State of California
Department of Pesticide Regulation

Laws and Regulations Study Guide

2001 EDITION

For the Following Examinations:
Agricultural Pest Control Adviser License
Qualified Applicator Certificate
Qualified Applicator License
Pest Control Aircraft Pilot Certificate
Pest Control Dealer Designated Agent License

California Department of Pesticide Regulation

ADDENDUM

State of California, Department of Pesticide Regulation

Laws and Regulations Study Guide

2001 EDITION

This addendum addresses corrections or clarifies information in the study guide, as noted below, as of March 2004:

Pages 23-24

- **Restricted Materials** Permit - Figure 2-2 shows a Production Agriculture Monthly Use Report instead of the referenced Restricted Material Permit. Attached to this addendum is a facsimile of a Restricted Material Permit.

Pages 47-49

- **Agricultural Pest Control Adviser License and (sidebar 4) New Agricultural Pest Control Adviser Minimum Requirements** - This confirms that the new pest control adviser educational requirements were implemented on January 1, 2003, and are in effect.

Page 108

- **Ground Water Protection Restrictions** - Add "bentazon" to the list of pesticides.

Page 109

- **Research Authorization for Ground Water Protection Chemicals** - Add "bentazon" to the list of pesticides.

Page 110

- **Records** - Add "bentazon" to the list of pesticides.

Page 111

- **Required Content for Ground Water Protection Advisories** - Add "bentazon" to the list of pesticides.

Page 112

- **DPR web sites** - There is a typographical error in the DPR web site, it should be http://www.cdpr.ca.gov/docs/estindex.htm

APPLICATION-RESTRICTED MATERIALS PERMIT

☐ FOR POSSESSION ONLY ☐ FOR POSSESSION AND USE

PERMITTEE _____

PERMIT NO. _____

PERMITTEE ADDRESS	CITY	ZIP	PHONE	TYPE OF PERMIT ☐ SEASONAL ☐ JOB	EXPIRATION DATE _____

☐ PRIVATE APPLICATOR ☐ STRUCTURAL PCO ☐ AGRICULTURAL PCO ☐ COMMERCIAL APPLICATOR

NOTICE OF INTENT REQUIRED ☐ MUST BE SUBMITTED AT LEAST _____ HOURS PRIOR TO APPLICATION. METHOD:

A. PESTICIDES/PESTS

1. _____ 7. _____ 13. _____
2. _____ 8. _____ 14. _____
3. _____ 9. _____ 15. _____
4. _____ 10. _____ 16. _____
5. _____ 11. _____ 17. _____
6. _____ 12. _____ 18. _____

B. LOCATION	SEC	TWN	RNG	MAP ID	COMMODITY	ACRES/ UNITS	PESTICIDES	PESTS	F*	M**	RATE	DILUTION/ VOLUME	APPL	DATE/ TIMING
1.														
2.														
3.														
4.														
5.														
6.														
7.														

PCO NAME	ADDRESS	PHONE	PCO NAME	ADDRESS	PHONE

C. JUSTIFICATION FOR NON-AG USE:

D. CONDITIONS:

I understand that this permit does not relieve me from liability for any damage to persons or property caused by the use of these pesticides. I waive any claim of liability or damages against the County Department of Agriculture based on the issuance of this permit. I further understand that this permit may be revoked when pesticides are used in conflict with the manufacture's labeling or in violation of applicable laws, regulations and specific conditions of this permit. I authorize inspection at all reasonable times and whenever an emergency exists, by the Department of Pesticide Regulation or the County Department of Agriculture of all areas treated or to be treated, storage facilities for pesticides or emptied containers and equipment used or to be used In the treatment.

*FORMULATION: L--LIQUID B--BAIT D--DUST
F--FUMIGANT G--GRANULES
WP--WETTABLE POWDER O--OTHER

**METHOD: A--AIR GR--GROUND
F--FUMIGATION O--OTHER

PERMIT APPLICANT _____ SIGNATURE _____ TITLE _____ DATE _____

☐ RESTRICTED MATERIAL PERMIT IS HEREBY GRANTED FOR THE ABOVE MATERIALS. ☐ APPLICATION DENIED. BY _____ DATE _____

DISTRIBUTION: WHITE & YELLOW-COUNTY; PINK & GOLD-PERMITTEE

State of California

Gray Davis
Governor

Winston H. Hickox
Secretary for Environmental Protection

Paul G. Helliker
Director
California Department of Pesticide Regulation

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State of California
Department of Pesticide Regulation

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Pest Control Aircraft Pilot Certificate
Pest Control Dealer Designated Agent License

California Department of Pesticide Regulation

This revision resulted from a cooperative effort between the Licensing and Certification Program of the Department of Pesticide Regulation and the University of California Statewide Integrated Pest Management Project. Principal Licensing and Certification coordinator and editor: Adolfo R. MarvinGallo. Principal University of California Statewide Integrated Pest Management Project coordinator and editor: Diane Clarke. Photographs: Jack Kelly Clark, UC. The following staff reviewed, commented, and provided information: Patrick J. O'Connor-Marer, UC; Veda Federighi, DPR; Mark Pepple, DPR; Lisa Quagliaroli, DPR; Regina Sarracino, DPR; Mac Takeda, DPR; Jim Walsh, DPR.

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THE STATE OF CALIFORNIA HAS many complex pesticide and pest control laws and regulations. This study guide was written to help you understand the laws and regulations that govern the sale and use of pesticides. It contains information you need to know in order to pass California's core laws and regulations examination. You must understand these laws and regulations if you plan to become:

- an agricultural pest control adviser
- a qualified applicator (QAL or QAC)
- a pest control aircraft pilot
- a pest control dealer designated agent

Examinations

In order to receive the license or certificate required by California law to conduct business in your chosen field you must pass at least two examinations. The first examination, "Laws, Regulations, and Basic Principles," covers laws and regulations that pertain to pesticides and pest control operations. The other examination is specific to the type of license or certificate you are seeking. You might need to pass more than one category-specific examination, depending on the work you plan to do. The Department of Pesticide Regulation's Pest Management and Licensing Branch is responsible for administering these examinations and issuing licenses and certificates. Generally, if you use or supervise the use of a restricted material to produce an agricultural commodity on property you control, you must hold a valid Private Applicator Certificate. You obtain this certificate by passing a certification examination administered by the local county agricultural commissioner.

References

This newly-revised edition of the *Laws and Regulations Study Guide* reflects changes in pesticide laws and regulations that have occurred until April 2001. The information in this study guide is drawn from

- California Food and Agricultural Code: Divisions 6, 7, and 13
- California Code of Regulations: Title 3, Division 6 (Pesticides and Pest Control Operations)

How to Use This Study Guide

At the end of each chapter of this study guide there are several review questions to test your grasp of the information presented in that chapter. These questions are the same format as the questions on the DPR examinations. If you have had experience with handling pesticides, you will probably be able to answer many of the questions without studying the information in the chapter.

Begin your study of each chapter by reading through the review questions. Make notes of the subject material you do not fully understand. Then, review the chapter to locate the sections that

deal with that information. Read those sections carefully before you review the rest of the chapter.

