

The Pesticide Label

Key to Pesticide Safety and Education

May–July 2005

Department of Plant and Environmental Protection Sciences

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Staff's Notes

You could help yourself and other certified applicators in your organization earn **recertification credit** by organizing a pesticide-related demonstration, lecture, seminar, or correspondence course. Your organization may be a formal one, such as a government agency or a business association. It could also be an informal group of people who know each other because they do similar work in the same location. As the organizer, you would complete and submit an application to the Pesticides Branch of the Hawaii Department of Agriculture (HDOA) prior to the presentation. The presentation must cover topics about safe and effective use of pesticides. You would get the presenter's presentation outline and qualifications and attach them to the application. During and after the presentation, you would also be responsible for verifying certified applicators' attendance and submitting some form of the verification to HDOA. For details, request guidelines for obtaining recertification credit from an HDOA pesticide *education specialist* at one of these locations: Oahu 973-9409 or 973-9424, Maui 873-3960, Hawaii 974-4143. The area code for all offices is 808.

Aloha,

Charles Nagamine, Instructor
Pesticide Risk Reduction Education Program

THIS NEWSLETTER IS SUPPORTED IN PART BY THE STATE OF HAWAII DEPARTMENT OF AGRICULTURE.

Hydrated Lime for Coqui and Greenhouse Frog Control

April 27, 2005, Honolulu

Required Forms and Labeling (Instructions) on the Internet

The following are available at www.hawaiiag.org/hdoa/pi_pest_forms.htm.

- Label Instructions for Use of Calcium Hydroxide (Hydrated Lime)
- Applicator Authorization Form (Form P-54-1)—Individuals wishing to use hydrated lime to control coqui frog infestations must complete this form and submit it to the dealer where you purchase the hydrated lime. To list additional treatment site, use Form P-54-1a.
- Sales Recordkeeping Form (Form P-37-1)—Dealers must use this form to record sales of hydrated lime. (Print in landscape format)

Ammonium is a solid compound formed of nitrogen and hydrogen. In nature, low concentrations are slowly released into soil as organic matter rots. Ammonium is also found in more concentrated forms in most fertilizers. To identify an ammonium component in your fertilizer, check the label of the fertilizer container for any of these:

- ammonium chloride
- ammonium nitrate
- ammonium sulfate
- ammonium thiosulfate

The U.S. Environmental Protection Agency (EPA) yesterday approved an emergency exemption requested by the Hawaii Department of Agriculture (HDOA) to allow the use of *calcium hydroxide* [CA(OH)₂], commonly known as *hydrated lime*, to control coqui and greenhouse frog infestations in Hawaii. This exemption allows nurseries, property owners and government agencies to use hydrated lime in *outdoor nurseries, residential areas, resorts and hotels, parks, forest habitats and natural areas* to control the coqui and their slightly quieter cousins, the greenhouse frogs. Citric acid was already on a list of exempted chemicals that could be used for pest control; however, citric acid is roughly 10 times more expensive to use than hydrated lime and the cost factor has been restrictive for many nurseries and property owners.

“Obtaining this exemption from EPA to use hydrated lime is a major development in the fight against coqui infestations,” said Sandra Lee Kunitomo, Chairperson of the Hawaii Board of Agriculture. “This product is as effective as citric acid, but much cheaper and readily available as it is commonly used by farmers and home gardeners to enrich the soil.”

The exemption by EPA expires in three years, during which time HDOA is required to prepare yearly interim reports and a final report summarizing the results of the use of hydrated lime. EPA indicated that this is the first time that anyone has sought the use of hydrated lime for such purpose under the emergency program section of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

EPA allows treatment using a 97 percent powder formulation of hydrated lime as a dust or in a three percent solution for spraying. In granting the exemption, EPA requires that HDOA create a product label detailing the conditions under which hydrated lime may be used, which include the following:

- Not be applied to food crops;
- A precautionary statement that it is harmful if swallowed;
- Not be used in areas that were recently treated with ammonium-containing fertilizers, which may react with the lime and release ammonia.
- Not be applied to areas where children play or congregate;
- Not be applied to trees to avoid the potential for subsequent dripping of the chemical on people or property, such as automobiles;
- Applicators must wear protective clothing, chemical-resistant gloves and protective eyewear and approved respirators;
- For non-agricultural uses, such as around homes, persons other than the applicator are prohibited from entering the treated area until the spray has dried.

