around building foundations, fixing leaking faucets and other water sources, and eliminating food sources such as sugary garbage and honeydew-producing insects. Don't apply insecticides around bait dispensers.

Currently the only bait products available for use in bait dispensers are borate products. However, at least two other baits have shown promising results in research and might be available in the future.

The KM AntPro station and borate baits can be ordered on the Internet or from pest control supply companies.

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Ken Kupfer

Figure 2. Place bait dispensers in shady areas where ants tend to trail such as around air conditioner units, near shrubs, and where walls make acute angles.

# Water Quality—Contaminants in Runoff from Urban Landscapes

**O**n the consumer level, surveys show more than 60% of the pesticides Californians purchase are used to control ants around their homes. Organophosphate insecticides such as diazinon and chlorpyrifos used to be the primary active ingredients but were removed from the home-use market a few years ago. Pyrethroids were introduced to replace them and now are the predominant ingredients in off-the-shelf insecticides. More recently, fipronil has appeared as a termiticide and ant control compound used primarily by professionals.

To determine how much of these pesticides are moving offsite in urban runoff, researchers are examining the runoff from four neighborhoods in Sacramento County and four in Orange County consisting only of single-family residences. This project is funded by CALFED and the California State Water Resources Control Board.

Researchers are analyzing runoff samples for the following pesticides: diazinon and chlorpyrifos (organophosphates); esfenvalerate, bifenthrin, permethrin, cyfluthrin, fenpropathrin, lambda-cyhalothrin,

deltamethrin, and cypermethrin (pyrethroids); and fipronil.

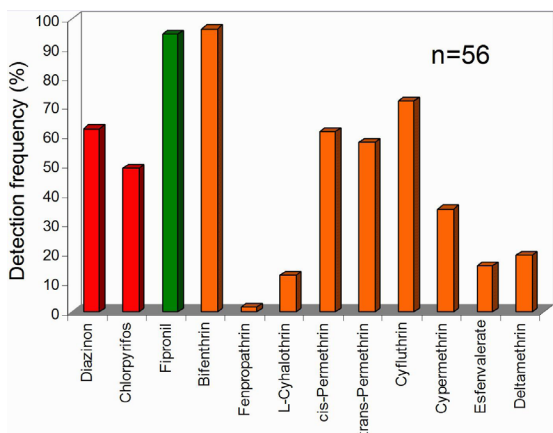
## Some surprising results

In Sacramento County, bifenthrin and fipronil have been detected most often, at frequencies ranging from about 77% up to 98%. In Orange County, those compounds have been found in 100% of the samples. Cyfluthrin also was detected in up to 95% of the samples taken in that county. Surprisingly, diazinon and chlorpyrifos also were detected in up to 63% and 50% of all of the samples collected, respectively, in Sacramento, but up to 93% and 95%, respectively, in Orange County. More than 700 samples were collected and analyzed between mid-2006 through May 2009.

As part of the work, UC Master Gardeners and UC IPM developed and delivered outreach activities and materials to influence how homeowners manage their landscapes with the aim of eliminating polluted runoff. Outreach activities were conducted in only two of the sites in each county. No outreach has been conducted at the other sites, which serve as controls. This project is currently ongoing, so all results are preliminary.

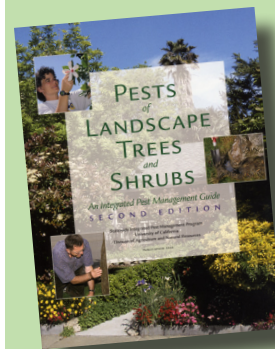
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L. R. Oki

Figure 1. Detection frequencies of pesticides at one Sacramento County site are shown here. Frequencies vary, but the detection pattern is similar at all eight sites. Frequencies of 90 to 100% occur at some sites for diazinon, chlorpyrifos, fipronil, cyfluthrin, and bifenthrin. Diazinon and chlorpyrifos were detected, although those products are not available for retail sales. The detection limit of equipment used for analyses is 0.5 ng/L.