When you finish studying the chapter, answer each of the review questions. Check your answers with the correct answers on page 119. If you missed any of the questions, go back and reread the appropriate sections of the chapter that cover that information.

Laws and Regulations

Laws are statutes passed by the California Legislature and signed by the Governor. Most pesticide and pest control laws are found in the California Food and Agricultural Code.

Regulations are adopted by the Director of DPR after they are approved by the Office of Administrative Law, and are filed with the Secretary of State. Regulations are designed to interpret and carry out the requirements of the law. Sidebar 1 details the purposes of pesticide and pest control laws and regulations.

The county agricultural commissioner may adopt additional regulations applicable to his or her county. These supplement the regulations adopted by the Director of DPR and may govern the conduct of pest control operations as well as the records and reports of those operations. Each regulation adopted by a county agricultural

SIDEBAR 1

The Purposes of Pesticide and Pest Control Laws and Regulations

The purposes of the laws in the California Food and Agricultural Code and regulations in Title 3 of the California Code of Regulations are to

- provide for the proper, safe, and efficient use of pesticides used in the production of food and fiber and the protection of public health and safety
- protect the environment from environmentally harmful pesticides by prohibiting, regulating, or controlling their uses
- assure that agricultural and pest control workers have safe working conditions where pesticides are present
- authorize pest control and make sure that it is done by competent, responsible licensees and permittees under strict control of the Director of DPR and the county agricultural commissioners
- assure applicators, consumers, and other users that the pesticides they use are properly labeled and are appropriate for the uses designated on the label
- encourage the development and implementation of integrated pest management systems, stressing the integration of biological and cultural pest control techniques with the use of selective pesticides, when these are necessary, to achieve acceptable levels of control with the least possible harm to nontarget organisms and the environment

commissioner must be approved by the Director of DPR before it becomes operative.

Enforcement Agencies

The Director of the Department of Pesticide Regulation and the county agricultural commissioners are responsible for regulating all aspects of pesticide sales and use and protecting public health and the environment from any adverse effects that may occur from the legal use of pesticides. The county agricultural commissioners act under the direction and supervision of the Director of DPR. In any county that does not have a county agricultural commissioner, the Director of DPR acts as the agricultural commissioner.

Cooperating Agencies

Other state and federal agencies involved in cooperative enforcement with DPR and the county agricultural commissioners include:

California Department of Consumer Affairs, Structural Pest Control Board. The Structural Pest Control Board (SPCB) regulates structural pest control for hire, including fumigation and treatment of structural pests. The SPCB is responsible for issuing licenses to structural pest control operators and field representatives.

The SPCB issues licenses for people that perform structural pest control for hire in the following areas:

- structural fumigation
- general structural pest control
- termite structural pest control
- wood roof cleaning and treatment

For additional information on structural pest control licensing requirements, contact the SPCB at (916) 263-2540, 1418 Howe Avenue, Suite 18, Sacramento, CA, 95825, http://www.dca.ca.gov/pestboard/.

If you need help determining whether you need an agricultural or a structural pest control license, contact DPR's Pest Management and Licensing Branch or the SPCB for advice on which license is required.

U.S. Environmental Protection Agency (U.S. EPA). The U.S. EPA is responsible for registering pesticides for specified uses, taking into consideration both safety and benefits. All pesticides must be registered by the U.S. EPA before they are sold, held for sale, or distributed in commerce. U.S. EPA also oversees and reviews state and county regulatory programs for compliance with federal requirements, including the federal Worker Protection Standard.

U.S. Food and Drug Administration (U.S. FDA). The U.S. FDA is responsible for enforcing pesticide residue tolerances on food shipped in interstate commerce. As part of these activities, U.S. FDA regulates pesticide residue levels in domestically produced and imported foods. They also investigate incidents in which pesticide residue levels exceed the allowed tolerance levels on food.

REVIEW QUESTIONS

(answers on page 119)

1. **The difference between laws and regulations is**
   - ☐ a. laws are passed by county agricultural commissioners and regulations are passed by the California legislature
   - ☐ b. laws are statutes passed by the California legislature and regulations are adopted by the Director of DPR to carry out the laws
   - ☐ c. laws are supplements to federal regulations
   - ☐ d. laws are adopted by the Director of DPR to carry out regulations signed by the Governor

2. **Which of the following is *not* one of the purposes of California's pesticide and pest control laws and regulations?**
   - ☐ a. to protect workers from pesticide exposure
   - ☐ b. to provide for proper, safe, and efficient use of pesticides
   - ☐ c. to encourage people to use more pesticides
   - ☐ d. to encourage the development and implementation of integrated pest management systems

3. **Which agency cooperates with DPR to enforce pesticide laws in California?**
   - ☐ a. the University of California
   - ☐ b. the Department of Health Services
   - ☐ c. the Department of Labor
   - ☐ d. the Department of Consumer Affairs

4. **Agricultural commissioners may adopt supplemental pesticide regulations if they are approved by**
   - ☐ a. the Director of DPR
   - ☐ b. the Governor
   - ☐ c. the County Board of Supervisors
   - ☐ d. the U.S. EPA

1 Pesticide Registration and the Label

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MANUFACTURERS MUST register pesticides with the U.S. EPA and DPR before anyone can buy or use them in California. These agencies register individual pesticide *products,* not generic pesticides. The registration procedure protects people and the environment from ineffective or harmful chemicals.

PESTICIDE REGISTRATION

U.S. EPA and DPR registration procedures include an evaluation of each pesticide product. At the federal level this evaluation determines whether EPA classifies a pesticide as *general use* or *restricted use.* DPR designates all federal restricted use and certain general use pesticides as "restricted materials" due to local hazards or specific health concerns. Uncertified applicators may buy, possess, use, or supervise the use of general use pesticides that have not been designated by DPR as "restricted materials." However, only certified pesticide applicators can buy, possess, use, or supervise the use of California restricted materials, and with few exceptions, they must obtain a permit from the county agricultural commissioner to do so.

To complete registration, manufacturers supply labels meeting all federal and state requirements. These labels become legal documents and contain important information for users. Some labels refer to other documents, such as endangered species range maps. Agricultural-use pesticide labels also refer to the Worker Protection Standard provisions of the Code of Federal Regulations (40 CFR part 170). These and other documents referred to on pesticide labels become part of the pesticide label.

Licensing of the Product (Certificate of Registration). For each pesticide product, when DPR issues the Certificate of Registration the accepted label becomes the registered label. The pesticide must be used according to the registered label and according to any regulatory restrictions. Also, the pesticide label on the product sold must match the registered label, or the sale is illegal.

Product No Longer Registered. If the product registration lapses, the registrant can no longer sell the product in California. There are two ways that a product may no longer be registered:

- if the manufacturer does not renew the registration and allows it to lapse
- if a suspension or cancellation has been taken against the product by DPR or U.S. EPA

If the registration has been allowed to lapse or is not renewed by the company, a dealer who acquired the product while it was still registered may sell and deliver the product for two years after the last date of registration. If the pesticide product was acquired by an end-user while it was legally registered or within two years after the last date of registration, the product may be possessed and used indefinitely in accordance with the

FIGURE 1-1.