Those wishing to use hydrated lime for coqui control will be required to submit to the dealer selling the product an “Applicator Authorization Form,” which may be obtained from the dealer or from HDOA’s Pesticides Branch. Although the form is required, applicators are not required to be certified by HDOA. The application will also be available on the department’s website at www.hawaiiag.org/hdoa/.

HDOA reminds the public to follow all label directions when using any pesticide and to be careful to minimize exposure to themselves, their families and neighbors.

For information on how to safely use pesticides, call the HDOA office on your island: Oahu 973-9401, Big Island 974-4140, Maui County 873-3555, Kauai 274-3069

Source: The text of this article first appeared in a news release by the Hawaii Department of Agriculture: April 27, 2005, NR05-07 "Hawaii Department of Agriculture obtains approval from EPA to use hydrated lime to combat coqui frogs." www.hawaiiag.org/hdoa/newsrelease/05-07.htm.

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Counterfeit Pesticide Products for Dogs and Cats



EPA issued a consumer advisory about illegally-imported, repackaged, counterfeit flea & tick products for dogs and cats. It's posted in question-and-answer style at www.epa.gov/pesticides/factsheets/petproduct.htm. Here are the first two parts:

1. **What action is EPA announcing?** EPA, in cooperation with its state and regional regulatory partners, is announcing the issuance of **stop sale, use, and removal orders** to retailers and other distributors of certain counterfeit pesticide products for control of fleas and ticks on dogs and cats. The stop sale, use, and removal orders are intended to disrupt an effort to distribute counterfeit pet pesticides. The counterfeit pesticides appear to have been unlawfully imported and were packaged in cartons designed to look like legitimately registered pesticides available in the U.S. under the trade names "Advantage" and "Frontline." The orders prohibit retailers and other distributors from distributing or selling the counterfeit pesticide products and require their proper disposal.
2. **Why is EPA taking this action?** EPA is responsible for assuring that all pesticides sold in the United States do not cause adverse effects under EPA-approved label use conditions. The counterfeiters have placed foreign-labeled applicator package inserts in counterfeited Advantage[®] and Frontline[®] retail cartons printed to resemble the U.S. -registered products. Frontline[®] products, among other things, may be missing instruction leaflets bearing directions for use required under U.S. law. Further, the Frontline[®] applicators may not be in the required child-resistant packaging. In addition to the inadequate labeling and packaging, consumers cannot be assured that the counterfeiters inserted the appropriate size applicator for the animal pictured or otherwise indicated on the retail carton of either the Advantage[®] or Frontline[®] products. So, use of the counterfeit products may put the treated pet at risk.

The advisory also gives answers to these questions:

3. Are all of the Frontline and Advantage brands of pesticides counterfeit?
4. What products are affected by this action?
5. How can I determine if I have purchased the legitimate products?
6. Is there a penalty for purchasing the counterfeit products?
7. I discovered that a dog product was contained in a package intended for use on cats. Will my cat be harmed if I apply the product to it?

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8. How should I dispose of a counterfeit product?
9. Who should I contact if I discover the counterfeit products in a store?
10. Who can I contact if I suspect that my pet has been harmed by one of these counterfeit products?
11. Will EPA's action mean that these counterfeit products will no longer be available?

* * *

Update on CCA-Treated Wood in Playground Equipment and Decks

Wood Preservatives

CCA, copper–chromium–arsenic) wood preservatives are only one type of wood preservative. Others are:

- ACC, acid copper chromate
- ACQ, alkaline copper quat
- CC, ammoniacal copper citrate
- CBA-A or CA-B, Copper azole
- CDDC, copper dimethyldithiocarbamate

More information about these may be viewed at the U.S. Department of Agriculture's Forest Products Laboratory web site: www.fpl.fs.fed.us/rwu4723/preservation_faqs/types.html.

EPA and the U.S. Consumer Product Safety Commission (CPSC) are providing updated information on the effectiveness of sealants and stains in reducing potential exposure to arsenic from chromated copper arsenate (CCA)-treated wood used in residential settings. For homeowners and others who want to reduce their potential arsenic exposure from their decks or other CCA-treated wood structures, new studies show that use, at least once a year, of an oil- or water-based, penetrating sealant or stain can reduce arsenic migrating from the treated wood. The data show that oil- or water-based sealants or stains that can penetrate wood surfaces are preferable to products such as paint, because paints and other film-formers can chip or flake, requiring scraping or sanding for removal, which can increase exposure to arsenic. Consumers should consider the required preparation steps (e.g., sanding, power washing, etc.) before selecting a product to minimize potential exposure to arsenic, both for initial application and re-coating.

