

The Pesticide Label



Cooperative Extension Service
College of Tropical Agriculture and Human Resources
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Key to Pesticide Safety and Education

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REGULATORY UPDATES

Special Local Need Registration

For growers of **coffee**—use of the pesticide **ProTone[®] SG** (Valent BioSciences; EPA Reg. No. **73049-461**)—requires having a copy of **HI-130001**, valid 1/17/2013–1/16/2018—some notes: • Only foliar and soil applications are allowed. • Timing of application is specified. • Maximum of 7 applications per season is allowed. • 7 days between applications is required. • This is an agricultural use pesticide and so the Worker Protection Standard applies. The *restricted entry interval* (REI) is specified by the label on the container.

For growers of **macadamia nut plantings**—use of the pesticide **Goal[®] 2XL** (Dow AgroSciences; EPA Reg. No. **62719-424**)—requires having a copy of **HI-020004**, valid 5/1/2013–4/30/2018—some notes: • Chemigation is prohibited. • Only directed spray using ground application equipment is allowed. • 7 days to harvest. • Application to ditch banks or waterways is prohibited. • Feeding or grazing animals on treated area is prohibited. • This is an agricultural use pesticide and so the Worker Protection Standard applies. The *restricted entry interval* (REI) is specified by the label on the container.

RECERTIFICATION CREDITS may be earned by certified applicators who score at least 70% on the set of comprehension evaluation questions about the "recertification" articles in this newsletter. These articles have a title followed by "(recertification)". However, credits may not necessarily be applicable for the following categories: Private 2, Private 3, Commercial 7f, and Commercial 11. The question sets (quizzes) are written and administered by the Hawaii Department of Agriculture staff. To ask about earning recertification credits on Hawaii call the Hilo office at (808) 974-4143. On Oahu, Kauai, Maui, Lanai, and Molokai, call the Honolulu office at (808) 973-9409.

BED BUGS AND PESTICIDE MISUSE

(recertification)

Bed bug infestations in the U.S. have increased dramatically over the past few years. With this increase has come a rise in concern about the misuse of pesticides. This article summarizes a health advisory, "Health concerns about misuse of pesticides for bed bug control" by the Agency for Toxic Substances and Disease Registry and the Centers for Disease Control and Prevention <http://www.bt.cdc.gov/HAN/han00336.asp>. The following summary discusses the home use of pesticide products in general, with specific references to bed bugs.

Effects of chemicals on adults, children, and pets

Most people are not certified pesticide applicators. Therefore, many people do not know the importance of selecting the right pesticide product and following label directions. This unawareness includes some commercial applicators, so selecting the right pest control service is important. Pesticide misuse due to ignorance or carelessness can create problems. These problems include pesticide-related illnesses, the temporary evacuation of homes, and the loss of heavily contaminated personal belongings.

The symptoms of pesticide poisoning depend on the pesticide product. They can include: headache, dizziness, nausea, visual disturbances, numbness of the face and limbs, muscle tremors, abdominal pain, chest tightness or pain, and palpitations. Pets exposed to pesticides can show some of the same symptoms as adults. They may show these symptoms more quickly than humans because of their smaller bodies. Therefore, pets may act as an early warning system for humans.



Bed bug nymphs, adults, and their black frass (excretions). For indications of a bed bug infestation, aside from the insects themselves, look for rusty or reddish blood stains on pillows, sheets, or mattresses. Courtesy of B. Bloetscher, The Ohio State University, Bugwood.org



Adult bed bugs are oval, flat, brown, and about 5-9 mm (0.25-0.4 in) long. Courtesy of G. Alpert, Harvard Univ., Bugwood.org



After a blood meal, the adults are purplish-red and cigar-shaped. Courtesy of G. Alpert, Harvard Univ., Bugwood.org

Children are at a higher risk of exposure to chemicals than adults. They are especially at risk from household chemicals and pesticides applied indoors. Children want to taste everything and tend to put things in their mouths. They also touch things then put their hands in their mouths. This includes surfaces still wet with pesticide, or that have pesticide residues on them. Children also inhale more air per body weight than adults, so toxic vapors are another concern.

Reducing the risk of pesticide exposure

If you are considering treating your own home for bed bugs, here are some things to consider.

