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Applying Pesticides around Edible Gardens

If your company does residential landscape pest control, your employees should be trained to know what to do when they encounter a vegetable garden, or fruit or nut trees in a yard (Figure 1). Their training should include how to answer a customer's questions about the safety of their pesticides around vegetables or herbs. Talking to a customer about the edible plants in their garden so you don't accidentally spray their plants might save that account from subsequent cancellation.

Is it appropriate for a technician to recommend that a resident simply wash their vegetables after having their yard treated for say, mosquitoes, or should the vegetables be thrown away? What about a perimeter spray around the home? The answer to these questions depends on whether the plants were directly exposed to the sprayed pesticide and what the product label says about proximity to edible crops.

Insecticides used for perimeter sprays and mosquito control generally don't allow application to edible plants. For

example, the Suspend Polyzone label states "do not apply this product to edible crops." The Termidor SC label says, "DO NOT treat within a distance of one foot out from the drip line of edible plants. DO NOT treat fruit-bearing or nut-bearing trees." Some product labels make no mention of vegetables or edible crops at all. If application on edible plants is not explicitly mentioned, it is not allowed.

Will pesticides make a plant toxic?

Many insecticides, including some common active ingredients familiar to urban pesticide applicators, are used legally on agricultural crops. This is allowed by the United States Environmental Protection Agency (US EPA) only if that pesticide has been granted a tolerance for a given crop, and certain days-to-harvest intervals are followed. These rules work to ensure that any pesticide residues left after a pesticide application are below levels of concern for human health. The 2019 Pesticide Data Program survey by USDA shows that this system works. Out of 10,000 market food samples analyzed in the study, nearly 99% had residues well below the EPA established tolerances. More than 42% had no detectable pesticide residue.

Insecticide residues on plants are not necessarily acutely toxic, especially when label directions are followed,



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Figure 1. A vegetable garden next to a house.

and adequate time passes to allow the product to naturally degrade. The products used by professional pesticide applicators may contain the same active ingredients used by farmers; but they may differ in concentration and formulation. Most importantly, insecticides used for landscapes and homes do not carry food-treatment labels, so they cannot legally be used on edible crops.

Talstar products, for example, consist of the active ingredient bifenthrin, the same active ingredient used by farmers and even home gardeners under a

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variety of trade names. The Talstar® P label however, says "do not use on edible crops." You must follow the label for the product you are using.

Spray contamination

If an insecticide is deliberately sprayed on an edible crop or plant, and the product is not labeled for such use, the plant would not be considered safe by EPA standards. The implication is that the whole plant, or at least the edible parts, should be thrown away. Your customer could replant unless that is prohibited by the label.

Backpack mistblowers are commonly used for applying residual insecticides in areas such as mosquito resting sites; but mists should be applied carefully to avoid drift onto fruit and nut trees and vegetable gardens.

Labels generally do not, however, prohibit use of these products in the vicinity of a vegetable garden. Take care to keep sprays directed away from vegetable gardens, so that any incidental drift from nearby spraying does not land on edible plants. Thermal foggers and ULV applications used nearby should leave insignificant residues if the application orifices are always directed away from edible plants.

Applicators should always be aware of weather conditions and the locations of edible plants. If wind is blowing toward a garden, upwind applications should be avoided.

What should you do if a fruit, nut, vegetable, or herb is accidentally sprayed? Notify the customer that an accidental spray contamination has occurred. Annual plants should be pulled. For both annual and perennial plants, the produce must be discarded by the customer and not eaten.

Systemic insecticides

Some insecticides are "systemic," meaning they have enough water solubility to be taken up by plant roots

and translocated to other parts of the plant. Although the EPA allows some systemic insecticides on crops, in general systemics are not labeled for use on food crops because they can leave residues in edible plant tissues that do not quickly degrade.

Insecticides containing neonicotinoids and acephate are examples of professional grade insecticides that may be systemic in plants. These include products like Premise, Alpine, Tandem, Transport, Temprid, Orthene and others. Herbs and other root or leafy vegetables exposed to systemic insecticides should be considered contaminated for the season and should not be consumed.

Some termiticides can also be systemic in plants, leading to concerns about vegetable gardens and fruit trees planted next to homes treated for termites. Fipronil, for example, is slightly systemic in some plants; and the Termidor SC label says not to apply around edible plants. The label does not say explicitly how far away an edible plant must be, although the Premise Pro label (whose active ingredient, imidacloprid, is much more water soluble) is more specific. It says to "not treat within a distance of one foot out from the drip line of edible plants." The Premise instruction is probably a good, conservative guideline for all termiticides. Keep the outermost leaves of garden plants at least a foot away from any soil-applied termiticide.