This information is based on first-year results from two-year studies initiated by CPSC and EPA in 2003 to determine which stains, sealants and paints are most effective in reducing potential arsenic exposure from existing CCA-treated structures. EPA tested the performance of 12 coatings on older wood and CPSC tested eight coatings (seven were the same as the EPA group) on new (as of August 2003) CCA-treated wood. CCA was a pesticide treatment commonly used in the past to prevent deck and playground wood from rotting and insect damage. Effective Dec. 31, 2003, the use of CCA to treat virtually all wood intended for residential use was eliminated. More information for consumers and the sealant studies are available on EPA's Web site: www.epa.gov/oppad001/reregistration/cca/#sealants and on CPSC's Web site: www.cpsc.gov/whatsnew.html.

Source: EPA's web page for its national news releases, at www.epa.gov/oppad001/reregistration/cca/#sealants, item 2 "Studies Provide Public With Updated Information on CCA-Treated Playground and Decks," as viewed 5/11/05.

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Hawaiian Place Names

Kaupoa. Former land section, 'Īlio Pt. qd., west coast of Moloka'i. The bay here was given this name by Mr. and Mrs. George P. Cooke who had their beach home on the bay. It is now a rainfall station.

From Place Names of Hawaii, a book by Mary Kawena Pukui, Samuel H. Elbert, and Ester T. Mookini. 1974. The University of Hawaii Press.

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RECERTIFICATION CREDITS may be earned by certified applicators (except those in *commercial* categories 8 and 10) who take advantage of any "recertification topic" article in this newsletter.

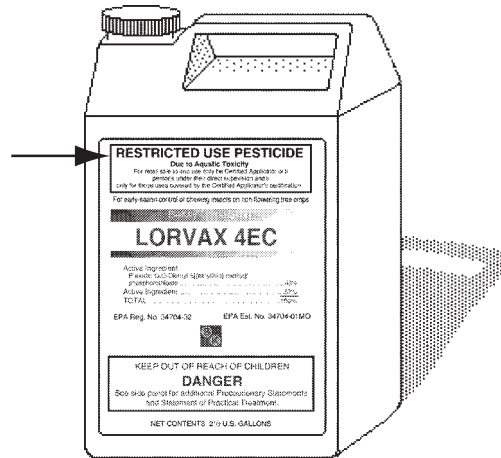
To earn credit(s) for an article, an applicator must correctly answer at least 70% of the evaluation questions prepared by the Hawaii Department of Agriculture staff. For more information, telephone one of these HDOA offices: Kauai 274-3069, Oahu 973-9424 or 973-9409, Maui 873-3960, Hawaii 974-4143. The area code for all offices is 808.

Recordkeeping Requirements for Applications of Restricted Use Pesticides in Hawaii (Recertification Topic)

In this issue, we will review the two pesticide regulations that require Hawaii's certified to keep a record of each application of a restricted use pesticide.

1. Introduction and Scope

Hawaii pesticide dealers sell two kinds of restricted use pesticides. (1) *Federal* restricted use pesticides have labels that bear a restricted use pesticide statement in a box near the top of the label's front panel. (2) *State*



Front panel of a *federal* restricted use pesticide bears a restricted use pesticide statement.

restricted use pesticides do not have such labels, but dealers who stock these pesticides can identify them.

Any one who wants to buy, use, or supervise the use of restricted use pesticides in Hawaii must be *certified* by the Hawaii Department of Agriculture as either a *private* applicator or a *commercial* applicator. Private applicators handle restricted use pesticides for ranches, farms, nurseries, and other agricultural operations. Commercial applicators handle restricted use pesticides for non-agricultural operations and for agricultural operations on a "for-hire" basis.

Certified applicators are responsible for making and keeping a record of each application of restricted use pesticides that they bought. This general requirement is the result of two laws. (1) The Hawaii Pesticides Law set up

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recordkeeping requirements for commercial applicators. (2) The Food, Agriculture, Conservation, and Trade Act—also called the FACT Act—set up recordkeeping requirements for private applicators and the few commercial applicators who, on a “for hire” basis, apply restricted use pesticides on ranches, farms, nurseries, or other agricultural operations. Both sets of recordkeeping requirements are administered by the Hawaii Department of Agriculture.

Section 2 in this leaflet discusses recordkeeping forms. Section 3 discusses recordkeeping requirements for commercial applicators. Section 4 discusses recordkeeping requirements for private applicators.