- **Identify the problem.** Before using any pesticide, determine the cause of the problem. If the problem is a living organism, it must be identified (see References). Many pests look similar but may require pesticides with different modes of action. The pesticide may also need to target a certain stage in the pest's life cycle.
- **The pesticide must be labeled for indoor use.** Outdoor pesticides used indoors are a health risk. They can also contaminate the house, furniture, and other belongings, costing thousands of dollars to restore.
 - √ **Use a pest control specialist if hiring someone to treat your home.**
 - √ Make sure they have a current pesticide applicators license and ask to see it.
 - √ Ask how, specifically, they will treat the infestation.
 - √ The treatment regime should include non-chemical methods.
 - √ Ask for the brand name of any pesticide product to be used and its active ingredient, in case a family member gets sick.
 - √ Check that the product is labeled for indoor use.
 - √ Be sure you understand what is expected of you before, during, and after the treatment.
- **Check the following if you buy and apply an over-the-counter pesticide**
 - √ Be sure the pesticide is labeled for indoor use.
 - √ Be sure the pesticide is in its original, unopened container.
 - √ Be sure the container is labeled.



Look for bed bugs in seams of mattresses and cushions, folds of curtains, drawer joints, loose wallpaper, wall hangings, etc. Courtesy of G. Alpert, Harvard Univ., Bugwood.org



Bed bug eggs are white and very small. These eggshells are less than 1 mm wide. Courtesy of G. Alpert, Harvard Univ., Bugwood.org

- √ Be sure the EPA registration number (EPA Reg. No.) is on the label.
- √ **Follow all the instructions on the pesticide product label.**
- √ Be sure the pest (e.g., bed bugs) is listed on the label.
- √ Mix and apply the pesticide according to the label directions.
- √ **MORE IS NOT BETTER:** Do not exceed the dosage allowed or the number of applications.
- √ Do not apply pesticide to beds or furniture unless allowed by the label.
- √ Do not use household chemicals (e.g., alcohol, bleach) for pest control.

Integrated Pest Management for bed bugs

Household pests, including bed bugs, are best managed using a variety of approaches. The combination of different pest management methods (IPM) includes careful inspection of the infested area, monitoring the pest population, reducing clutter, the use of physical barriers, the appropriate use of pesticides, etc. A professional pesticide applicator should offer advice to occupants of the home, apartment, or condominium being treated. Important advice would include:

- Check luggage and clothing when returning from travel.
- Examine second-hand clothing, furniture, mattresses, etc.
- Make a close inspection in and around infested areas.
- Reduce clutter where bed bugs can hide.
- Put encasements on box springs, mattresses, and pillows to exclude bed bugs.
- Use insect interceptors under bed posts and furniture legs.
- Thoroughly clean infested areas and all clothing.
- Have baseboards and other belongings treated professionally with heat or cold treatments.
- Judiciously use appropriate pesticides labeled for indoor use, or hire a licensed pest management professional.
- Routinely check areas to see if treatment methods are working, or if it is time to repeat them.

There is no federally certified program for IPM pest control applicators. At least one professional organization, QualityPro, does require that its members provide IPM services as part of their pest management approach. Check their website <https://www.npmaqualitypro.org/> for a

**Poison Control
Center:
1-800-222-1222**

QualityPro member near you. This is not an endorsement of this organization; it is mentioned only for your information.

References

CDC (Jun 2012) "Poisoning in the U.S.: Fact Sheet." Accessed 4 December 2012 at <http://www.cdc.gov/HomeandRecreationalSafety/Poisoning/poisoning-factsheet.htm>

EPA (September 2012) "Bed Bug Information" Accessed 4 December 2012 at <http://www.epa.gov/bedbugs/>

"Plant diseases caused by living and non-living factors," http://pestworld.stjohn.hawaii.edu/pat/2012_3-SepDec.pdf (p.13)

Bed Bug Information Clearinghouse

The "Bed Bug Information Clearinghouse" is the US EPA's website that lets you download videos, brochures, posters and other sources of information about identifying and managing bed bugs. All were developed by federal, state or local government agencies, universities, and extension services. Most are in English and few are in Spanish, French, and Chinese.

You can browse the titles by any of three different groupings:

Audience. Your choices are • All audiences • Emergency facilities • Health centers / Hospitals • Hotels • Housing authorities • Landlord • Pest management professional • Retail facilities • Residential consumer • Schools / Childcare • Shelters • Workers entering homes • Travel / Transportation services (airlines, trains, buses).

