



University of California  
Agriculture and Natural Resources

Retail Nursery and Garden Center

# IPM News

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## Welcome to Our Newsletter!

**R**etail nursery and garden centers are among the top sources of pest management information for home gardeners. We created this special newsletter for retail nursery and garden center employees, managers, and owners to help you provide customers with the latest pest information from the University of California.

**Who are we?** The University of California Statewide Integrated Pest Management Program (UC IPM, for short) develops and promotes the use of integrated, ecologically sound pest management programs in California to serve agriculture, urban and community, and natural resources audiences. We're dedicated to "making ecosystem-based integrated pest management THE way Californians manage pests." We collaborate with UC scientists across the state at UC campuses and in county UC Cooperative Extension offices to ensure delivery of the best information available.

**Need help answering customer questions?** Our UC IPM Web site contains free information on pesticides and nonchemical alternatives for managing pests to help you direct your customers to the best tools and products in your store. You'll find easy-

The portal page for nurseries and garden centers is at <http://www.ipm.ucdavis.edu/RETAIL>.

to-access information on identifying and managing pests in and around gardens, landscapes, and homes.

For instance, in the tree and shrubs section, you can choose from more than 200 different plant species and retrieve a list of common pests for each one; click on a pest name to view a photo and find out how to manage it. Our special portal page for nurseries and garden centers gives you quick links to these and many other features, including this newsletter, special Pest of the Month articles, and information about future workshops and training. **View it today at <http://www.ipm.ucdavis.edu/RETAIL>.**

In future issues, we'll feature information on new pests, new pest management tools, and more UC resources to help you serve your customers. Please contact us at [UCIPMretail@ucdavis.edu](mailto:UCIPMretail@ucdavis.edu) if you have questions or feedback or if you have special topics you'd like us to cover in future issues.

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**WANT A FREE SUBSCRIPTION?** We'll be mailing paper copies of only the first two issues. You can continue receiving this newsletter electronically by sending your e-mail address to [UCIPMretail@ucdavis.edu](mailto:UCIPMretail@ucdavis.edu) with the subject line "Subscribe to retail newsletter." Please share this newsletter with your co-workers and encourage them to subscribe too!

**C**odling moth—which attacks fruit of apples, pears, and walnuts—is one of the most difficult pests to control in the backyard. Infested fruit contains caterpillars and their unsightly excrement, called frass. Although nonchemical practices such as removing dropped or damaged fruit, bagging fruit, and hanging pheromone traps can reduce codling moth numbers, they don't provide satisfactory control of high populations and can be too time-consuming for most gardeners.

For many years, carbaryl (*Sevin*®) has been the primary insecticide home gardeners have used to control codling moth; however, this material is very toxic to honey bees and natural enemies of pests. Home gardeners looking for less-toxic products or organically acceptable treatments often tried to manage the pest with less effective products, usually with poor results.

A new biological insecticide, Cyd-X, a granulosis virus that affects only larvae (caterpillars) of the codling moth, became available to home gardeners in California in 2010. Codling moth larvae must ingest the virus for it to be effective. It doesn't affect other insects, humans, pets, or wildlife and is OMRI listed as suitable for use in certified organic production.

### **How to apply**

University of California trials by UC Cooperative Extension Advisor Dan Marcum in Lassen and Shasta counties have shown that this product, when applied weekly when eggs are hatching, is as effective as carbaryl sprays at controlling codling moth in backyard trees. Because it must be applied weekly, more applications are needed than with carbaryl, which must be applied only every 14 to 21 days or once per generation, but many environmentally conscious gardeners are willing to make this trade off. Cyd-X also has the advantage of having no preharvest interval, so unlike carbaryl, you can apply it up until harvest time.

Timing of granulosis virus sprays is similar to timing for carbaryl. Treatments should begin when eggs start hatching. The best way to find out when this occurs is to hang a pheromone trap in the tree in spring to determine when

## **::: New Products**

# **Biological Insecticide for Codling Moth**



J. K. Clark, UC IPM

*Codling moth larvae and frass in apple.*

adult moths are flying after temperatures exceed 62°F at sunset, which is when they will start mating. Then use the degree-day calculator linked to the UC IPM publication *Pest Note: Codling Moth* (See the last paragraph for the Web address.) to find out when eggs will hatch, which is when sprays should start. Repeat sprays of Cyd-X weekly. Some UC Cooperative Extension offices or UC Master Gardener help lines might be able to provide approximate times for your area.