Supplemental labels are often attached to pesticide packages. Before purchasing a pesticide, make sure you have a complete set of labels.

original label (the label attached to the container at the time of purchase). All regulatory requirements still apply to the use of these pesticide products. If these products are state or federal restricted materials, applicators must be certified and, in some cases, obtain permits and written recommendations prior to use. Licensed pest control advisors are allowed to make written recommendations for these products.

When U.S. EPA or DPR cancels or suspends a pesticide product, they often impose specific provisions for sales of existing stocks or continued use of the product. Pesticide applicators must comply with all sales and use provisions included in cancellation and suspension orders. *A pesticide product cannot legally be sold or used, nor can a permit be issued, contrary to any U.S. EPA or DPR cancellation or suspension order.*

Amending the Registered Label. Any changes made to the registered label, such as the addition of new crops, must be reviewed and accepted by U.S. EPA and DPR before the product bearing the proposed amended label can be sold or used in California. Pesticide applicators must comply with the label directions attached to the pesticide products they are using at the time.

PESTICIDE LABELS

Regulations set the format for pesticide labels and prescribe the information they must contain. The label contains mandatory and permissive statements for requirements and information. Mandatory statements must be followed. These statements include terms such as "shall" or "must." Permissive statements include terms such as "should" and do not impose requirements. It is a violation of the law to use a pesticide in conflict with its registered label (Section 3), or other label issued under a Special Local Need (Section 24[c]) or Emergency Exemption (Section 18). Also, any document referred to on the label becomes part of the label. The pesticide label or labels, including the documents referred to, must be at the use site at the time of use. Some packages are too small, however, to have all this information printed on them. In these cases, EPA requires manufacturers to attach supplemental labels (Figure 1-1). On metal and plastic containers, manufacturers put supplemental labels in plastic pouches glued to the side of the containers. Paper packages usually have supplemental labels inserted under the bottom flaps.

When to Read the Pesticide Label

Read the pesticide label (Figure 1-2)

1. *Before buying the pesticide.* Make sure the pesticide is registered for your intended use. Confirm that there are no restrictions or other conditions that prohibit using this pesticide at the application site. Be certain its use is suitable under current weather conditions. Also, be sure it controls the life stage of your pest. Find out what protective equipment and special application equipment you need.
2. *Before mixing and applying the pesticide.* Learn how to mix and safely apply the material. Find out what precautions to take to prevent exposure to people and nontarget organisms. Learn what first aid and medical treatments are necessary should an accident occur.
3. *When storing pesticides.* Find out how to properly store the pesticide. Understand the special precautions to prevent fire hazards.
4. *Before disposing of unused pesticide and empty containers.* Learn how to prevent environmental contamination and hazards to people. (Before disposal, check with the agricultural commissioner in your area for local restrictions and requirements.)

FIGURE 1-2.

The pesticide label is a complex legal document that you must read and understand before making a pesticide application. Make pesticide applications in strict accordance with the label instructions.

What Pesticide Labels Contain

Refer to the corresponding numbers on the sample pesticide label (Figure 1-5) for examples of the following pesticide label sections:

1 **Brand Name.** A brand name is the name the manufacturer gives to the product. This is the name used for all advertising and promoting.

2 **Chemical Name.** Chemical names describe the chemical structure of a pesticide. Chemists follow international rules for naming chemicals.

3 **Common Name.** Chemical names of pesticide active ingredients are often complicated. Therefore, manufactures give most pesticides *common* or generic names. For example, 0,0-diethyl 0(2-isopropyl-6-methyl-4-pyrimidinyl) has the common name *diazinon.* Common names and brand names are not the same, and not all labels list common names for the pesticide.

4 **Formulation.** Labels usually list the formulation type, such as emulsifiable concentrate, wettable powder, or soluble powder. Manufacturers may include this information as a suffix in the brand name of the pesticide. For example, in the name Princep 80W, the "W" indicates a wettable powder formulation.

5 **Ingredients.** Pesticide labels list the percentage of each active ingredient and total percentage of the inert ingredients by weight. Inert ingredients are all components of the formulation that do not have pesticidal action. However, these may be toxic, flammable, or pose other safety or environmental problems. Some, however, may be harmless, such as clay.

In the example given above, the name Princep 80W indicates that there is 80% by weight of the active ingredient 2-chloro-4,6-bis(ethylamino)-s-triazine. If this were a liquid formulation, the label would also indicate how many pounds of active ingredient there are in 1 gallon.

FIGURE 1-3.

The signal word Warning *on this label indicates that the pesticide has a moderate toxicity and should be handled with care.*

KEEP OUT OF REACH OF CHILDREN

WARNING AVISO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

STATEMENT OF PRACTICAL TREATMENT

IF IN EYES: Flush eyes with a large amount of water for at least 15 minutes. Get prompt medical attention.
IF ON SKIN: Wash with plenty of soap and water. Get medical attention.
IF SWALLOWED: Do not induce vomiting. Dilute by giving 2 glasses of water to drink. Call a physician. Do not induce vomiting or give anything by mouth to an unconscious person.
IF INHALED: Move victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.
NOTE TO PHYSICIAN: Contains petroleum distillates. Aspiration hazard may contraindicate the use of gastric lavage.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

WARNING

Causes eye irritation. Harmful if swallowed, inhaled or absorbed through the skin. Do not swallow, get in eyes, on skin or breathe spray mist.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Protective eyewear
- Chemical-resistant headgear for overhead exposure

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standards (WPS) for agricultural pesticides [40 CFR 170.240(d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

FIGURE 1-4.

The "Precautionary Statements," "Statement of Practical Treatment," and "Statement of Use" on pesticide labels provide important information on hazards you must be aware of. Read these statements thoroughly before using the material.

Contents. Labels list the net contents, by weight or liquid volume, contained in the package. 6

Manufacturer. Pesticide labels always contain the name and address of the manufacturer of the product. Use this address if you need to contact the manufacturer for any reason. 7

Registration and Establishment Numbers. The U.S. EPA assigns registration numbers to each pesticide. You need this EPA number if you are reporting the use of the pesticide. In addition, an *establishment number* identifies the site of manufacture or repackaging. 8

Signal Word. An important part of every label is the signal word (Figure 1-3). Part of the registration process assigns each pesticide to a toxicity category, based on acute toxicity to humans and noted by the signal word. The words *Danger* and *Poison* (with a skull and crossbones) indicate that the pesticide is highly toxic. The word *Danger* used alone indicates that the pesticide poses a dangerous health hazard. *Warning* indicates moderate toxicity, and *Caution* means low toxicity. The level of hazard determines the signal word manufacturers must use on their labels. 9

Precautionary Statements. Precautionary statements describe the pesticide hazards (Figure 1-4). This section of the label includes as many as three areas of hazard. Most important are the *hazards to people and domestic animals.* This part tells why the pesticide is hazardous. It lists adverse effects that may occur if people become exposed. It describes the type of protective equipment to wear while handling packages and while mixing and applying. 10

The second part of a precautionary statement describes environmental hazards. It tells you if the pesticide is toxic to nontarget organisms such as honey bees, fish, birds, and other wildlife. Here is where you learn how to avoid environmental contamination.