Topic. Your choices are • Bed bug biology • Detection / Monitoring • Non-chemical control • Management • Pesticides • Prevention.

Type of resource. Your choices are • Articles • Brochures • Checklists • Factsheets • Manuals • Posters • Presentations • Videos • Websites.

Click on any of these groups in the small "Resources" box on the right side under the green banner at: <http://www.epa.gov/opp00001/bedbugs/bedbug-clearinghouse.html>

Download Specimen Labels of Pesticides Licensed for Hawaii

Now you can download specimen labels from the Hawaii Department of Agriculture's website for "LICENSED PESTICIDES". Here's how you can search it by product name:

1. Start at <http://hdoa.hawaii.gov/pi/pest/licensed-pesticides/>
2. Locate the red button containing the word MENU.



3. Directly below that red button, click in the dark band on the **tiny square icon** with four arrows pointing outward.
4. Another webpage will open. At the top right corner above the row of colorful buttons, locate the **flat box**. Type in it as much of the product name as you're sure of. Then press enter.



5. Wait to see a **list of product names** that contain whatever you typed.



6. At the far right under LABELS, find a **link for each product name**. If you don't see it, scroll to the right or widen your web browser.
7. Click on the link of your choice to download a PDF of the label.

Note: Product names for *restricted use* pesticides are spelled in capital letters and are followed by an asterisk (*).

Use the same procedure to search by EPA Registration Number of the product or Company Name of the manufacturer.

Caution! Before you use any pesticide, read and heed the directions in the label on its *container*. They could be different from the directions on a specimen label you download from the *Internet*. Enforcement of pesticide rules is based on your container's label.

MAINTAINING PERSONAL PROTECTIVE EQUIPMENT

(recertification)

Remove your protective clothing and *personal protective equipment* (PPE) right away after you finish handling a pesticide or being exposed to it. Start by using detergent and water to wash the outside of your gloves before you take them off. Then, while still wearing your gloves, wash the outside of your other chemical-resistant items. This practice keeps you from touching the contaminated parts of those items while you are taking them off. If any other clothes have pesticides on them, change them, too. Now determine whether contaminated items should be disposed of or cleaned for reuse.

Disposables

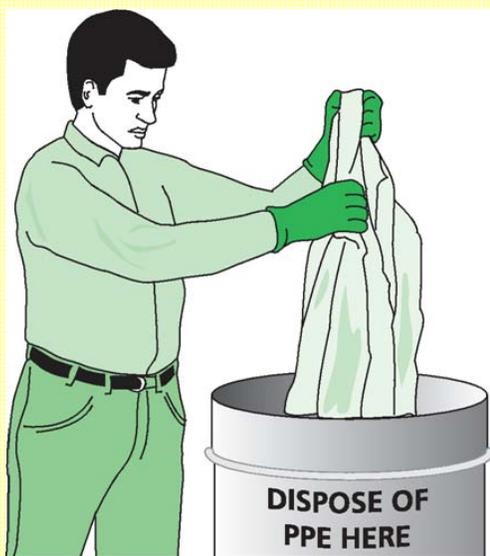
Chemical-resistant gloves, footwear, and aprons labeled as disposable are designed to be worn only once and then thrown away. These items often are made of thin vinyl, latex, or polyethylene. They are not made to be cleaned and reused. Discard them when they become contaminated with pesticides. Put them in a separate plastic bag or container prior to disposal.

Non-woven (including coated non-woven) coveralls and hoods, such as those made of either coated or uncoated Tyvek[®], usually are designed to be disposed of after use. Most are intended to be worn for only one workday. The instructions with some coated non-woven suits and hoods permit the user to wear them more than once if each use period is short and not much pesticide gets on them. Pay close attention when reusing these items. Be ready to change them whenever there are signs pesticides could be getting through the material or contaminating the inside surface.

Dust/mist masks, prefilters, canisters, filtering and vapor-removing cartridges, and a few cartridge respirators are disposables. They cannot be cleaned. Be sure to replace these disposable items often.

Reusables

Some PPE items, such as rubber and plastic suits, gloves, boots, aprons, capes, and headgear, are designed to be cleaned and reused several times.



Discard contaminated PPE in the appropriate container.