Section 5 shows two tables that compare these requirements for restricted use pesticides to those of a third regulation called the Worker Protection Standard for *Agricultural* Pesticides.

Section 6 describes how managers could use pesticide application records when making business decisions.

2. What Forms to Use

None of the recordkeeping regulations discussed in this leaflet require you to use a standard form.

You may copy and use the specimen form printed at the end of this article. Whether you are a commercial applicator or a private applicator, you will find a space on that general-purpose form for each item of information you are required to record. Use one form for each restricted use pesticide product.

Otherwise, you may make and use your own form. You may record and keep information on paper, computer disk, or other media. A good form:

- Leads you to record all required information items.
- Lasts for 2 years.

Organize and store your records so that you can find and display the information for inspection or for your own use.

3. For Commercial Applicators

The Hawaii Pesticides Law requires commercial applicators to:

- Make a record that includes items 1–11 for each application of any restricted use pesticide.

1. **Brand name or common name** of pesticide product.

Search the pesticide label for this information. The brand name is the name of the product. It is printed in big bold letters near the top of the label’s front panel. The common name is main part of the brand name.

EXAMPLES — Mevinox 4F Flowable Insecticide (a brand name); Mevinox (a common name).

Computer programs and printed forms are available from applicator organizations, commercial publishers, safety suppliers, and governmental agencies.

To read about computer programs on the Internet, see the University of Nebraska’s listing at <http://pested.unl.edu/softrec.htm>.

For *private* applicators, free forms (spiral-bound into sturdy notebooks, with recordkeeping instructions) are available from Pesticides Branch, Hawaii Department of Agriculture offices in:

- Hilo (974-4143)
- Kahului (873-3960)
- Honolulu (973-9409 or 973-9424).
- Kauai (274-3069)

2. EPA Registration Number of pesticide product
Search the pesticide label for the *EPA Reg. No.* or *EPA Registration Number*.
EXAMPLES — 24-678; 123-9876-AA; 456-9867-123.
 3. Type of formulation of pesticide product
Search the pesticide label for this information.
EXAMPLES — liquid, powder, granules, pellets, bait blocks, wettable powder (W, WP); emulsifiable concentrate (E, EC); water-dispersible granules (WDG, DF); granular (G); flowable; water-soluble liquid; water-soluble powder; liquefied gas.
 4. Percent active ingredient
Search the pesticide label for this information.
EXAMPLE — 23% mevinphos.
 5. Scientific or common name of target pest
EXAMPLES — *Cyperus rotundus* (a scientific name); purple nutsedge (a common name).
 6. Dilution rate
EXAMPLES — $\frac{3}{4}$ pint per 50 gallons water; 1 ounce per 10 gallons water; $1\frac{1}{8}$ pounds per 115 gallons water.
 7. Total amount of pesticide product applied
EXAMPLES — $\frac{3}{4}$ pint; 1 ounce; $1\frac{1}{8}$ pounds.
 8. Total area covered
EXAMPLES — 2,350 square feet; 180 square feet; 1.375 acres; 36,415 cubic feet; 98 linear feet.
 9. Date of application
 10. Address or location of treated site
EXAMPLE — 42-135 Puakea Rd. Kaneohe 96744 [and include diagram or map with short description].
 11. Name *and* certification number of certified applicator
The certification number appears on the wallet-sized permit that the Hawaii Department of Agriculture issues to a commercial applicator.
 12. Any other information that the head of the Hawaii Department of Agriculture deems to be necessary
The Hawaii Department of Agriculture does not require any other information.
- Maintain each record for *two* years.
 - Make records available for inspection by the Hawaii Department of Agriculture during reasonable working hours.

In addition to recording and keeping the information, commercial applicators must provide the information to their customers within 30 days of the application. This rule is *not* limited to agricultural customers. It applies to an application of a restricted use pesticide made for any type of customer.

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4. For Private Applicators

The FACT Act requires private applicators to:

- Make a record within 14 days of an application of a *federal* restricted use pesticide. The record must include the eight items listed below.
- *Spot applications* are treatments made on the same day on a total of *less than* $\frac{1}{10}$ acre [4,356 square feet]. Only five items are required for **spot applications**, items 1–4 and 7. However, this reduced requirement for spot applications does *not* apply to nursery or greenhouse applications.

1. Name of pesticide product (brand name)

Search the pesticide label for this information. The brand name is often printed in big, bold letters near the top of the label's front panel.

EXAMPLE — Mevinox 4E.

2. EPA Registration Number of pesticide product

Search the pesticide label for the *EPA Reg. No.* or *EPA Registration Number*.