The third part of the precautionary statement explains special physical and chemical hazards. These include risks of fire or explosion and hazards from fumes.

12 **RESTRICTED USE PESTICIDE**

Due to High Acute Toxicity to Humans

For retail sale and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification. Direct supervision for this product requires the certified applicator to review federal and supplemental label instructions with all personnel prior to application, mixing, loading, or repair or cleaning of application equipment.

1 **Reckon® LV**

insecticide by **ToxCo®**

5 **Active Ingredient:** ***By Weight***

3 Methomyl

2 (S-methyl-N-[(methylcarbamoyl) oxy]thioacetimidate) 29%

Inert Ingredients 71%

TOTAL 100%

4 ***Water Soluble Liquid***

Contains 2.4 lbs active ingredient per gallon.

8 EPA Reg. No. 000-000

EPA EST. No. 0000-XX-0

6 Net 5 gallons

KEEP OUT OF REACH OF CHILDREN

9 **DANGER** **POISON**

PELIGRO **VENENO**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand this label, find someone to explain it to you in detail.)

11 **STATEMENT OF PRACTICAL TREATMENT**

This Product is an N-Methyl Carbamate insecticide.
If swallowed: Call a physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching the back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious or convulsing person.
If inhaled: Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.
If in eyes: Hold eyelids open and flush with a steady gentle stream of water for 15 minutes. Get medical attention.
If on skin: Wash with plenty of soap and water. Get medical attention.
ATROPINE IS AN ANTIDOTE—SEEK MEDICAL ATTENTION AT ONCE IN ALL CASES OF SUSPECTED POISONING.
If warning symptoms appear (see WARNING SYMPTOMS), get medical attention.
For medical emergencies involving this product, call toll free 1-000-000-0000.

10 **PRECAUTIONARY STATEMENTS**

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER! CONTAINS METHANOL. FATAL IF SWALLOWED. MAY CAUSE BLINDNESS IF SWALLOWED. MAY BE FATAL IF INHALED OR ABSORBED THROUGH EYES. CAUSES IRREVERSIBLE EYE DAMAGE.

(Precautionary Statements continued in next column.)

7 **©2001 ToxCo, Inc., Villageton, Yourstate, 01234**

FIGURE 1-5.

This example of a pesticide label illustrates the sections described in the text.

Do not get in eyes, on skin, or on clothing. Do not breathe vapors or spray mist. Pilot should not assist in the mixing and loading operation.

WARNING SYMPTOMS—Methomyl poisoning produces effects associated with anticholinesterase activity which may include weakness, blurred vision, headache, nausea, abdominal cramps, discomfort in the chest, constriction of pupils, sweating, slow pulse, muscle tremors. If warning symptoms appear, refer to Statement of Practical Treatment on front panel of Reckon® LV label and seek medical attention at once.

PERSONAL PROTECTIVE EQUIPMENT

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category B on an EPA chemical-resistance category selection chart.

Applicators and other handlers must wear:
- Long-sleeved shirt and long pants.
- Chemical-resistant gloves, such as barrier laminate or butyl rubber.
- Shoes plus socks.
- Protective eyewear.
- **For exposure in enclosed areas,** a respirator with either an organic vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C or a NIOSH-approved respirator with any R, P, or HE filter [also N if product does not contain oil and bears no instructions that will allow application with an oil-containing material]), or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G).
- **For exposures outdoors,** dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C or a NIOSH-approved respirator with any R, P, or HE filter [also N if product does not contain oil and bears no instructions that will allow application with an oil-containing material]).

Cleaners and repairers of application equipment must wear:
- Long-sleeved shirt and long pants.
- Chemical resistant gloves.
- Chemical resistant footwear.
- Protective eyewear.
- Respirator as outlined above.
- Chemical resistant apron.

Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

ENGINEERING CONTROL STATEMENTS

Human flaggers must be in enclosed cabs.
When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR part 170.240 (d)(4–6)], the handler PPE requirements may be reduced or modified as specified in the WPS. The enclosed cabs must be used in a manner that meets the requirements listed in the WPS for agricultural pesticides. The handler PPE requirements may be reduced or modified as specified in the WPS.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and wildlife. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area.

PHYSICAL AND CHEMICAL HAZARDS

Combustible. Do not use or store near heat or open flame. Keep container closed. Use with adequate ventilation.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Do not apply this product through any type of irrigation system.

Do not formulate this product into other end-use products without written permission.

ToxCo RECKON® LV Insecticide should be used only in accordance with recommendations available through local dealers.

ToxCo will not be responsible for losses or damages resulting from use of this product in any manner not specifically recommended by ToxCo. User assumes all risks associated with such non-recommended use. RECKON® LV is a water soluble liquid to be diluted with water for application by mechanical ground or air equipment only. Use only in commercial and farm plantings. Not for use in home plantings nor on any commercial crop that is turned into a "U-Pick," "Pick Your own" or similar operation. Pilot should not assist in the mixing and loading operation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI).
PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls.
- Chemical-resistant gloves, such as barrier laminate or butyl rubber.
- Shoes plus socks.
- Protective eyewear.

GENERAL INFORMATION

Scouting—Monitor insect populations to determine whether or not there is a need for application of RECKON® LV based on locally determined economic thresholds. More than one treatment of RECKON® LV may be required to control a population of pests.

Insect Predators—RECKON® LV at rates of 2/5 to 3/4 pt. per acre helps conserve certain beneficials, including big-eyed bugs, damsel bugs, flower bugs and spiders in cotton and soybeans. While these beneficials cannot be relied upon to control pests, they are of potential value and should be monitored along with pests in pest management programs on these crops.

Resistance—Some insects are known to develop resistance to products used repeatedly for control. When this occurs, the recommended dosages fail to suppress the pest population below the economic threshold. Because the development of resistance cannot be predicted, the use of this product should conform to resistance management strategies established for the use area.These strategies may include incorporation of cultural and biological control practices, alteration of active classes of insecticides on succeeding generations and targeting the most susceptible life stage. Consult your local agricultural authorities for details.

Compatibility—Since formulations may be changed and new ones introduced, it is recommended that users premix a small quantity of desired tank mix and observe for possible adverse changes (settling out, flocculation, etc.). Avoid mixtures of several materials and very concentrated spray mixtures.

Do not use RECKON® LV with Bordeaux mixture, "Du Ter" (triphenyltin hydroxide), lime sulfur, "Rayplex" iron nor in highly aklaline solutions. Use mildly alkaline mixtures immediately after mixing to prevent loss of insecticidal activity.

SPRAY PREPARATION

Spray equipment must be clean and free of previous pesticide deposits before applying RECKON® LV.

Fill spray tank 1/4 to 1/2 full of water. Add RECKON® LV directly to spray tank. Mix thoroughly. Use mechanical or hydraulic means; do not use air agitation. Spray mix should not be stored overnight in spray tank.

(Directions for Use continued on supplemental labeling.)

STORAGE AND DISPOSAL

STORAGE: Do not subject to temperatures below 32˚ F. Store product in original container only. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Not for use or storage in or around the home.