However, do not make the mistake of continuing to use these items when they no longer offer adequate protection. Wash the reusable items thoroughly between uses, and inspect them for signs of wear or abrasion. Never wash contaminated gloves, boots, respirators, or other PPE in streams, ponds, or other bodies of water. Check for rips and leaks by using the rinse water to form a “balloon” (i.e., filling the PPE item with water) and/or by holding the items up to the light. Even tiny holes or thin places can allow large quantities of pesticide to penetrate the material and reach your skin. Discard any PPE item that shows sign of wear.

Even if you do not see any signs of wear, replace reusable chemical-resistant items regularly because the ability of a chemical-resistant material to resist the pesticide decreases each time an item is worn. A good rule of thumb is to throw out gloves that have been worn for about 5 to 7 workdays. Extra-heavy-duty gloves, such as those made of butyl or nitrile rubber, may last as long as 10 to 14 days. Glove replacement is a high priority because adequate hand protection greatly reduces the pesticide handler’s chance for exposure. The cost of frequently replacing your gloves is a wise investment. Footwear, aprons, headgear, and protective suits may last longer than gloves because they generally receive less exposure to the pesticides and less abrasion from rough surfaces. Replace them regularly and at any sign of wear. Most protective eyewear and respirator bodies, facepieces, and helmets are designed to be cleaned and reused. These items can last many years if they are of good quality and are maintained correctly.

Laundry fabric coveralls and work clothing after each day’s use. Do not attempt to launder clothing made of cotton, polyester, cotton blends, denim, and canvas if these items are drenched or saturated with concentrated pesticides labeled with the signal word DANGER or WARNING. Always discard any such contaminated clothing or footwear at a household hazardous waste collection site.

Be sure to clean all reusable items between uses, even if they were worn for only a brief period of exposure. Pesticide residues that remain on PPE are likely to penetrate the material. If you wear that PPE again, pesticide may already be on the inside of the material next to your skin. Also, PPE worn several times between launderings may build up pesticide residues to a level that can harm you, even if you are handling pesticides that are not highly toxic. After cleaning reusable items, place them in a plastic bag or clothing hamper away from your ordinary clothes and family laundry.



Jack Kelly Clark, University of California Statewide IPM Program

Always wash pesticide-contaminated items separately from family laundry.

Procedure for Washing Contaminated PPE

1. Wash only a few items at a time so there is plenty of agitation and water for dilution.
2. Wash in a washing machine, using a heavy-duty liquid detergent and hot water for the wash cycle. Set your washer to the longest wash cycle and two rinse cycles.
3. Use two entire machine cycles to wash items that are moderately to heavily contaminated. (If PPE is too contaminated, bundle it in a plastic bag, label the bag, and take it to a household hazardous waste collection site.)
4. Run the washer through at least one additional entire cycle without clothing, using detergent and hot water, to clean the machine before any other laundry is washed.



Jack Kelly Clark, University of California Statewide IPM Program

Clean goggles, face shields, and respirator bodies and facepieces in detergent and hot water.

Washing PPE

Do not wash pesticide-contaminated items with the family laundry. Pesticide residues may be transferred to the other laundry and may harm you or your family. Be sure that the people who clean and maintain your PPE and protective clothing know they could be harmed by touching these pesticide-contaminated items. Instruct them to wear gloves and an apron and work in a well-ventilated area, if possible, and avoid inhaling steam from the washer or dryer.

Follow the manufacturer's instructions for cleaning chemical-resistant items. If the manufacturer instructs you to clean the item but gives no detailed instructions, use detergent and hot water. Heavy-duty boots and rigid hats or helmets can be washed by hand using hot water and a heavy-duty liquid detergent. Gloves, footwear, and coveralls, must be washed twice—once to clean the outside of the item and a second time after turning the item inside out.

To wash garments made of non-chemical-resistant fabrics such as cotton, cotton/polyester, denim, canvas, and other absorbent materials, follow the "Procedure for Washing Contaminated PPE" (at left margin).

Hang the washed items to dry, if possible. It is best to let them hang for at least 24 hours in an area with plenty of fresh air. Even after thorough washing, some items still may contain residues. When the items are exposed to clean air and sunlight, most residues move to the surface of the fabric, evaporate, or break down. You may wish to buy two or more sets of PPE so you can air out one set while wearing the other. Do not hang items in enclosed living areas because pesticide residues that remain in the items may evaporate and expose people or animals in the area. If it is not possible to hang fabric items to dry, a clothes dryer may be used. Over time, however, the dryer may become contaminated with pesticide residues.