Washing crops

A concerned customer whose nearby yard or house perimeter has been treated with an insecticide spray should consider washing their vegetables or other harvested edibles. Washing is a good idea whether pesticides have been used or not. The best washing technique is to gently rub off any dirt while holding the produce under running water. This is a great way to remove dust, microorganisms, and any traces of pesticides from vegetable and fruit surfaces.



Figure 2. Beets growing in a garden bed.

Would you recognize an edible plant?

Can you and your technicians and applicators tell basil from begonia, mint from marigold, or pear from poplar? Applicators following label directions around a home needs to be aware of what plants are present. You don't have to be a botanist or know all the local tree species; but you should recognize the most common fruit and nut trees, herbs, and vegetables (Figure 2).

When visiting a residence for the first time, ask your customer if they have any herbs, fruit trees, nut trees, or vegetables. Gardeners may plant edible plants within flower gardens, so they might have a basil plant or a tomato plant growing among the daisies. Assume your customers don't use pesticides in their vegetable garden and avoid these areas accordingly.

Your customers will appreciate any extra consideration you give to their edible garden plants. Treat them well and they might even greet you at the door with a big bag of zucchini!

—Based on the article "Bugs and basil: Insecticides and veggies don't always mix" by Dr. Mike Merchant, Texas AgriLife Extension at insectsinthecity.blogspot.com/2018/08/pesticides-and-veggie-gardens.html

Who Can do Perimeter Spraying for Hire in California?

Licensing for perimeter spraying under California's pest control laws is dependent on the situation and site (Table 1). Structural Pest Control Board (SPCB) licensees, Department of Pesticide Regulation (DPR) Qualified Applicator License (QAL) holders, and DPR Qualified Applicator Certificate (QAC) holders are all legally allowed to make perimeter spray applications to control ants and other pests immediately around structures. However, the intent of these applications determines the specific license needed.

SPCB licenses

If the perimeter spraying is performed to prevent the entry of ants or other insects into the structure, then a structural license is required. If the pests are coming from the lawn, then the lawn is considered as a "pest reservoir" and can be treated by the Branch 2 licensee.

DPR licenses

It is important to know what DPR license type allows the applicator to perform perimeter sprays.

- QAL holders with Category A (Residential, Industrial, and Institutional) can do perimeter treatments for ants or other pests that occur indoors and near the structure. QAL Category A licensees, however, cannot provide commercial service to customers (for hire). This license category is most common for governmental employees or institutional employees who perform in-house pest control services as part of their job.
- QAL holders with Category B (Landscape Maintenance) can do perimeter sprays as part of their landscape management efforts. For instance, if landscape shrubs get infested by aphids and tended by ants, then treatment of those plants and

perimeter spraying, which incidentally prevents an ant invasion to the structure, is permitted.

- QAC, subcategory Q (Maintenance Gardeners) are also permitted to do perimeter sprays when the application is made as an incidental part of their maintenance gardening work.

It is wise for any pesticide applicator to make sure they are applying pesticides in the right place, at the right time, and for the right reason. Such forethought helps reduce environmental contamination and helps applicators avoid regulatory violations and their consequences.

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Table 1. Guidance in Determining Business License Type Required.

Site/ Situation	License Required	Section Cited	Description of Pest Control Conducted
Adjacent to structure, garden or orchard pest	QAL Cat A, Cat B or QAC Subcat Q	FAC §§ 11701 or 11704	Control (for the purpose of eliminating ants, earwigs, garden or non-crop orchard pests, or to assist in the control of honeydew producing insects) even where treatment is applied adjacent to a structure and incidentally prevents invasion of the structure.
Landscape plants & turf	QAL Cat B or QAC Subcat Q	FAC §§ 11701 or 11704	Any application of a pesticide to existing landscape plants & turf, irrespective of their location in respect to a structure, except for incidental contact of foliage or plants with a pesticide arising from structural pest control activities. Any pesticide application made directly to interiorscapes in business buildings, office complexes, malls, houseplants within households.
Structures, interior or exterior (outside surfaces)	Structural Branch 2 or 3	B&PC § 8550	Control of ants, earwigs, cockroaches, silverfish, termites, birds, or rodents invading structures is strictly structural pest control, whether carried on within or outside of the structure.
Structures, in or around	Structural Branch 2	B&PC § 8550	Control of pests to humans and their pets, (it would apply to pests other than fleas, for example, mosquitoes) in or around a structure, including treatment of outside areas to control nearby nest or pest reservoir is considered structural pest control.