PRODUCT DISPOSAL: Do not contaminate water, food, or feed by disposal. Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL: Triple rinse (or equivalent), then offer for recycling or reconditioning if container reuse is permitted, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke. Return empty stainless steel containers for refilling and reuse.

LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read This Limitation of Warranty and Liability Before Buying or Using This Product. If the Terms Are Not Acceptable, Return the Product at Once, Unopened, and the Purchase Price Will Be Refunded.
It is impossible to eliminate all risks associated with the use of this product. Such risks arise from weather conditions, soil factors, off target movement, unconventional farming techniques, presence of other materials, the manner of use or application, or other unknown factors, all of which are beyond the control of ToxCo. These risks can cause: ineffectiveness of the product; crop injury; or injury to nontarget crops or plants.

ToxCo does not agree to be an insurer of these risks. WHEN YOU BY OR USE THIS PRODUCT, YOU AGREE TO ACCEPT THESE RISKS.

(Warranty information continued on supplemental labeling.)

Crops	Insects	Rate	Last Application—Days		
		Reckon® LV Pts. Per Acre	To Harvest	To Livestock Grazing/ Feeding	REI
Anise (fennel)	Cabbage Looper	3	7		48 hrs
	Beet Armyworm	1-1/2 to 3			
	Do not apply more than 4.5 lbs a.i./acre/crop. Do not make more than 10 applications/crop.				

(Restricted-entry information continued on supplemental labeling.)

FIGURE 1-6.

Pesticides must be applied only in the manner described in the "Directions for Use" section.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. This label must be in the possession of the user at the time of pesticide application.

Observe all cautions and limitations in this label and the labels of products used in combination with PROWL 3.3 EC. The use of PROWL 3.3 EC not consistent with this label can result in injury to crops, animals, or persons. Keep containers closed to avoid spills and contamination.

DO NOT apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide protection.

Statement of Practical Treatment. 11 The statement of practical treatment provides emergency first aid information. It describes the emergency first aid procedures for swallowing, skin and eye exposure, and inhalation of dust or vapors. This section tells you when to seek medical attention.

Statement of Use Classification. As 12 described above, the U.S. EPA classifies pesticides as either general use or restricted use. U.S. EPA restricted use pesticides have a special statement printed on the label in a prominent place. Pesticides that do not contain this statement are general use pesticides, except where special state restrictions apply. For information about California restricted materials, check the DPR list, *California Restricted Materials Requirements,* available from county agricultural commissioners. Some labels have restrictive statements indicating that they are for agricultural or commercial use only. A restrictive statement is different from a statement of use classification.

Directions for Use. The directions 13 for use are an important part of the pesticide label that must be followed to keep from violating the law except where federal or state laws specify acceptable deviations from the label (see the section titled, "Deviations from Label Directions").

The directions for use list all the target pests that manufacturers claim their pesticides control. They also include the crops, plant species, animals, or other sites where you can use the pesticides (Figure 1-6). Here is where you find special restrictions that you must observe. These include crops that you may or may not plant in the treated area (plantback restrictions). They also include restrictions on feeding crop residues to livestock or grazing livestock on treated plants.

These instructions tell you how to apply the pesticide. They specify how much to use, where to use the material, and when to apply it. The directions also include the *preharvest intervals* for all crops whenever appropriate. Some labels refer to a "harvest interval" or "interval before harvest." This interval is the time, in days, required after application before you may harvest an agricultural crop.

Agricultural Use Requirements. 14 This special statement appears in the *Directions for Use* section on labels of pesticides approved for use in production agriculture, commercial greenhouses and nurseries, and forests. It refers to the federal Worker Protection Standard (Code of Federal Regulations, Title 40, Part 170), which has

been incorporated into the California Code of Regulations, Title 3 (3CCR). You must use the pesticide according to this standard as well as the requirements on the pesticide label and in 3CCR, whichever is most restrictive. It provides information on the personal protective equipment (PPE) required for *early-entry* workers. It also gives the *restricted-entry interval* (REI) for workers (see below).

15 **Restricted-Entry Statement.** Usually a period of time must elapse before anyone can enter a treated area unless they are wearing personal protective equipment. This period is the restricted-entry interval. Restricted-entry intervals vary according to the toxicity and special hazards associated with the pesticide. The crop or site being treated and its geographic location also influence the length of this interval. Some pesticide uses in California require longer restricted-entry intervals than those listed on the pesticide label. Check with the local agricultural commissioner for this information.

16 **Misuse Statement.** The misuse statement reminds users to apply pesticides according to label directions.

17 **Storage and Disposal Directions.** Directions for properly storing and disposing of the pesticide and empty pesticide containers are another important part of the label. Proper disposal of unused pesticides and pesticide containers reduces human and environmental hazards. Some pesticides have special storage requirements because improper storage causes them to lose their effectiveness. Improper storage may even cause explosions or fires.

18 **Warranty.** Manufacturers usually include a warranty and disclaimer on their pesticide labels. This information informs you of your rights as a purchaser and limits the liability of the manufacturer.

EMERGENCY EXEMPTIONS AND SPECIAL LOCAL NEEDS

Occasionally pest problems arise that you cannot control with currently registered pesticides. Sometimes the commodity, target pest, or site are not on the registered pesticide label. In some situations, you can request an emergency exemption or a special local need (SLN) registration. The emergency exemption or SLN label must be at the use site at the time of use.

Emergency Exemptions from Registration. Emergency exemptions from registration, also known as Section 18 Emergency Exemptions or *Section 18s,* address pest problems for which there are no pesticides registered. DPR evaluates the emergency, and if it meets certain criteria, DPR submits an exemption request to the U.S. EPA. The U.S. EPA evaluates DPR's request and, upon approval, issues the emergency exemption. There are four types of Section 18s:

- specific
- public health
- quarantine
- crisis emergencies

There must be no feasible alternative to the exemption, which allows the sale and use of a certain pesticide product for a specific nonregistered purpose during a specified period of time.

All Section 18s require a restricted materials permit for possession and use. Regulations impose strict controls and require recordkeeping for all emergency uses. You must understand the special requirements and responsibilities involved whenever you use pesticides with emergency exemptions. Section 18 "labels" prescribe application rates, safety precautions, and other vital application information you must

comply with in the same manner as any other registered label.

Special Local Need Registrations. Special Local Need (SLN) registrations are categorized as Section 24(c) registrations. They allow states to expand the uses of certain registered pesticides within their jurisdictions. For instance, some SLNs allow uses of pesticides for crops or sites not listed on the label. Manufacturers must provide the label for each SLN registration.

The registration numbers of Special Local Need labels include "SLN" and the code for the state issuing the registration (CA). These registrations are legal only in the region, state, or local area specified on the label. Applying a pesticide having an SLN from another state or region subjects you to civil and criminal penalties.