Cyd-X is manufactured by Certis USA and is distributed by Down to Earth Distributors. It's registered for home use in California and sold in 1.5-ounce packages, which contain enough product to treat two or three backyard apple trees weekly for a season at a rate of one teaspoon per 5 gallons of water. Activity of the virus is degraded at temperatures above 90°F, but the product remains viable for at least three months at room temperature. However, refrigeration is recommended.

### **Other options**

Spinosad is another less-toxic insecticide for codling moth management. You probably already have this product on your shelves

under various trade names including Monterey Garden Insect Spray or Green Light Spinosad Lawn & Garden Spray. It is safe for most beneficial insects as well as for people, pets, and the environment. However, like granulosis virus, it requires repeated applications for acceptable control. The first spring generation requires sprays applied at 10-day intervals beginning at egg hatch.

For any subsequent summer generations, a single spray applied at the beginning of each new egg hatch might suffice. However, second sprays, applied 10 days later, might be required for high populations. No more than six sprays should be applied per season, and they shouldn't be applied within seven days of harvest. The addition of 1% summer oil to the spray tank will further enhance the effectiveness of this material. Some gardeners might want to rotate spinosad and Cyd-X applications.

For more information on managing codling moth in backyard fruit trees, see *Pest Note: Codling Moth* at <http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7412.html>. Please note that the information on granulosis virus is so new, we still haven't updated this publication to include it—but we will soon!



## ::: New Pest

# Spotted Wing Drosophila

**E**ven if you didn't have customers coming into your store last spring complaining about a new pest that was destroying their cherries, be prepared for an onslaught of such questions this year!

A new fruit fly pest, the spotted wing drosophila, *Drosophila suzukii*, began showing up in backyard cherry trees in 2009 in isolated areas of Santa Clara, Solano, Yolo and Monterey counties. By 2010, many additional counties reported problems. And the pest continues to spread. In addition to cherries, this pest also damages blueberries, raspberries, and other berries.

Unlike other *Drosophila* species, which attack rotting fruit, this pest attacks healthy fruit on the trees before they are completely ripe. The female has a large, serrated egg-laying tube, called an ovipositor, that allows her to lay eggs just under the skin of fruit. Eggs hatch into tiny maggots that feed inside the fruit, causing fruit to turn brown and soft. Sunken areas on the fruit's surface might ooze fluid.

### Management tips

Unfortunately, many backyard gardeners don't notice the infestation until they start to harvest fruit. At that point, it's too late to manage the pest, except to sort through fruit and save unblemished ones. It's also a good idea to rapidly collect and dispose of infested fruit on the ground and in trees to help prevent

infestation of later-maturing varieties. Infested fruit can be buried or put in plastic bags and tossed in the trash.

### Insecticides

This pest must be controlled before adult flies lay eggs in fruit. There has been limited research on consumer-use insecticides that work on this fruit fly. The organophosphate insecticide malathion is effective, but it is very toxic to bees and beneficial insects and might cause outbreaks of other pests.

Spinosad, which is organically acceptable and has fewer negative environmental impacts, is an alternative to malathion. To be effective, insecticide applications must begin just as fruit is turning from yellow to pink, which occurs about 2 to 3 weeks before harvest.

One spray with malathion should be sufficient, but two sprays of spinosad (the second one 7 to 10 days after the first) might be required for satisfactory results. Harvest cherries as soon as they ripen.

If spotted wing drosophila was a problem last year, a spray probably is justified this year. However, unless your customers detect the pest in their yard, advise them to hold off on spraying if they didn't have problems last year.

You can suggest they make a homemade trap by drilling holes in a quart-sized yogurt container and hang it in trees in early May before fruit ripens. Pour about an inch of apple cider vinegar and a drop of dishwashing soap in the trap and check for fruit flies weekly. Look for fruit flies with spots on their wings. These are the male spotted wing drosophila.



Male spotted wing drosophila showing spots on wings.

L. L. Strand, UC IPM



L. L. Strand, UC IPM

Spotted wing drosophila larva in fruit.



J. L. Caprile, UC IPM

Monitoring trap for spotted wing drosophila.

For more information about managing this pest and using traps, go to the UC IPM Web site at [www.ipm.ucdavis.edu/EXOTIC/drosophila.html](http://www.ipm.ucdavis.edu/EXOTIC/drosophila.html).

## ::: Web Tools

# Online Education Programs for Store Employees

**T**he UC IPM Web site has two free online training courses for retail employees who answer consumer questions about pests, pesticides, and less toxic or "green" pest management solutions. Each course takes less than an hour to complete and includes videos, narration, and many photographs and animations.

