### REGULATORY UPDATES

#### New Special Local Needs Registration

For managers of **natural areas** (such as wildlife management areas, wildlife openings, and wildlife habitats)—use of the pesticide **Milestone®** (Dow AgroSciences; EPA Reg. No. 62719-519)—requires having a copy of **HI-120003**, valid 7/13/2012–7/12/2017—some notes:

- Allows only “hack & squirt” application, a.k.a., incision point application (IPA).
- Allows application of undiluted product.
- Specifies the maximum application rate.

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**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.

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**RECORDKEEPING FOR RESTRICTED USE PESTICIDES**

*(recertification)*

This article is a guide to the Hawaii Department of Agriculture’s 2006 rules for making and keeping records of applications of restricted use pesticides in Hawaii. It does not cover recordkeeping that could be required by an employer’s policy or directions, a contract for a pest control service, the labeling for a specific pesticide product, or a government-issued permit.

**Restricted Use Pesticides**

There are two kinds of restricted use pesticides in Hawaii:

- Federal restricted use pesticides—These products have labels that bear a restricted use pesticide statement in a box near the top of the label’s front panel. (See Figure 1 shown at left.)

- State restricted use pesticides—These products have labels without the restricted use pesticide statement, but dealers who sell these pesticides can identify them.

Anyone who wants to buy, use, or supervise the use of a restricted use pesticide in Hawaii must be certified by the Hawaii Department of Agriculture as a private applicator or a commercial applicator.

Certain chloropicrin products are sold as warning agents for use with a restricted use fumigant pesticide during a structural fumigation job. Because these warning agents are also classified as restricted use pesticides, applicators conducting these kinds of jobs in Hawaii must apply the Hawaii recordkeeping rules to each use of the chloropicrin product.

**Responsible Persons**

As a Hawaii-certified applicator, you are responsible for making and keeping a record for each application (in Hawaii) of a restricted use pes-
The Pesticide Label

Maintaining Records
You must maintain each record for two years at the principle place of business.

Inspection of Records
The Hawaii Department of Agriculture’s pesticides inspectors may request and inspect your records during reasonable working hours. They must show you their government identification card at the start of the inspection.

Recording Information
The Hawaii rules do not require you to use any specific form. You may record and keep information on paper, computer, or other media.

Computer programs for recordkeeping are available. They can be useful for managing large numbers of records. However, use caution when choosing a recordkeeping program. If it was made for another state or for other purposes, it may not lead you to record all of the required information.

Information to Record
Both private and commercial applicators must make a record for each application of any restricted use pesticide. The record must include the following items.

1. **Brand name or common name of pesticide product.**
   
   Search your pesticide’s label for this information. The brand name is the name of the product. It’s printed in big bold letters near the top of the label’s front panel.

   **Examples:**
   - Diazinon 4E Sprayable Insecticide
     
     This is an example of a brand name.
   - Diazinon
     
     This is an example of a common name.

2. **EPA registration number of pesticide product**
   
   Search your pesticide’s label for the *EPA Registration Number* or *EPA Reg. No.* It’s usually located just below the list of ingredients which is on the label’s front panel.
Examples:
- 4-678
- 123-9876
- 456-9867-123

3. Type of formulation of pesticide product

Identify the formulation when you use the product, or search your pesticide’s label for this information. Abbreviations for the formulation such as E, WP, or WDG may be part of the brand name, as in “Diazinon 4E Sprayable Insecticide.”

Examples:
- Powder
- Wettable powder (W or WP)
- Water-soluble powder
- Liquid
- Emulsifiable concentrate (E or EC)
- Flowable (F)
- Aqueous suspension
- Water-soluble liquid
- Liquefied gas
- Gel
- Granular (G)
- Water-dispersible granules (WDG)
- Dry flowable (DF)
- Pellets
- Tablets
- Bait blocks

Sometimes you can determine the formulation by studying the product’s material safety data sheet (MSDS). Look through the MSDS for the “appearance” of the product as described in section 2 Hazards Identification, or section 9 Physical and Chemical Properties.

4. Per cent active ingredient of pesticide product

Search your pesticide’s label for this information. It’s in the ingredients list which is on the front panel. If a product contains two or more active ingredients, record each percentage.