EXAMPLES — 24-678; 123-9876-AA; 456-9867-123.

3. Total amount of pesticide product applied

EXAMPLES — $\frac{3}{4}$ pint; 1 ounce; $1\frac{1}{8}$ pounds.

4. Address or location of treated site

Be able to identify the exact area of the application two years later if requested. You may use any of the following designations:

An identification system using maps, written descriptions, or both which accurately identify location;

EXAMPLE — 42-135 Puakea Rd., Kaneohe (field between tractor shed and farm lot entrance)

EXAMPLE — 777 Aama Loop, Hilo - Saran house #5, Bench C (map attached).

The legal property description;

County, range, township, and section;

A USDA identification system such as those used by the Natural Resources Conservation Service or the Consolidated Farm Service Agency (formerly SCS and ASCS) which involves maps and a numbering system to identify field locations.

For spot applications, enter "spot applications" and a brief, simple description of the location.

EXAMPLE — Spot applications: weed patches around irrigation valve boxes in fields 3, 4, 7, 8.

EXAMPLE — Spot applications: 18 steers in Puhī Rd. pasture.

5. Size of area treated

EXAMPLES — 4.375 acres

EXAMPLE — 340 six-inch poinsettia pots.

6. Crop, commodity, animal, stored product, or site treated;

EXAMPLES — macadamia trees; bananas; steers; corn seed; pasture.

7. Date of application

8. Name *and* certification number of certified applicator

The certification number appears on the wallet-sized permit that the Hawaii Department of Agriculture issues to a private applicator.

- Maintain each record for two years.
- When an authorized USDA representative presents credentials and makes an oral request, make records available and allow the representative to copy the records.
- Promptly provide the record information, along with any available pesticide label information, to a *licensed health care professional*⁵ when:
 - (1) A specific incident results in an individual possibly being exposed to a restricted use pesticide; and
 - (2) The private applicator is required to make a record for that pesticide; and
 - (3) The *attending* licensed health care professional (or someone under the professional's supervision) determines that the record information is necessary to provide medical treatment or first aid.

Examples of **licensed health care professionals** who may obtain the information are physicians, registered nurses, nurse practitioners, physician assistants, and emergency medical technicians. However, athletic trainers, chiropractors, physical therapists, dentists, or others, who by the nature of their expertise would not be treating individuals for possible exposure to restricted use pesticides, would not have access to the information. Only the licensed health care professional (or someone under such professional's supervision) who is attending to the individual may obtain the information.

If the attending licensed health care professional (or someone under the professional's supervision) determines that a *medical emergency* exists, the private applicator must provide the record information immediately.

A **medical emergency** is a situation that requires immediate medical attention or first aid to treat possible symptoms of pesticide poisoning exposure.

The private applicator must provide the record information whether the information has been recorded or not.

5. Comparison to the Worker Protection Standard

Sections 3 and 4 (above) described recordkeeping requirements for *restricted use* pesticides. Some of these requirements are identical to those of a third regulation, the Worker Protection Standard for *Agricultural* Pesticides. (Agricultural pesticides have labels that bear an Agricultural Use Requirements box.) The tables on the following pages compare these regulations from a recordkeeping point of view.

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Comparing recordkeeping requirements of all three regulations is important because some restricted use pesticides are agricultural pesticides; and owners or managers responsible for such pesticides must meet the requirements of two, or in a few cases, all three regulations. Fortunately, these regulations have some requirements in common (Table 2). So, owners or managers may make and use just one form to record information required by two or all three of the regulations.

Table 1. Comparison of some requirements of recordkeeping regulations for *restricted use pesticides* and for *agricultural pesticides*

	Hawaii Pesticides Law	FACT Act	Worker Protection Standard
Who is required to make & keep records?	Commercial applicators	Private applicators* and the few Commercial applicators who apply restricted use pesticides for agricultural customers.	Agricultural <i>employers</i> * whether they are <i>certified</i> (Private or Commercial) applicators or not.
For what kind of pesticides is recordkeeping required?	Any <i>restricted use</i> pesticide. These pesticides have labels that bear a <i>Restricted Use Pesticide</i> box; or sellers identify them as <i>state</i> restricted use pesticides.	Federal <i>restricted use</i> pesticides.* These pesticides have labels that bear a <i>Restricted Use Pesticide</i> box.	Any <i>agricultural</i> pesticide* These pesticides have labels that bear an <i>Agricultural Use Requirements</i> box. Some of these pesticides are restricted use pesticides.
How soon must a record be made?	—	For each application, make a record within 14 days after applying the pesticide.	For each application, make (and display) the record before applying the pesticide.
Allowing access to records	<ul style="list-style-type: none"> • Make records available for inspection. 	<ul style="list-style-type: none"> • Make records available for inspection. • Make information (described on pages 7–8) available to licensed health care professionals for first aid or medical treatment. 	<ul style="list-style-type: none"> • Display each record in a <i>central location</i> for employees to see.
Maintaining records	<ul style="list-style-type: none"> • Keep records for two years. 	<ul style="list-style-type: none"> • Keep records for two years. 	<ul style="list-style-type: none"> • Display each record until 30 days after the pesticide's REI⁸ expires, or if the pesticide has no REI, until 30 days after the application.