After finishing each course and taking the quizzes, you'll receive a personalized Certificate of Completion from the University of California.

You'll also find links to pesticide safety training resources that will help you prepare for pesticide applicator

certification (QAC) exams or get continuing education credits from the Department of Pesticide Regulation.

Find these free courses by clicking on **Online Training and Workshops** on UC IPM's Nursery and Garden Center Portal, <http://www.ipm.ucdavis.edu/RETAIL>.

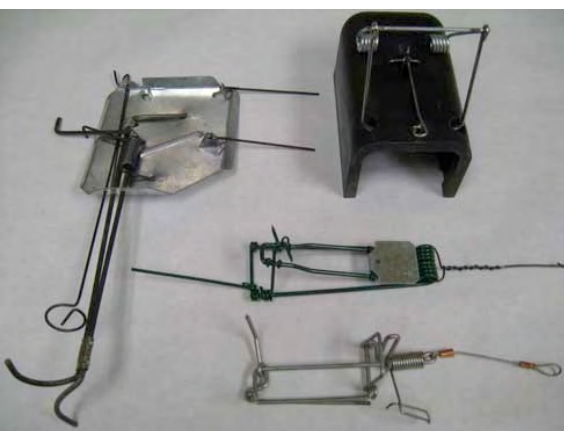
# Trapping to Manage Pocket Gophers



J. K. Clark, UC IPM

**P**ocket gophers (*Thomomys* spp.) are one of the most damaging vertebrate pests in California. Gophers are short, stout burrowing rodents, usually 6 to 8 inches long. They spend most of their time below ground where they use their front legs and large incisors to create extensive burrow systems.

Pocket gophers cause extensive and quite varied forms of damage that includes girdling of stems and vines below ground, consumption of tap roots and aboveground vegetation, and mounding that poses a serious hazard to landscapers, homeowners, and the general public.



R. A. Baldwin, UC IPM

*Types and brands of gopher traps include (clockwise from upper right) Victor® Black Box™, Macabee®, Gophinator, and Cinch.*

A number of options are available for controlling pocket gophers such as fumigation, toxic baits, and trapping. All three methods have their advantages and could be included in an integrated pest management program for controlling pocket gophers. However, trapping is one of the best methods to use in urban/suburban settings given its high efficacy, minimal risk to children and pets, and lack of potential runoff from gopher-related rodenticides.

## Which trap to use?

A number of pocket gopher traps currently are available for purchase including the Macabee®, Gophinator,

Cinch, and a variety of box traps. All can be effective in a given setting, although some have proven more effective than others. For example, a recent University of California Cooperative Extension study found that the Gophinator trap outperformed the Macabee® trap due to its ability to capture larger gophers at a higher rate; both traps captured small gophers equally well and required an equivalent amount of time to set.

A similar study conducted by the USDA National Wildlife Research Center compared three traps—Macabee®, Cinch, and Blackhole®, a style of box trap. They found the Cinch trap to be most effective, although it took longer to set and required more excavation for placement. Selection of an appropriate trap will vary depending on the user's needs, but the Gophinator trap appears to provide an effective and quick option for gopher control.

## Other factors

There also has been debate about the need to cover hole openings after setting traps. Recent tests have shown little influence of leaving holes uncovered vs. covering them up. If you are able to leave them uncovered, this will save time in setting and checking traps. However, in many cases, trappers

will prefer to cover holes to limit access to pets and children. Clearly, in these cases, covering trap-sets is warranted.

There also appears to be little benefit to using many proposed attractants for gopher trapping, as recent tests comparing trap-sets with no attractant to trap-sets baited with peanut butter, anise oil, carrot oil, and a grapefruit-based attractant showed no difference in capture success. This does not preclude potential benefits from other attractants but certainly, at a minimum, indicates that attractants are not needed to effectively capture pocket gophers.

Trapping provides a relatively safe and efficacious approach to pocket gopher control, although it does take practice and patience to become proficient. If you are interested in further details on gopher trapping, check out the UC IPM Pest Note *Pocket Gophers* at <http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7433.html>.

—Roger A. Baldwin, Wildlife Pest Management Advisor, UC Statewide IPM Program

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For more information about managing pests, contact your University of California Cooperative Extension office listed under the county government pages of your phone book, or visit the UC IPM Web site at [www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu).

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**WHAT IS IPM?** Integrated Pest Management (IPM) programs focus on long-term prevention of pests or their damage through a combination of techniques including resistant plant varieties, biological control, physical or mechanical control, and modification of gardening and home maintenance practices to reduce conditions favorable for pests. 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.