To find out which SLN registrations pertain to your area, contact any of the following:

- the local county agricultural commissioner's office
- a UC Cooperative Extension farm advisor
- a pest control dealer

RESEARCH AUTHORIZATIONS

California has specific regulations regarding experimental, unregistered uses of pesticide products. In most cases, before you use pesticides in these ways, you are required to obtain a Research Authorization from the Pesticide Registration Branch of DPR. A Research Authorization is not an exemption from pesticide registration. Research Authorizations are issued only to allow research for unregistered uses on limited acreage. They sometimes require that the research crop be destroyed. California's Research Authorization program is meant to allow for research that contributes to the registration process. Research Authorizations are different from Experimental Use Permits, which must be reviewed and registered by the U.S. EPA and then by DPR.

In some cases, colleges and universities doing research under established university policies do not need to obtain a Research Authorization. Check with your institution. Pesticide registrants doing experimental work on property under their control do not need to obtain a Research Authorization.

DEVIATIONS FROM LABEL DIRECTIONS

Sometimes regulations allow you to use pesticides in a manner that varies from label directions. These methods generally involve safer or less disruptive uses of the pesticide. For instance, University of California *Pest Management Guidelines* sometimes recommend pesticide rates that are lower than label instructions. Researchers recommend these rates to protect beneficial organisms.

Following are the only label deviations allowed by California law. These exceptions may change at any time or may not apply in certain instances. Always check with DPR or your local agricultural commissioner before using a pesticide in any manner that varies from label directions.

Decrease in rate per unit treated. Some guidelines call for less pesticide than the amount listed on the label, although the volume of diluent or carrier, such as water or oil, must remain the same. This is usually because a lower rate is less disruptive to natural enemies. Consider, for example, the guidelines for controlling spider mites in almonds. If there are adequate levels of beneficials, the guidelines recommend as little as 1/10 of the label rate of specific acaricides. The lower rate reduces pest numbers to a level where predators can maintain control.

However, be cautious about using lower rates. Sometimes using lower rates speeds up the development of pesticide resistance in the target organism. To avoid possible problems when using lower rates, check first with the local farm advisor.

Under no circumstances can you legally increase the amount of pesticide you apply beyond the maximum label rates.

Decrease in the concentration of the mixture applied. Label instructions usually state the volume of water to use when preparing a spray mixture. It is always possible to use more water than this, however too much water may cause excessive dilution and runoff. This results in not enough of the pesticide getting to the target pest. In most cases, use only as much water as necessary to obtain thorough coverage. Be sure this is not less than what the label states.

Increase in concentration as long as it corresponds with published recommendations of the University of California. There are times when it would be convenient to use a more concentrated mixture than the dilution rate specified on the label. Although you would apply no more than the labeled rate of pesticide, you would prefer using less diluent or carrier, such as water or oil. If there are current, published UC guidelines for doing this, you can increase the concentration. However, these guidelines are pesticide-specific. Comply with all other label instructions. Remember, verbal recommendations of any type are not acceptable.

Application at a frequency less than specified. Label instructions often prescribe how often to apply a pesticide. Manufacturers recommend this frequency to maintain adequate control of the pest being treated. It is permissible under the law to make applications less frequently than the label recommends. If your monitoring confirms that less frequent applications adequately control pests, there is no need to make additional treatments. Additional applications sometimes increase other pest problems by disrupting natural enemies. Besides, it is expensive to use unneeded pesticides.

However, reducing the frequency of a pesticide application below label recommendations may result in inadequate control. Before reducing application frequency, carefully monitor the pest population.

It is never permissible to apply a pesticide more frequently than the interval listed on the label. You may apply the pesticide repeatedly if the label does not limit the number of applications or it states "apply as needed." Monitor the pest to be sure that repeated applications are necessary.

Use to control a target pest not on the label when the commodity or site is on the label and use against an unnamed pest is not expressly prohibited. You may wish to use a pesticide on a commodity or site listed on the label, but the label does not list the target pest. As long as the label does not *forbid* use of this pesticide against the pest on the commodity or site, you may use it. Be certain the label lists the intended commodity or target site. Follow all other label instructions.

Use of any method of application not prohibited, provided other label directions are followed. Most label recommendations do not specify exactly how to apply the pesticide. Should this be the case, it is possible to use any practical method. However, be sure the method you choose allows you to follow all other label directions.

Applying a pesticide by ground or by air is an example. If there is no prohibition against aerial application on the label, you may use either method. However, you must comply with all label directions. (It may not be possible to apply a pesticide by air when the label prohibits the lower dilution rate required for aerial application.)

Tank-mixing with another pesticide or fertilizer, unless prohibited. You may want to combine one pesticide with one or several others or with fertilizers. This type of application saves time and reduces application costs. Unless specifically prohibited by directions on any of the labels, it is permissible to apply pesticides in combination.

Even though the label does not prohibit mixtures, you may experience incompatibility problems with certain combinations of pesticides or pesticides and fertilizers. Check for incompatibility before mixing large volumes.

Never mix a pesticide with another pesticide or fertilizer if the label prohibits such a mixture. Label restrictions may specify general classes of chemicals such as sulfur-containing materials, alkaline chemicals, or oils.

Exceptions to or substitutions for personal protective equipment (PPE) requirements. State regulations provide for the following exceptions to some pesticide label PPE requirements:

- If you are using a closed system according to the DPR Director's closed system criteria to handle pesticide products with the signal word *Danger* or *Warning,* you may substitute coveralls, chemical resistant gloves, and a chemical resistant apron for personal protective equipment required by the pesticide label.* Properly mixing pesticides packaged in water-soluble packets is considered to be using a closed system.
- If you use a closed system to handle pesticide products with the signal word *Caution,* you may substitute *work clothing* for the personal protective equipment required by the pesticide label.* Properly mixing pesticides packaged in water-soluble packets is considered to be using a closed system.
- If you are applying pesticides from an enclosed cab (including the cockpit of an aircraft), you may substitute work clothing for personal protective equipment required by the pesticide product label. If respiratory protection is required, you must wear this while applying pesticides from ground application equipment unless the cab is approved for respiratory protection.**

* If the closed system you use operates under positive pressure, you must use protective eyewear. Also, all personal protective equipment required by the pesticide product label must be immediately available for use in an emergency.

** If you are working in an enclosed cab, other than an aircraft, you must have with you all personal protective equipment required by the pesticide product label. Keep this PPE immediately available and store it in a chemical-resistant container, such as a plastic bag. Wear this label-required personal protective equipment if it is necessary to work outside the cab and contact pesticide treated surfaces. Remove and store this PPE in a plastic bag before reentering the cab.