* Often in Hawaii, a *Private applicator* is also an *agricultural employer*. When such a person applies a federal *restricted use* pesticide that also is an *agricultural* pesticide, he or she is responsible for recording and keeping information required by both the FACT Act and the Worker Protection Standard.

⁸ REI, restricted entry interval, is the time (hours) immediately after a pesticide application when an employer must prevent or limit worker entry into the treated area. To find the REI for a pesticide, search its label. Common REI's are 12 hours, 24 hours, and 48 hours.

Table 2. Comparison of information to record for recordkeeping regulations for *restricted use* pesticides and for *agricultural* pesticides

	Hawaii Pesticides Law	FACT Act	Worker Protection Standard
Who is required to make and keep records?	Commercial applicators	Private applicators, and the few Commercial applicators who apply restricted use pesticides for agricultural customers.	Agricultural employers whether they are <i>certified</i> (Private or Commercial) applicators or not.
For what kind of pesticides?	Any <i>restricted use</i> pesticide	Federal <i>restricted use</i> pesticides	Any <i>agricultural</i> pesticide
Identify certified applicator	Name of certified applicator	Name of certified applicator	—
	Certification number of certified applicator	Certification number of certified applicator	—
Identify pesticide used	Either pesticide product name (brand name), or common name of active ingredient(s)	Pesticide product name (brand name)	Both pesticide product name (brand name), and common name of active ingredient(s)
	Percentage of active ingredient(s)	—	—
	EPA Registration Number of pesticide product	EPA Registration Number of pesticide product	EPA Registration Number of pesticide product
	Formulation of pesticide product	—	—
Identify treatment	Dilution rate	—	—
	Amount of pesticide applied	Amount of pesticide applied	—
	Size of treatment area	Size of treatment area, or number of animals or objects treated	—
	—	Crop, commodity, animal, stored product, or site	—
	Pest common name or scientific name	—	—
	Location & description of treatment area	Location & description of treatment area	Location & description of treatment area
	Date of application	Date of application	Date & time of application
Identify restrictions	—	—	Restricted Entry Interval (REI)

6. Recordkeeping Aids Managers

In addition to meeting federal and state requirements, managers can use pesticide application records to:

Meet buyer requirements. Produce and grain buyers may require information about pesticides used to treat the crops. By keeping pesticide records, managers can easily meet these requirements.

Help secure funding. Some lending institutions and buyers request field records to evaluate potential environmental liability when making land sales or loans. Managers can prepare for meeting lending institutions' requirements by referring to their records.

Aid in a medical emergency. When an accident involves pesticides, medical personnel need the best possible information to give treatment. Managers can meet this need by referring to their records.

Improve crop rotation decisions. When deciding what crop to plant next in a field, growers' choices may be limited by restrictions for certain pesticides applied to the earlier crop. Soil-born residue of pesticides applied to the earlier crop could carry over to the next. Then, the residue might appear as illegal residue in a follow-up crop that can absorb it, or damage one that cannot tolerate it. By referring to their pesticide application records for a field, growers can make crop rotation decisions with more confidence.

Improve pesticide rotation decisions. Using pesticides from different chemical groups is a strategy for reducing pest resistance to a pesticide. Managers can review their records to learn what pesticides they used, and if necessary, choose something different for the next treatment.

Show what works and what doesn't. When they see effective pest control results, managers can review their records to learn what pesticide applications, if any, may have helped. And when they see poor pest control results, managers can review their records to determine the cause. In either case, pesticide application records can help managers repeat successes and avoid repeating failures.

With the aid of written records, managers can accurately recall details and better their chances of making time- and money-saving decisions.