Examples:
- Mevinphos 23%
- 1,3-dichloropropene 60.8% + chloropicrin 33.3%
5. **Scientific or common name of target pest**

    **EXAMPLES:**
    - *Cyperus rotundus*
      
      This is an example of a scientific name.
    - *Purple nutsedge*
    - *Drywood termite*
    - *Burrowing nematode*
    - *Slugs*
    - *Black rat*

6. **Dilution rate**

    **EXAMPLES:**
    - 1½ cups per 20 gallons water
    - 1 fluid ounce per 1 gallon diesel/water mix
    - 1.25 pounds per 42 gallons water
    - 1% mixture with water
    - Not diluted

7. **Total amount of pesticide product used**

    **EXAMPLES:**
    - 5 fluid ounces
    - 1½ cups
    - 12.3 pounds
    - 2 packets (2 oz.)
    - 13 tubes (13 grams)

8. **Total area covered**

    **EXAMPLES:**
    - 2,350 square feet
    - 1.375 acres
    - 36,415 cubic feet
    - 98 linear feet

9. **Time and date of application**

    For the time of application, record the time you finished the treatment.

10. **Address or location of treated site**

    Record enough detail so that you could point out the treated site to an inspector two years later. If the location could be confused with nearby sites treated at different times, give distinguish-
ing details in a note, sketch, map, GPS coordinates, or some combination of these.

**EXAMPLES:**
- Residence at 12-345 Puakea Rd. Kaneohe 96744
- Greenhouse #4 benches 1-9
- Pasture between Quarry Rd & Hwy 120

11. **Name and certification number of certified applicator**

   The certification number appears on the wallet-sized card that you get from the Hawaii Department of Agriculture when you become a certified applicator.

12. **Crop, commodity, stored product, or other site treated**

    **EXAMPLES:**
    - Banana orchard
    - Poinsettias
    - Grass seed
    - Utility pole
    - Pasture
    - Ditchbank
    - Animal cages
    - Sewer line

13a. **Restricted entry interval**

   Search your pesticide’s labeling for this information. Here are five types of pesticide treatments and examples of restricted entry intervals:

   (1) If the product is for **fumigating enclosed structures or commodities**, look for a specific “ppm” of the remaining fumigant gas or a specific number of hours of ventilation, or a combination of both.

      **EXAMPLE:** 3 ppm or less, after 6 hours ventilated with fans

      This example is based on several statements on a label of pesticide for fumigating buildings to control termites.

   (2) If the product is for **fumigating soil** (in the field), find the number of hours or days listed as the entry restricted period.

      **EXAMPLE:** 5 days after application (untarped) completed

      This example is from a portion of the agricultural use requirements box on the label of a soil fumigant pesticide (See Figure 2 shown at left.)
(3) If the product is used for treating agricultural plants in a greenhouse, look for a number of hours or “air exchanges” in the box of statements beginning with the phrase AGRICULTURAL USE REQUIREMENTS or in the instructions for the specific crop plant.

**Examples**

The following three examples are based on the label of a fungicide that can be used for drenching the planting soil in a greenhouse. (See Figure 3 shown at left.)

- **10 air exchanges (30 minutes) + 11.5 hours**
  
  For this example, suppose that the greenhouse is vented after the treatment by allowing 30 minutes (0.5 hour) for 10 air exchanges to occur. Since the label says that the REI is 12 hours, an additional 11.5 hours must pass before the REI expires. (See Figure 3 shown at left.)

- **4 hours passive ventilation + 8 hours**
  
  For this example, suppose that the greenhouse is vented after the treatment by allowing 4 hours of passive ventilation to occur. Since the label says that the REI is 12 hours, an additional 8 hours must pass before the REI expires. (See Figure 3 shown at left.)

- **24 hours no ventilation**
  
  For this example, suppose that  the greenhouse is not vented after the treatment. Since the label says that the REI is 12 hours, no additional time must pass before the REI expires. (See Figure 3 shown at left.)

(4) If the product is used for treating agricultural plants on a farm, forest, or nursery, look for some number of hours or days either in the box of statements beginning with the phrase AGRICULTURAL USE REQUIREMENTS or in the instructions for the specific crop plant.

**Examples**

- **12 hours**
  
  This example is based on a statement on the label of a pesticide for outdoor use in an agricultural field: “Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.”

- **5 days**
  
  This example is based on a statement on the label for a different pesticide that is also for outdoor use in an agricultural field: “Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 5 days in areas where average rainfall is less than 25 inches per year, and 4 days where average annual rainfall is equal to or greater than 25 inches per year.”