Maintaining Eyewear and Respirators

Wash goggles, faceshields, safety glasses, respirator bodies, and facepieces after each day of use. Use a detergent and hot water to wash them thoroughly. Remove any contaminants (such as residual pesticides) under running water with a soft brush. Sanitize them with a sanitizing agent. Dry the items thoroughly or hang them in a clean area to dry.

Pay particular attention to the straps or headbands. Replace any made of absorbent materials with chemical-resistant ones. After each day of use, inspect all headbands for signs of wear or deterioration, and replace them as needed.

Store respirators and eyewear in an area where they are protected from dust, sunlight, extreme temperatures, excessive moisture, and pesticides or other chemicals. A sturdy plastic bag with a zip closure works well for storage. Store the cartridges for a respirator in an airtight bag to conserve their effectiveness.

Respirator maintenance is especially important. Inspect your respirator before each use. Repair or replace any part that shows signs of wear or deterioration. Maintain an inventory of replacement parts for your respirators, and do not use substitutes or incompatible brands. If you keep a respirator for emergency use or as a backup, inspect it at least monthly or as required by any rules.

If you remove your respirator between handling activities, follow these guidelines:

- Wipe the respirator body and facepiece with a clean cloth.
- Replace caps, if available, over cartridges, canisters, and prefilters.
- Seal the respirator (except for any prefilters) in a sturdy, airtight container, such as a plastic bag with a zip closure. If you do not seal the respirator immediately after each use, the disposable parts will have to be replaced more often because cartridges and canisters continue to collect impurities as long as they are exposed to the air. Prefilters, however, do not lose their effectiveness when exposed to the air. Remove contaminated prefilters before placing the canisters and cartridges in a zip-closable plastic bag to avoid contaminating the canisters and cartridges.

At the end of every workday that you wear a *reusable* respirator, be sure to do the following:

- Remove the prefilter. Most should be discarded.
- Disconnect the cartridges or canisters. Discard them or, if they are still usable, replace their caps and seal them in an airtight container, such as a plastic bag with a zip closure.
- Clean and store the respirator as directed above.



Edward Crow, Maryland Department of Agriculture

Keep respirators and cartridges stored in a proper storage bag that has a zip closure.

- Do not store your respirators or other PPE in pesticide storage areas.

Disposable respirators should be discarded according to manufacturer's instructions. Do not try to clean them for reuse.

* * *

SOURCE: This article is a modified version of the text and images in the *National Pesticide Applicator Certification Core Manual*, pp. 98–101, in “Chapter 6 Personal Protective Equipment”, downloaded June 2013 from www.nasda.org/9381/Foundation/11379/11383/6684.aspx.

DILUTING PESTICIDES (recertification)

A *diluent* (say “dill-you-went”) is a substance used to dilute the chemical ingredient which makes a pesticide work. Nearly all pesticide products contain a diluent because manufacturers blend it with the active ingredient before packaging. No further dilution is necessary for using most baits, fumigants, and those granular, pellet, and tablet products labeled for use “as is”. And, it’s practically impossible to dilute flea collars for cats and dogs, ear tags for cattle, and ready-to-use sprays and foggers packaged in permanently sealed and pressurized cans.

However, mixing with an another diluent is a must for the concentrate liquids and powders made to be applied as sprays, drenches, or dips. Before application, these must be mixed with the diluent specified by their labels. Water is the most common, though some labels specify other liquids such as deodorized kerosene, crop oil, or diesel. *If a label specifies a certain substance as a diluent, using any other substance is considered illegal.*

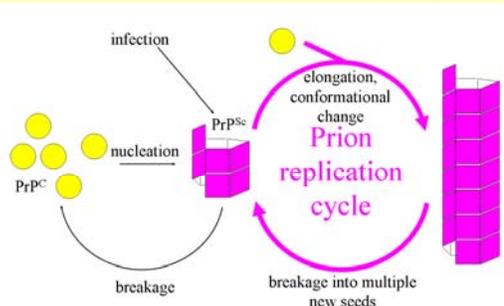
EPA FINAL RULE: PRIONS ARE PESTS

Action. A final rule was published in the Federal Register by the U.S. Environmental Protection Agency (EPA) on February 28, 2013. It formally declared a “prion” to be a pest under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). This ruling allows EPA to regulate as a pesticide any product “intended to reduce the infectivity of any prion on inanimate surfaces (i.e. a “prion-related product”).”