Disclaimer: Readers should get the most updated regulatory information from federal, state, county, and city resources. Remember, laws change all the time!

Reference: PUE Program Standards Compendium Volume 1: General Administration of the Pesticide Use Enforcement Program – Section 10: Quick Reference Charts. cdpr.ca.gov/docs/enforce/compend/vol_1/entirerep.pdf

Webinars, Training, and Events

Do you need continuing education hours for your CDPR or SPCB pesticide applicator license? The University of California and UC IPM have numerous offerings and participation at upcoming events where you can obtain useful information and CEUs.

Pesticide Safety Webinar Series

The Pesticide Safety Education Program (PSEP) is now offering pesticide safety webinars via Zoom. Continuing Education Units offered for DPR and SPCB.**

Training dates and topics for 2021:

- October 12 – Proper Selection & Use of PPE (English)
- October 19 - Proper Selection & Use of PPE (Spanish)
- November 9 - Top 10 Pesticide Use Violations 2020 (English)
- November 16 – Ground Squirrel Management (English)
- November 30 - Top 10 Pesticide Use Violations 2020 (Spanish)
- December 7- IPM in Schools & Childcare Centers -Healthy Schools Act**

Find more details and how to register at surveys.ucanr.edu/survey.cfm?surveynumber=35513

Online Training

Always available online 24/7, UC IPM's online courses can be accessed anytime day or night. Some courses are free and most others are offered half-price until October 31.

- Providing IPM Services in Schools and Child Care Settings
- How Pest Management Professionals Can Protect Water Quality
- Pesticide Application Equipment and Calibration for Non-Ag Applications

See the entire listing, links, and pricing at ipm.ucanr.edu/training/

Upcoming Events

Long Beach Landscape Expo

October 12-13, 2021, Long Beach Convention Center

thelandscapeexpo.com/



West Coast Rodent Academy

October 27-28, 2021, virtual

ucanr.edu/sites/WCRA/



2021 UCR Fumigation School

October 27-28, 2021, Kellogg West Conference Center, Cal Poly Pomona

ucanr.edu/sites/ucrurbanpest/UCR_Fumigation_School/

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NPMA's PestWorld

November 2-5, 2021, Las Vegas, Nevada

pestworld2021.org/



Come visit UC IPM at Booth 354!

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.

Ask the Expert!

Q: Why is the day-to-harvest interval or preharvest interval important?

A: Usually listed as preharvest interval (PHI), this is the wait time between a pesticide application and when an edible crop can be harvested. The pesticide label will state how long the crop must remain in the garden or field after spraying or whether the product should not be applied around edible plants. During the PHI, the pesticide may be broken down in the plant, or on its surface. Sun, rain, and warm temperatures may affect how quickly this happens.

- Following the PHI reduces the risk from using pesticides on food.
- If a fruit or vegetable crop is not listed on the label, that means you cannot apply the product to it.
- Harvesting a crop before the PHI is illegal. The time listed on the label has been tested to minimize pesticide residue.
- Wait times for the same fruit or vegetable can differ between products even if they have the same active ingredient.
- For products that can be applied up to the day of harvest, the label may list '0' (zero) days, or there may be no time listed.
- The EPA sets limits on residue levels, called tolerances, for every pesticide on each crop. The PHI helps meet these safety standards.
- If you sell your produce and you do not follow the PHI, there is a risk of too much pesticide residue on them. Residues above legal limits can keep a crop from sale or export.
- Always follow the label, including how and when to apply, and the PHI.

—Modified from the National Pesticide Information Center, npic.orst.edu/health/phi.html



SUBSCRIBE TO THE UC IPM URBAN PEST MANAGEMENT BLOG!

UC IPM's blog provides readers with timely information about pests in and around homes, gardens, landscapes, and structures in California. We post articles about common seasonal pests, invasive pests, beneficials, and new UC IPM resources, including new and revised Pest Notes, training events, and other educational materials for residential audiences and pest management professionals.

View or subscribe to the blog at ucanr.edu/blogs/ucipmurbanpests/

All pesticide products mentioned have been reviewed by the UC Office of Pesticide Information and Coordination and are current at the time of publication. Always read and carefully follow all precautions and safety instructions provided on the pesticide container label, as well as any other regulations regarding the use of pesticides. Not following label directions, even if they conflict with information provided herein, is a violation of state and federal law. No endorsements of named products are intended, nor is criticism implied of products not mentioned.

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For more information about managing pests, contact your University of California Cooperative Extension office, or visit the UC IPM website at ipm.ucanr.edu.

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