(5) If the product is for treating outdoor sites that are not for agriculture, read carefully for something like “…until spray
has dried’ or ‘…until the dust has settled’. You can sometimes find these kind of waiting periods in a box of statements beginning with the phrase NON-AGRICULTURAL USE REQUIREMENTS. (See Figure 4 shown at left.)

**Example:** Until spray dried

This example is based on a statement on the label of a herbicide for use on a golf course: “Do not allow people or pets to enter treated areas until sprays have dried.”

13b. Whether posting and oral notification are required

Review your pesticide's label to understand what is required.

**Examples**
- No
- Yes

Record “Yes” if the product’s labeling has a statement like this:

*Notify workers of the application by warning them orally and by posting warning signs at entrances to treated areas.*

Notice the word “and” in this statement. It means that you would be required to do two things: warn the workers orally (by talking to them) and post warning signs. This kind of statement is called a double-notification requirement.

14. Any other information that the head of the Hawaii Department of Agriculture deems to be necessary

The head of the Hawaii Department of Agriculture did not require any other information, as a November 30, 2012.

PESTICIDE DECISIONS: PREAPPLICATION CHECKLIST

(recertification)

This article is a continuation of, “Pesticide Decisions: Safety Checklist,” in the previous issue of The Pesticide Label.

You have important decisions to make as you select a pesticide product, whether it’s to be used by people you supervise or only by you. Choosing the wrong product can lead to wasting time and money, failing to control the pest, or injuring or damaging the very plant, animal, object, or site you’re trying to protect. It can result in harm to people or domestic animals, or serious contamination of air, soil, or water. From a regulatory or legal point of view, improper use of the product can result in warning notices, fines, or legal action.

The starting point for dealing with a pest problem is identifying the pest. Find an expert who can help you if you need it. Then learn as much as you can about the pest’s habits, life cycle, and things that keep its population in check. Decide on a pest management strategy. Do you want to eradicate it, reduce its population to a level you can tolerate, or prevent it from causing the same problem again? If you need a pesticide treatment to carry out your strategy, choose only a product labeled with instructions for applying it to the site, objects, animals, or plants you intend to treat. If there is more than one product that can do the job, decide which offers the best combination of safety, effectiveness, and efficiency in your situation. Start by comparing their formulations and the application procedures legally allowed by their labels. (Use the following checklist of important factors you should consider.)

Formulations

In general, each formulation has advantages and disadvantages. Consider the following when deciding which formulation best fits your needs.

- **Application site**: Emulsifiable concentrates can damage surfaces and harm plants and animals; dusts and powders can leave residues; and fumigants are dangerous to many living organisms in the treated...
area. Wettable powders will leave more visible residue on nonporous surfaces than oil-based pesticides.

- **Application and safety equipment**: Make sure you have the equipment and supplies to go with the formulation you choose. Be sure they are in working order and good condition.

- **Pesticide movement**: If runoff is likely, consider using a dry formulation such as pellets or granules; if drift is a potential problem, avoid dusts, high-pressure sprays, aerosols, and ultra-low-volume formulations. To reduce drift, consider granular or pellet formulations, low-pressure spraying with coarse droplets, or adding to the tank mix an adjuvant for making spray droplets bigger.

- **Personal safety**: Emulsifiable concentrates, fumigants, and ultra-low-volume concentrates are especially hazardous to people and other animals. Some adjuvants, such as penetrants, stickers, and spreaders, can also be harmful.

- **Target pest**: Control of the pest may depend on covering each individual pest with spray or dust. By contrast, it may be enough to place baits in several locations or inject a small amount of pesticide into cracks and crevices where some pests (like cockroaches) stay during the day.

- **Surface characteristics**: Some pesticide formulations are more effective on certain surfaces. Granules, for example, are better on flat surfaces than on small leaves or slanted surfaces where they are apt to bounce off or be blown away.

- **Cost**: Concentrates are usually less expensive (per pound of active ingredient) and are less bulky to handle and store. But they must be diluted before use (a risk to the user because of the handling involved) and are highly-concentrated (another risk). Ready-to-use pesticides, however, are relatively low-concentrate products that do not need to be mixed.

### Application methods

In general, consider factors at the site that might influence the pesticide’s effectiveness or cause harm to the applicator, other people, or the environment.