Definitions. Prions are proteins found in cells of the central nervous system of animals. The normal, non-infectious form or shape of a prion protein found in healthy cells is written PrP^c (prion protein common). Prion proteins with abnormal shapes are usually just called prions. They are commonly named by the type of disease they cause. For example, the prion that causes bovine spongiform encephalopathy (mad cow disease) is abbreviated PrP^{Sc}.

Prions and disease. During the disease process prions, such as PrP^{Sc}, change the shape of normal prion proteins (PrP^c) into the infectious form (PrP^{Sc}). This results in a build-up of prions that, when it occurs in the brain cells, is always fatal. These diseases are known as transmissible spongiform encephalopathies. They include: scrapie disease in sheep, bovine spongiform encephalopathy (BSE) in cattle, chronic wasting disease (CWD) in deer and elk, and kuru and variant Creutzfeldt-Jakob Disease (vCJD) in humans. A major concern is that these diseases not only spread among animals, they can also spread from animals to humans. There is no treatment or cure for these diseases.

History of the final rule. EPA declared the prion a pest as early as September 10, 2003. As such, any product sold to inactivate prions, or prion-related products, should be regulated under FIFRA. On January 26, 2011, EPA proposed a rule that would specifically define prions a pest under FIFRA and would amend current rulings accordingly. EPA already requires efficacy data from manufacturers for any pesticide product that purports to control microorganisms posing a threat to human health. Therefore, if a manufacturer of a prion-related product claims it reduces the infectivity of prions on inanimate or environmental surfaces, the manufacturer must supply data supporting the product’s



In this model of prion replication, abnormal prions (PrP^{Sc}) exist as fibers that convert normal prion proteins (PrP^c) to the infectious form. In this process the abnormal protein fiber grows in length, then breaks, multiplying the number of infectious prions in the cell. Image from Wikimedia Commons

The above information is from the **Federal Register** /Vol. 78, No. 40 /Thursday, February 28, 2013 /Rules and Regulations **13501**, 40 CFR Parts 152, 158 and 161 [EPA-HQ-OPP-2010-0427; FRL-9372-7] RIN 2070-AJ26

See <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OPP-2010-0427-0029>

EPA Advances Web-distributed Labeling

EPA published the January 2013 draft of its pesticide registration notice about web-distributed labeling (WDL). The draft gives guidance to pesticide manufacturers about the process for making legally valid versions of pesticide labeling available through the Internet, fax, or the mail. The notice follows the 2011 test of the system for pesticides used for agriculture, professional turf and landscapes, and rights-of-way.

The WDL system should allow users of a specific product to retrieve a streamlined version of its labeling based on the crop or site they select and the state it's located in. It would generate labeling giving basic safety and ingredient information along with state-specific directions for treating the selected crop or site. Information for the other crops or sites would not appear, thus making the WDL label shorter.

The shorter, more relevant labeling should be easier to understand and so improve user compliance with labeling requirements. In turn, there should be better protection of human health and the environment as a result of less unintentional misuse of pesticides. The system should also allow for quicker updates to pesticide labeling, which means that new safety requirements and recently added crops or sites could reach users sooner than under the current paper-based system.

Possible drawbacks to the WDL system are the demand which may be placed on pesticide dealers or others who would provide the retrievable information and lack of Internet access or toll-free access for some users. Another is not having the use directions on the pesticide container. Users would need to take an extra step to get this information and some may find this to be inconvenient. They would have to adjust to take advantage of the system.

EPA's full explanation is at www.epa.gov/pesticides/regulating/labels/distribution/.

REFERENCE: "Pesticide Applicator Input Requested on EPA Web-Distributed Labeling Pilot", January 27, 2011, by Betsy Buffington and Kristine Schaefer, Iowa State University, Department of Entomology. www.extension.iastate.edu/CropNews/2011/0127schaferbuffington.htm

ILLUSTRATED GLOSSARY

Terms from Pesticide Labels (recertification)

COTYLEDONS



Cotyledon stage of a sugar beet plant.

Photograph is Figure 1 on the webpage "Herbicide Injury Symptoms in Sugar beets". Don W. Morishita (University of Idaho) and Robert W. Downard.
<www.uiweb.uidaho.edu/sugarbeet/weed/injury.htm>

Cotyledon stage: a very young plant whose only leaves are parts of the seed it sprouted from.