Adapted from a leaflet, *Pesticide Recordkeeping, a Federal Requirement*, developed by National Association of State Departments of Agriculture, in conjunction with the Agricultural Marketing Service of the U.S. Department of Agriculture. July 1993.

For More Information

You may direct your questions or comments about recordkeeping requirements for pesticides to the offices of the Hawaii Department of Agriculture's Pesticides Branch. The telephone numbers are: Oahu (808)973-9409 or 973-9424, Hawaii (808) 974-4143 , Maui (808) 873-3960.

Sources

1. Federal Register, Vol. 57 No. 92, Friday, April 9, 1993, pages 19014-19027. *Recordkeeping Requirements for Certified Applicators of Federally Restricted Use Pesticides; Final Rule.*
2. Federal Register, Vol. 60 No. 28, Friday, February 10, 1995, pages 8124-8125. *Recordkeeping on Restricted Use Pesticides by Certified Applicators; Surveys and Reports.* [Amends rule printed in Federal Register, Vol. 57 No. 92, April 9, 1993]
3. State of Hawaii, Department of Agriculture. Division of Plant Industry. *Administrative Rules, Chapter 66 Pesticides*, July 13, 1981.
4. U. S. Department of Agriculture, Agricultural Marketing Service, Pesticide Records Branch. *Federal Pesticide Recordkeeping Requirements for Private Pesticide Applicators of Federal Restricted-Use Pesticides*, August 1993. [Leaflet]
5. U. S. Department of Agriculture, Agricultural Marketing Service, Pesticide Records Branch. *Pesticide Recordkeeping Program Enforcement Guidance for Cooperators*, August 16, 1995.

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Classification of Pesticides for Managing Pest Resistance (Recertification Topic)

An **acaricide** is a pesticide used to control mites and ticks. (This word stems from “acarina,” which is a group of insect-like creature that, at a glance, look like insects. But biologists see enough differences to classify them into a separate group called “acarina.”) The term “miticide” is used more often than “acaricide.” Some insecticides are effective against mites and ticks. But acaricides or miticides are not effective against insects.

The **mode/target site of action** explains how a pesticide controls or kills the pest. Three simplified examples are “inhibits photosynthesis” in weeds, “affects cell division” in fungi, and “molting disruptor” in insects.

A **premix** is a single pesticide product containing two or more active ingredients.

Labels of some U.S. agricultural pesticides now give advice for managing pest resistance to the pesticides. This is the result of guidelines set by the U.S. EPA in 2001, which allowed and encouraged makers of agricultural pesticides to add standardized advisory statements and symbols to their product labels. Following the guidelines is voluntary. EPA does not require pesticide makers and growers who use their pesticide products to follow the guidelines.

If the symbol appears on a product label, it will be in the upper right quarter of the front panel. Here are examples of symbols for three pesticides:

GROUP	1	HERBICIDE
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Example 1: Product containing one active ingredient represented by one mode/target site of action.

GROUP	1	2	3	HERBICIDE
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Example 2: Product containing two or more active ingredients represented by two or more modes/target sites of action.

GROUP	1	HERBICIDE
GROUP	2	FUNGICIDE

Example 3: Premix product containing a fungicide and an insecticide.

The number in a symbol stands for the pesticide’s *mode/target site of action* on pests. This is valuable information for growers who want to manage or prevent resistance problems by rotating pesticides, using premixes, or using tank mixes. In the pesticide rotation strategy, growers could avoid repeat treatments of a particular field with pesticides marked with the same symbols. For the premix or tank mix strategy, growers could use two or more pesticides with different numbers in a single treatment.

The resistance management advice will be in the use directions under the heading, “Resistance Management Recommendations.” It will explain how pest resistance develops and how growers may recognize and manage resistance problems, and lessen the chances of developing new ones. This section will also say that pesticide use should be part of a comprehensive integrated pest management plan.

Classifications and symbols for mode(s)/target site(s) of action are developed and periodically updated by committees. The members of the committees represent the pesticide industry, universities, and pesticide regulatory agencies. Updated lists currently on the Internet are:

For **herbicides**, www.plantprotection.org/hrac/ (See left column, under “Available for free.”)

For **insecticides** and **acaricides**, www.irac-online.org/resources/edu.asp (See middle column, 1/3 up from the bottom, “The New MoA Classification Scheme, July 2005, Version 4.2.1)”

For **fungicides** and **bactericides**, www.frac.info/publications.html (See last two lists.

Source: U.S. EPA’s *Pesticide Registration Notice 2001-5*, viewed 7/12/05 at www.epa.gov/oppmsd1/PR_Notices/pr2001-5.pdf.