- **Treating spaces**: Applying a dust or fog outdoors means than non-target plants and animals will be exposed if they are downwind. If fumigating or fogging enclosed spaces such as a field of soil covered with plastic sheeting, a single room, or an entire building, sealing openings is necessary for both effectiveness and safety. For ex-
ample, to confine a fumigant gas under the sheeting or inside the structure, extraordinary procedures must be carried out before, during, and after applying the fumigant.

- **Soil surfaces:** Organic material in the soil can bind pesticides and limit their effectiveness. So can fine-textured soils such as silts and clays. The label may allow higher application rates under these conditions.

- **Plant surfaces:** For good contact between a pesticide and the plant surface, remember that pesticides tend to run off of narrow, upright leaves, but stay on broad leaves longer. Even the surface of treated leaf can make a difference. A thick waxy surface layer, for example, can keep pesticides from entering the plant and promote runoff. Dense hairs, too, can reduce the chemical’s effectiveness by suspending pesticide spray droplets above the leaf surface.

- **Other surfaces:** Porous surfaces absorb liquid or gas, leading to saturation of the target, but with liquids coverage may be uneven. Upright or slanted surfaces promote runoff. Clean surfaces (e.g., soil surface free of crop residues; plant leaves free of dust; and window sills free of grease and dust) usually promote effectiveness.

- **Surface moisture:** Moderate surface moisture usually enhances herbicide effectiveness.

- **Temperature, sunlight, and humidity:** Extremes can decrease pesticide efficacy. In Hawaii, high temperatures and direct sunlight may cause pesticides to break down early. High temperatures and low humidity can cause pesticides to vaporize and drift into nontarget areas.

- **Rain or irrigation water:** Rain or thorough watering may be needed to wash a pesticide into the soil, or to activate a granular product. However, most pesticides should not be applied just before watering or rain.

- **Air movement:** Too much wind can blow a pesticide off target, resulting in poor pest control and possible drift problems. It may be helpful to turn off ventilation systems during indoor applications.

### Scheduling pesticide applications

You are responsible for assessing local conditions before applying a pesticide and for taking any necessary precautions.

- Applying pesticides during off-hours, such as during the early morning or at night, has some advantages. People other than handlers are less likely to be nearby. It will probably be cooler, thus
reducing problems from pesticide vaporization or heat stress among the handlers. The wind is likely to be low and the need for indoor ventilation may be reduced. If handlers are working during off-hours, check on them often.

□ **Waiting periods.** For many pesticides, labels say how long to keep people or pets out of treated areas. This period of time can be a specific number of hours or days, or it can be a general statement like, “Do not allow people or pets to enter treated areas until sprays have dried.” If the pesticide is labeled for fumigating soil or structures, the label will say what is the maximum concentration (in *parts per million* or *ppm*) of the fumigant gas remaining at the time that people are allowed to enter the treated area. If the pesticide is labeled for treating agricultural crops, livestock, or pastures, its label will specify how many hours or days must pass before the crop can be harvested, the animal can be slaughtered, or the pasture can be grazed.

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**On-line seminar: Mini Bulk/IBC Container Compliance and Recycling**

On the Internet, January 23, 2013, 6:00–7:00 AM (Hawaii time), there will be a 60-minute seminar titled *Mini Bulk/IBC Container Compliance and Recycling: Best Practices from TPSA*.

TPSA stands for “The Pesticide Stewardship Alliance”. There are pictures and brief explanations of “mini bulk” and an “IBC” at:

tpsalliance.org/index.php?id=177

To watch this webinar, you must register on-line. The registration link and announcement are at:

http://www.croplife.com/webinars
INSECT REPELLENT LABELING SURVEY

In 2011, the U.S. Environmental Protection Agency’s Office of Pesticide Programs (OPP) conducted a national online survey about insect repellent labeling. The survey asked consumers what they wanted in a repellent and what could be done to improve product labeling. The OPP also wanted to know consumer preferences among several marks (graphics) that would quickly indicate the effectiveness of the repellent.

General results

- The overall results indicated that 71% of the consumers surveyed looked at the label when shopping for a repellent.
- The information they wanted from the label included the type of insects repelled, active ingredients, safety warnings, and the hours of protection (efficacy).
- The two main reasons for purchasing a repellent were to avoid the discomfort of insect bites and for protection against vector-borne diseases.
- The most common reasons for not using the repellent were forgetfulness, staying outside for only a short period, and not liking the smell and greasy feel of the repellent.