## UC IPM Resources

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200 different plant species and retrieve a list of common pests on each one; click on a pest name to view a photo and find out how to manage the pest. The UC Guide to Healthy Lawns provides all the information you need to manage residential or park turf with a minimum of pesticides.

The Training Program section of the UC IPM Web page, [www.ipm.ucdavis.edu/training](http://www.ipm.ucdavis.edu/training), includes online training resources. Currently there are courses for retail nursery professionals and for maintenance gardeners preparing for the QAC exam. More programs for urban pest management professionals are under development and will be added later. You also can link to the pesticide safety training resources that will help you prepare for other licensing exams or find out about pesticide safety information.

In future issues, we will feature additional UC IPM resources that we hope will help you in your job. Please contact us if you have questions or feedback.

—Mary Louise Flint, Associate Director for Urban and Community IPM, UC Statewide IPM Program, [mlflint@ucdavis.edu](mailto:mlflint@ucdavis.edu)

# Ask the Expert!

## **Q** Why is it important to know what ant species I have?

**A** Different ant species have varying food preferences and nesting locations and respond to management practices differently. Correct identification is important for making appropriate management decisions. Use the ant key at [www.ipm.ucdavis.edu/TOOLS/ANTKEY/](http://www.ipm.ucdavis.edu/TOOLS/ANTKEY/) to help identify your species.

## **Q** How do I inspect for ants in a residential structure?

**A** Use a flashlight and systematically inspect around the entire house—inside and out.

### *Indoors*

- Focus on baseboards and walls where they meet the floor or ceiling.
- Check potted plants.
- Inspect electrical outlets, vents, electrical fixtures, and beneath furnishings.
- Open cabinets to inspect pipes and drains.
- Look for possible attractive food sources such as sweets or pet food.

### *Outdoors*

- Inspect the walls as high and low as possible.
- Pay attention to where ants were found inside for possible entry points.
- Check for branches of trees or shrubs touching the house and providing a pathway.
- Inspect for ants in trees and shrubs that might be harboring honeydew-producing insects.
- Check potted plants, leaf litter, mulch, rocks, and woodpiles for ant nests, especially in moist areas.
- Look for attractive food sources such as pet food.
- Note and fix leaky faucets or sprinklers.

## **Q** What habitat modifications can I suggest to my customers to make their homes less likely to be invaded by ants?

- A**
- Seal up all potential entry spots both inside and out with caulk.
  - Fix leaky faucets, pipes, or sprinkler heads.
  - Manage honeydew-producing insects on trees and shrubs near the house; keep ants out with sticky barriers, or remove plants from the landscape.
  - Prune back branches touching the building that might provide pathways for ants.
  - Remove woodpiles, piles of debris, litter, or plants next to the house that might provide good nesting sites.

*Have a question? E-mail it to [ucipm@ucdavis.edu](mailto:ucipm@ucdavis.edu).*

# Alliance Helps Reduce Pyrethroid Use

**P**yrethroid insecticides have been found in waterways in California's urban areas. While good for killing ants in and around structures, pyrethroids can harm aquatic invertebrates that are crucial to support a healthy ecosystem. Pesticides found in waterways also can impact other uses of those water bodies such as recreational or commercial.

The Urban Ant Pest Management Alliance (PMA) was funded by the California Department of Pesticide Regulation to demonstrate that pyrethroid use by pest management professionals (PMPs) could be reduced by at least 50% without loss of customer satisfaction or increasing costs.

## *What members found*

Under the PMA, UC Riverside, UC Cooperative Extension, and UC IPM Program members—working with six pest management companies throughout California—demonstrated that replacing a portion of the pyrethroid with plant oil-based products such as Ecosmart WPX or using gels or baits resulted in at least 50% reduction in pyrethroid use. One PMP reported his number of jobs under the less-pyrethroid routes increased 7% and his income by 24%. None of the companies reported callbacks increased in the less-pyrethroid routes. Interestingly, one company reported the major reason for callbacks was due to spiders, not ants.

PMPs can use the Web site <http://groups.ucanr.org/UrbanAnt/> to find copies of the presentations from some of the participating companies, recent research updates, and links to other useful sites.

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