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Whitefly Q-biotype Spreading Across the U.S.

Just when we thought that whiteflies were not as serious a problem as they used to be, a new biotype emerges. Drs. Timothy J. Dennehy and Judy Brown, University of Arizona extension specialists, recently identified a new strain of *Bemisia tabaci* in Arizona. The Q-biotype of the *sweet potato whitefly* was confirmed on poinsettia in Arizona in March by two university labs.

Like the old B-biotype (aka the *silverleaf whitefly*), the Q-biotype feeds on ornamentals, vegetables and cotton. If you remember back when the B-biotype emerged, you will remember the problems growers had controlling it due to its resistance to many of the insecticides available at that time. When the neonicotinoids like Marathon®, TriStar®, Flagship® and more recently Safari® and Celero®, came on the market, they successfully controlled the B-biotype pest.

The new Q-biotype has exhibited resistance to some of those same neonicotinoids as well as many insect growth regulators like Distance® and Talus®.

In response to the finding in Arizona, their Department of Agriculture issued an order quarantining the entire state of California for *Bemisia tabaci* Q-biotype (sweet potato whitefly Q strain). The whiteflies found were on poinsettias shipped in December 2004 from California. The plants were traced back to San Diego County and from sources in Guatemala.

The quarantine prohibits shipping all plant parts, except underground parts and seed, from any California facility known to be infested with Q-biotype. Facilities not known to be infested can continue to ship plants and plant parts without any form of certification.

Because the biotypes are morphologically identical, the only way to detect the difference is DNA and/or serological analysis. The detection of the Q-biotype in Arizona is the 1st reported incident in the U.S.

The Q-biotype has also been found in China, Egypt, France, Israel, Japan, Morocco, The Netherlands and Spain. Surveys are now being conducted in states (AZ, CA, FL, GA and TX) where Q-biotype is likely to occur.

Some steps growers can take to control the problem include:

- * Check all incoming plants and cuttings for infestations. Remember whitefly eggs and nymphs are very small and use of a hand lens is required.
- * Use yellow sticky cards to monitor whitefly populations.
- * Rotate insecticides with different modes of action.
- * Record your observations and the measures you take to control pests. Notice if the whiteflies seem to be resistant to the neonicotinoids or insect growth regulators.
- * Conserve your natural enemies.
- * Contact your county extension agent.

For more information on the Q-biotype whitefly see <http://floriculture.osu.edu/archive/may05/WhiteFlyQ.html>.

Source: Ed Mersino, Extension Agent, Cooperative Extension Service, College of Tropical Agriculture and Human Resources, University of Hawaii at Manoa, in his newsletter "Ka Lono Pua" of 6/14/05.

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Caution: Pesticide use is governed by state and federal regulations. Pesticides and pesticides uses mentioned in this newsletter may not be approved for Hawaii, and their mention is for information purposes only, and should not be considered a recommendation. Read the pesticide's labeling to ensure that the intended use is included on it, and follow all labeling directions.

Erythrina Gall Wasp

One of the latest invaders reported on April 19, 2005 is the Erythrina Gall Wasp, *Quadrastichus erythrinae*. As its name implies, it attacks Erythrina also known as **Wiliwili** or the **Indian Coral Trees**. The tall form of the Wiliwili is often used as windbreaks around farms and nurseries. As of last month (June), it was only found on Oahu from Hawaii Kai to Nanakuli, central Oahu in Mililani and Wahiawa, and on the windward side in Kaneohe and Kailua. It has not been found on the neighboring islands.

This pest was only described as a new species last year from specimens collected in Singapore, Mauritius and Reunion. It is now found in Taiwan. The insect lays its eggs on the young leaves. The larvae develop in the leaf tissue and the trees respond to its feeding by producing galls. After pupation the wasp exits through a small hole in the gall. Heavily infested trees stops growing, lose vigor and may die. Presently control measures are being investigated.

For more information (with pictures) on this pest, see: www.hawaiiag.org/hdoa/npa/npa05-03-EGW.pdf.

Sources:

Ed Mersino, Extension Agent, Cooperative Extension Service, College of Tropical Agriculture and Human Resources, University of Hawaii at Manoa, in his email newsletter "Ka Lono Pua" of 6/14/05.

Ron Heu, Entomologist, Plant Pest Control Branch, Division of Plant Industry, Hawaii Department of Agriculture, 7/11/05 communication.



Leaves of *wiliwili* infested with Erythrina gall wasp

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