Label graphics results

- The survey participants were asked to consider four different graphic designs: Circle, Bugs, Square, and RF (see left sidebar).
- The meaning was clear for the Circle, Bugs, and the Square; they were confused by the RF (Repellent Factor) graphic.
- The Circle was the most favored both in overall appeal and in helpfulness. It was the graphic consumers said they would most likely look for and consider when purchasing a repellent.
- The Bugs graphic was the consumers’ second choice while the RF graphic was rated the lowest.
Conclusions and implications

- The survey results suggested the usefulness of adding efficacy marks (graphics) to insect repellent labels. They will help consumers quickly determine the number of hours a product will repel mosquitoes and ticks.

- An efficacy graphic on the label may remind some users when they must reapply the product.

- Information on the efficacy of a product may help consumers decide which product is best in different situations (e.g., use of different products for short- or long-term exposure to mosquitoes or ticks).

References
This article is based on the EPA website, “Pesticides: Health and Safety,” 25 April 2012 at http://www.epa.gov/pesticides/insect/repellent-consumer-survey.html#label
PLANT DISEASES CAUSED BY LIVING AND NONLIVING FACTORS

(recertification)

People sometimes apply pesticides to protect plants without knowing what’s causing the problem. This can be a waste of time and money because a pesticide can kill or repel only living things and many plant problems can be caused by nonliving agents. Therefore, do not apply pesticides if the cause of the problem is a nonliving agent. This article will help you determine the difference between living and nonliving causes of plant problems.

First, identify the problem

How do you decide if your plants have a problem? The first step is to identify the plant. Then determine what a normal, healthy plant of the same species or variety looks like and the way it grows. Next, look for unusual appearances or plant growth habits. An abnormal appearance may be the plant’s response to an irritant, an insect or fungus for example. This response is a symptom of the problem, not the cause. Wilting is a symptom, but the cause could be a lack of rainfall or a root rot fungus.

If the cause of the problem is a living organism and its presence can be seen, this is called a sign. The white thread-like parts of a fungus (mycelium), or an insect or its droppings, are signs. Nonliving causes, like flooding or nutrient deficiencies, do not leave a sign on the plant. The next step is to check reliable references (see photo left) to see what problems commonly occur on this plant. Try to match the signs or symptoms on your plant with pictures or descriptions of pests or diseases known to occur on this plant in your area.

Living causes of plant problems

Some living causes include fungi, bacteria, and nematodes. They cause infectious diseases and can move within the plant and from plant to plant. Other living causes, however, damage plants but are not infectious. These causes include insects, mites, slugs and snails, rodents, other plants, and humans. Many living organisms leave signs or symptoms that can be used to identify them. (Note: viruses are infectious, but may or may not be living. Currently, there are no pesticides to control plant viruses.)
Nonliving factors that cause plant problems

Nonliving factors cause noninfectious diseases, or disorders. Symptoms are usually present but not signs. Nonliving factors include extremes in air temperature, light, moisture, and wind. Natural or synthetic chemicals can also cause plant disorders. For example, if plants lack iron their leaves turn yellow (chlorotic) with distinct green veins (see photo). Plants that lack nitrogen grow slowly and their leaves become pale green or yellow, starting with the lower, older leaves. Excess levels of natural or synthetic chemicals cause symptoms of phytotoxicity.

Phytotoxicity describes injury to a plant by substances such as pesticides, fertilizers, spilled chemicals, cooking gas (leaking from pipe), toxins released from leaves or roots of other plants nearby, or small amounts of certain metals. Pesticides, for example, can cause phytotoxicity in a number of ways:

- Plant species or variety is sensitive to (cannot tolerate) the pesticide product.
- Treatment dosage was excessive.
- Spray mixture was too concentrated (not diluted enough).
- Spray mixture made with two or more chemicals that were poorly blended.
- Spray mixture was made of two or more chemicals that are not compatible with each other.
- Treatment was made too soon before or after a separate treatment with a different chemical that is incompatible with the pesticide product.
- Treatment was made when the plant was immature or in some other incompatible stage of plant growth.
- Treatment was made during adverse weather conditions, such as high air temperature and humidity.
- Treatment was made to plant weakened by a stress, such as infection, insect damage, lack of water.

**Apply pesticides only for living causal agents**

If you decide the problem is caused by a nonliving agent, do not apply a pesticide. If it is a living agent, get a reliable identification before selecting and applying an appropriate pesticide.