Example from the label a herbicide for treating sugarbeet fields: *Do not exceed 1.5 pt./acre when sugarbeets are at the **cotyledon stage**.*



Drip line represented by the broken circular line on the ground.

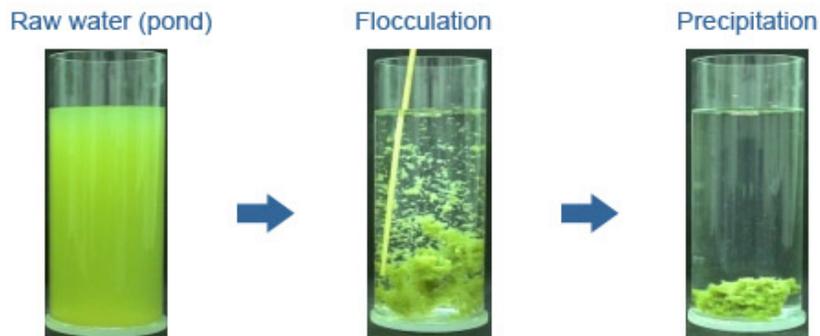
Illustration modified and reproduced with permission of the San Antonio Water System.
<www.saws.org/Conservation/Outdoor/CareGuide/fall/trees.cfm>

Drip line: an imaginary ring on the ground beneath the outermost tips a tree's branches.

Label example: *Soil Injection: CIRCLE SYSTEM: Apply in the holes evenly spaced in circles, (use more than one circle dependent upon the size of the tree) beneath the **drip line** of the tree extending in from that line.*

Flocculation (also aggregation, coagulation): a process where fine particles in a solution are caused to group together, forming “flocs,” or clumps.

Label example: . . . *it is recommended that users premix a small quantity of a desired tank mix and observe for possible adverse changes (settling out, flocculation, etc.).*



Flocculation has a number of uses, such as purifying water. In mixing pesticides, flocculation is a sign that the mixture is incompatible. Photo courtesy of geo.byu@gmail.com

Protective eyewear: Goggles, faceshield, or safety glasses.

Label example: *Mixers, loaders, applicators, cleaners, repairers of application equipment, and others exposed to the concentrate must wear:* • Long-sleeved shirts and long pants. • Chemical-resistant gloves, such as the barrier laminate or butyl rubber. • Socks and chemical resistant footwear. • **Protective eyewear.** • Chemical resistant apron. • Respirator with either an organic vapor-removing cartridge...



FACESHIELD



GOGGLES



SAFETY GLASSES

Pictures from the Oregon OSHA booklet “Pesticide use and your personal protective equipment (PPE)” March 2011. <<http://www.orosha.org/pdf/pubs/1018.pdf>>

The definitions in this glossary are intended to help understand the terms used on pesticide labels. Other definitions may be available for these terms.

The Pesticide Label

January – March 2013

PREVIOUS RECERTIFICATION ARTICLES

September–December 2012—Pesticide Decisions: Preapplication Checklist (p. 2), Plant Diseases Caused by Living and Non-living Factors (p. 13), Illustrated Glossary (p. 18)

April–August 2012—Pesticides, EPA, and the Endangered Species Act (p. 2), Pesticide Decisions: Safety Checklist (p. 7), Choosing Pesticides for Greenhouses and Nurseries (p. 12), Illustrated Glossary (p. 15)

January–March 2012—Pheromones (p. 3), Using Indicator Dyes (p. 12), Activated Charcoal (p. 15), Glossary (p. 19)

October–December 2011—Sprayer Cleaning and Maintenance (p. 2), Chemical Storage and Disasters (p. 7)

September 2011—The 3 C's of Spills (p. 10), Heat vs Pesticide Illness (p. 15)

April–August 2011—Pesticide Failure? (p. 10), Biopesticides vs. CBB (p. 14)

January–March 2011—Integrated Pest Management (p. 2), Invasive Alien Birds (p. 9)

October–December 2010—EPCRA: Right to Know (p. 3), Hose Inspection (p. 8), Combining Pesticides (p. 13)

July–September 2010—Updated WPS Guide (p. 5), Pesticide Fate (p. 7)

April–June 2010—EPA Misinterprets Clean Water Act (p. 2), What is the FQPA? (p. 4)

Archived issues of “The Pesticide Label” available for free download at

http://pestworld.stjohn.hawaii.edu/pat/Newsletter_main.html

This newsletter is published by the Extension Pesticide Programs. For information on pesticide programs, please contact:

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