* * *
The world market for pesticide products is projected to reach $57 billion in 2016. Part of this growth is related to the current increase in resistant pest populations. Manufacturers are producing more expensive mixtures of pesticides to combat pest resistance, while increasing the safety of their products. This article is based on summaries of a report on the world agricultural pesticides market, available through http://academic.reportlinker.com/.

**Herbicides.** Herbicides are used in most cropping systems and lead all types of pesticide in sales. Their use has increased dramatically in the last 10 to 15 years, mainly due to the introduction of herbicide-resistant crops. Roundup Ready® crops have produced high yields of soybeans, alfalfa, corn, cotton, and canola in conventional and no-till farming systems. However, the use of a single active ingredient, glyphosate (e.g., Roundup®), has led to an increase in weed resistance. The result has been greater sales as growers either use more herbicide, or buy formulations with active ingredients that have different modes of action.

**Fungicides.** Synthetic fungicides have been used in developed countries for decades to combat plant diseases. In some developing areas of the world, however, more traditional products like sulfur and copper are still relied on. People in these areas need higher yields, however, and crops such as rice require the extra protection provided by modern fungicides. In the coming years, growers in these areas, as well as growers of high-value crops everywhere, are expected to drive the market in the newer fungicide products.

New fungicide products and a growing market in developing countries are expected to provide increased sales by 2016. Photo courtesy of H.F. Schwartz, Bugwood.com
Insecticides. A number of factors will affect insecticide sales in the coming years. Corn, cotton, and other crops have been genetically engineered to contain a gene from *Bacillus thuringiensis* (Bt). As with herbicide-resistant crops, however, insect populations become resistant to Bt when they continuously feed on these crops. This resistance will require the additional application of Bt or other insecticides. Warmer weather generally stimulates the growth of insect populations. Predictions of increasing temperatures in the future may also increase the need for insecticides. There is a counterbalance to these potential increases. Public concern over health and environmental risk is changing the type and amount of insecticides used. The use of organophosphate and carbamate products is slowly being replaced by other chemical less toxic to humans. These include the neonicotinoids, which are now being studied for their possible role in colony collapse disorder of honeybees. Finally, integrated pest management urges the use of non-chemical methods to reduce the use of insecticides, or to make them more effective.

This article is based on a report available at [http://academic.reportlinker.com/](http://academic.reportlinker.com/) We based our article on summaries by PRNewswire, 10 September 2012 [http://www.prnewswire.com](http://www.prnewswire.com), and “Chemically Speaking,” 20 September 2012 [http://pested.ifas.ufl.edu/newsletter.html](http://pested.ifas.ufl.edu/newsletter.html)
ILLUSTRATED GLOSSARY
Terms from Pesticide Labels
(Recertification)

**Bait station:** A small durable covered container built specifically for making poisonous bait available only to pest animals.

Label example: *Apply bait in locations out of reach of children, pets, domestic animals and non-target wildlife, or in tamper-resistant bait stations.*

**Estuary:** A partially enclosed body of water along the coast where freshwater from rivers and streams meets and mixes with salt water from the ocean.

Example: *For ground boom applications, do not apply within 25 feet of the rivers, and natural ponds, lakes, streams, reservoirs, marshes, estuaries, and commercial fish ponds.*
Rodding: The application of a pesticide through a hollow rod inserted either horizontally or vertically into the substrate (e.g., soil).

Label example: *All pesticide handlers must wear protective eyewear when working in a non-ventilated space or when applying termiticide by rodging* . . . .

**Seed treatment:** In agriculture, a seed treatment or seed dressing is a chemical, typically antimicrobial or fungicidal, with which seeds are treated (or “dressed”) prior to planting.

Label example: *Seed treatments and professional applications to golf courses, industrial (office park), and municipal lawns are not within the scope of the Worker Protection Standard.*

**Flat fan nozzle, regular flat fan nozzle:** A nozzle that forms a fan-shaped spray pattern which tapers off at each end; deposits more spray droplets at the center; and normally is used at pressures of 30–60 pounds per square inch.

*Label example: Use a low-pressure sprayer equipped with flat fan nozzles.*
PREVIOUS RECERTIFICATION ARTICLES


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)

January–March 2010—House Mouse (p. 2), Gloves (p. 6), Supervising Noncertified Applicators (p. 12), A Sea Change on Inerts (p. 17)

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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