REVIEW QUESTIONS

(answers on page 119)

1. Which of the following could be considered part of a *pesticide label?*
- ☐ a. a spray nozzle catalog
- ☐ b. the manufacturer's advertisement in a grower magazine
- ☐ c. the Federal Worker Protection Standard
- ☐ d. a written recommendation from a licensed Pest Control Adviser

2. When a manufacturer allows the registration of its pesticide product to lapse, pesticide dealers who sell this product
- ☐ a. must immediately return all unsold product to the manufacture
- ☐ b. may lawfully sell and deliver the product for two years
- ☐ c. must recall all of the product in the possession of end users
- ☐ d. may lawfully sell and deliver all remaining product for as many years as it takes

3. When the registration of a pesticide product has been cancelled, the sale and use of this product
- ☐ a. may always continue until supplies are exhausted
- ☐ b. may continue if the regulatory agency provides for a specified period allowing for its sale and use
- ☐ c. will always be allowed for two years from the date of cancellation
- ☐ d. will never be allowed by regulatory agencies under any circumstance

4. An *Emergency Exemption from Registration* allows a pesticide product to be used for a
- ☐ a. specific nonregistered purpose for an unlimited amount of time
- ☐ b. non-specified purpose for a specific amount of time
- ☐ c. specific nonregistered purpose for a specified time
- ☐ d. non-specified purpose for an unlimited amount of time

5. A *Special Local Need Registration* (SLN) allows
- ☐ a. growers to apply the pesticide to any crop as long as the SLN is valid in the grower's state
- ☐ b. supplemental uses of the pesticide uniformly throughout the U.S.
- ☐ c. uses of pesticides for crops or sites not listed on the label
- ☐ d. any feasible use of the pesticide in the specified local area

6. A *supplemental label* is
- ☐ a. literature distributed by the pesticide manufacturer by mail
- ☐ b. a sample pesticide label produced by the manufacturer or others
- ☐ c. the same as a *special local need* label
- ☐ d. a pamphlet containing required pesticide label information that will not fit on the container label

7. The purpose of the *signal word* on any pesticide label is to
- ☐ a. inform users and handlers of the relative acute toxicity or hazard of the product
- ☐ b. tell users the formulation type of pesticide product
- ☐ c. specify on which crops the product is registered
- ☐ d. specify the pest the product controls

8. The *precautionary statements* section of the label contains information about the
- ☐ a. application rate
- ☐ b. crops on which the product can be applied
- ☐ c. relative toxicity of the product
- ☐ d. hazards to people and domestic animals

9. *Plantback restrictions* are found in the _____ section of the pesticide label.
- ☐ a. precautionary statements
- ☐ b. statement of practical treatment
- ☐ c. contents
- ☐ d. directions for use

10. A *decrease* below the label rate of the amount of the pesticide product applied to a crop or site is
- ☐ a. always allowed
- ☐ b. illegal
- ☐ c. allowed only if you obtain written authorization from the county agricultural commissioner
- ☐ d. allowed only if the product is tank mixed

11. An *increase* above the label rate of the amount of the pesticide product applied to a crop or site is

- ☐ a. always allowed
- ☐ b. illegal
- ☐ c. allowed only if you obtain written authorization from the county agricultural commissioner
- ☐ d. allowed only if the product is tank mixed with another similar product

12. If a pesticide label limits the number of applications of a product to three a year, you can

- ☐ a. never make fewer than three applications in one year
- ☐ b. always make fewer than three applications in one year
- ☐ c. make four or more applications in one year if the pest problem is severe
- ☐ d. make four or more applications of the specified product in one year if you alternate each application with another pesticide product

2 Restricted Materials

Federal Restricted Use Pesticides 22

California Restricted Materials 23

REVIEW QUESTIONS 29

PESTICIDES WITH CERTAIN ACTIVE ingredients are potentially more hazardous than others even when they are used according to the registered label. The U.S. EPA has designated these as *restricted use pesticides.* The Director of DPR has designated additional pesticides with certain active ingredients as *California restricted materials.* The California restricted materials list includes U.S. EPA restricted use pesticides and those pesticides the DPR Director has designated as California restricted materials. The possession or use of restricted materials is regulated more closely and permitted only under a restricted materials permit issued by the county agricultural commissioner. After evaluating an applicant's qualifications, the county agricultural commissioner may grant to certified commercial or private applicators a possession and use permit for the restricted materials.

Federal Restricted Use Pesticides

Federal restricted use pesticides, which bear the statement "Restricted Use Pesticide" on the label, are restricted because U.S. EPA has determined that

- their acute dermal (skin) or inhalation (lung) toxicity presents hazards to applicators or others
- their use by people who do not have a demonstrated level of competence in the safe handling of pesticides could lead to unreasonable harm to the environment

Supervision Standards for Certified Applicators. Federal restricted use pesticides or California restricted materials must be used only by or under the supervision of a certified commercial or private applicator, unless the label specifies otherwise. The certified applicator responsible for this supervision must be aware of the conditions at the site of application and be available to direct or control the manner in which applications are made by noncertified applicators. The availability of the certified applicator must be directly related to the actual or potential hazard of the situation.

The labels of a few specific federal restricted use pesticides require the certified applicator to provide direct supervision and to be physically present when noncertified handlers are involved in applying, mixing, or loading these pesticides and when they repair or clean the application equipment (Figure 2-1). "Physically present" means the certified applicator must remain in the line of sight to

- observe that noncertified handlers follow the label directions
- provide guidance if the label is unclear
- intervene if the noncertified handler fails to follow safe and effective handling procedures or fails to adhere to label directions
- respond if an unusual situation occurs

FIGURE 2-1.

The labels of a few specific federal restricted use pesticides require the certified applicator to provide direct supervision and to be physically present *when noncertified handlers apply, mix, or load these pesticides or repair or clean application equipment.*

California Restricted Materials

California has classified pesticides with certain active ingredients, including federal restricted use pesticides, as California restricted materials based on the following criteria:

- danger or impairment to public health
- hazards to pesticide applicators and fieldworkers
- hazards to domestic animals (including honey bees) or to crops from direct application or drift
- hazards to the environment from drift onto streams, lakes, or wildlife sanctuaries
- hazards related to persistent residues in the soil that could result in contamination of the air, waterways, estuaries, or lakes with consequent damage to fish, wild birds, or other wildlife
- hazards to subsequent crops through persistent soil residues

The Director of DPR has adopted regulations about the possession and use of any restricted material. These regulations prescribe the time when, and the conditions under which, a restricted material may be possessed or used in California. Use is limited to situations in which

- it is reasonably certain that no injury will result, *and*
- there is no nonrestricted material or procedure that is equally effective and practical

Restricted Materials Permit

With certain exemptions, to possess or use any restricted material for agricultural use you must have a written permit from a county agricultural commissioner or the Director of DPR or be under the direct supervision of the county agricultural commissioner. This written permit is called a restricted materials permit (Figure 2-2). The use of restricted materials may be subject to additional specific limitations

- in certain areas
- under certain conditions relating to safety
- regarding certain specified quantities or concentrations
- regarding certain mixtures
- in compliance with industrial safety orders of the Department of Industrial Relations and any order of the Director of DPR or county agricultural commissioner
- agreed upon by the owner or person in possession of the property to be treated to comply with certain conditions

Before a restricted materials permit is issued, the county agricultural commis-

YOLO COUNTY DEPARTMENT OF AGRICULTURE
70 COTTONWOOD STREET, WOODLAND, CA

Office: [530] 666-8140
Recorder: (MO) [530] 662-1487
FAX: [530] 662-8094

RESTRICTED MATERIALS PERMIT

Operation Name and Address:	PERMIT #:
	County HD District #:
	Expiration Date:
	Effective Date:
Grower Name and Address:	Home Phone:
	Shop Phone:
	FAX:
	Mobile Phone:

Permittee Type	Permit Type	Possession	NOI Method of Submission
Private App ☐ Ag PCO ☐ QA Cert ☐ Non-Ag ☐	Seasonal ☐ Job ☐	Poss & Use ☐ Poss Only ☐	Phone ☐ Fax ☐ Box ☐ Modem ☐ In Person ☐ NOI required 24 hours prior to application

Chemical Number	Pesticide/Manufacturer	Pest(s)	Formulation	Method(s) of Application	Application(s)

Non-Ag Use:
Conditions:

I understand that this permit does not relieve me from liability for any damage to persons or property caused by the use of these pesticides. I waive any claim of liability for damages against the County Department of Agriculture based on the issuance of this permit. I further understand that this permit may be revoked when pesticides are used in conflict with the manufacturer's labeling or in violation of applicable laws, regulations and specific conditions of this permit. I authorize inspection at all reasonable times and whenever an emergency exists, by the Department of Pesticide Regulation or the County Department of Agriculture of all areas treated or to be treated, storage facilities for pesticides or emptied containers and equipment used or to be used in the treatment. [Form PR-ENF-125 (Rev. 07/92) Pesticide Enforcement Branch]

Permit Applicant:	Sign:
Title:	Issue Date:
Issuing Officer:	Issue Date:

Employees handle pesticides (Y or N)

Contact People	Phone	PCO	PCA	PCD	Other
		☐	☐	☐	☐
		☐	☐	☐	☐
		☐	☐	☐	☐

Site#	Location/Site Narrative	District	Sector	Township	Range	Meridian

Crop	Quantity	Unit	Condition

FIGURE 2-2.

With certain exemptions, to possess or use any restricted material for agricultural use you must have a written permit, called a restricted materials permit, *from a county agricultural commissioner or the Director of DPR or be under the direct supervision of the county agricultural commissioner.*

sioner or the Director of DPR must consider local conditions, including the following:

- location of schools, homes, hospitals, recreational areas, or livestock enclosures
- problems related to heterogeneous (dissimilar) planting of crops
- the possibility of resurgence of primary or secondary pests that may result from improper pesticide choice. The application might kill parasites or predators, subsequently promoting a new or more severe pest problem.
- weather conditions
- timing of applications in relation to bee activity (Figure 2-3). Proper timing can greatly reduce hazards to bees. Some pesticides, when they are applied at night or early in the morning do not present a severe hazard to bees, while the same pesticide applied during the day may have a devastating effect on bees.
- pesticide storage facilities and disposal of used containers (All pesticides must be stored in a locked enclosure except when someone is physically in control of them. The storage and container disposal requirements are addressed in Chapter 4 of this study guide.)

Pest control operations must always be carried out in accordance with all permit conditions. The specific

conditions of use will be spelled out in each restricted materials permit, but every permit issued is conditioned on compliance with the registered label(s) and applicable laws and regulations.

Individuals and businesses engaged in pest control for hire must have available a copy of

- the written pest control recommendation

OR

- the grower's work order covering each agricultural use application of a general use pesticide or a pesticide that requires a permit

AND

- the use permit covering each agricultural use application of a pesticide that requires a permit

Alternatives and Mitigation Measures. Agricultural pest control advisers and growers must make pest control decisions with the aim of causing the least adverse impact on the environment. When determining when to use a pesticide that requires a permit, they must consider and adopt if feasible any reasonable, effective, and practical mitigation measures or use any feasible alternative that would substantially lessen any significant harmful effects on the environment.

Nonagricultural Restricted Materials Permit. Restricted materials permits for nonagricultural use may be issued to the operator of the property to be treated or to the designated pest control business licensee. A permit is valid for possession or use only by the person named in the permit. Your application for a restricted materials permit for nonagricultural use must include the following information:

- name and address of the applicant (property operator or pest control business)
- restricted materials to be possessed or used
- pest or pests to be controlled
- method of application
- criteria for determining the need for the pesticide application

Agricultural Restricted Materials Permit. Permits for agricultural use of restricted pesticides must be *site and time specific*. They may be issued only to the operator of the property to be treated, or when the county agricultural commissioner allows, to the operator's authorized representative or licensed Agricultural Pest Control Adviser. In either case, however, the operator of the property is responsible for compliance with all permit conditions. A permit is valid for possession or use only by the person named in the permit. An application for a permit for the agricultural use of a restricted material must include the following information:

- the name and address of the applicant
- the location of each property to be treated
- identification of all known areas that could be adversely impacted by the use of the pesticide or pesticides. These areas include, but are not limited to, hospitals, schools, playgrounds, residential areas (including labor camps), parks, lakes, waterways, wildlife management areas, or nearby livestock or crops. A map or aerial photograph may be used for designating such areas.
- identification of each commodity, crop, or site to be treated
- the anticipated pest problems for each crop pest or pests to be controlled
- the restricted materials necessary to control each pest on each commodity, crop, or site
- the approximate dates or crop stages of the intended pesticide application or applications
- the expected method of application including the dilution, the volume per acre or other unit, and the dosage

FIGURE 2-3.

Before a restricted materials permit is issued, the county agricultural commissioner must consider local conditions, including the timing of applications in relation to bee activity.

SIDEBAR 2

Restricted Materials Permit Exemptions

Pesticide registrants and pest control dealers, when operating under their licenses, and commercial carriers when transporting such materials, are not required to obtain a restricted materials permit to possess the restricted materials.

- ☐ No permit is required to possess or use a pesticide that is only federally restricted when it is possessed or used under the supervision of a certified applicator, unless otherwise required by the county agricultural commissioner.
- ☐ No permit is required to possess or use antifouling paints or coatings containing tributyltin when they are purchased, possessed, or used by or under the supervision of a certified commercial applicator whose certificate or license includes Category L.
- ☐ No permit is required to possess or use restricted materials used only for experimental or research purposes when these materials are possessed or used by or under the supervision of research personnel from colleges and universities, provided they are operating according to the current established policy of the college or university covering pesticide use or experimentation.
- ☐ No permit is required to possess or use restricted materials that are used according to a valid Research Authorization.
- ☐ No permit is required to possess or use restricted materials that are listed under California Code of Regulations, Title 3, Section 6800(a) if they are used by or under the supervision of a certified applicator outside of a Pesticide Management Zone.

- the name of the pest control operator, if any, and the name, the business address, and the number and expiration date of the certificate or license of the certified commercial applicator responsible for possessing or using the restricted material

The submitted restricted materials permit application and the Notice of Intent process authorizes the county agricultural commissioner to evaluate whether a substantial environmental impact will result from the proposed application and to condition or deny the permit to prevent such impact.

Restricted Materials Permit Duration. A permit to use a restricted material is valid for one year or for a single growing season, unless it is revoked or suspended. However, the county agricultural commissioner or the Director of DPR may issue permits for perennial agricultural plantings, nonproduction agricultural sites, or nonagricultural sites that are valid for up to three years. After the permit expires, the permittee may retain possession of the restricted material for which the permit was valid, provided the pesticide is not held for sale, and is stored properly. (Storage requirements

are addressed in Chapter 4 of this study guide.)

Notice of Intent (NOI). Since permits issued for agricultural use of pesticides must be site and time specific, you must submit a Notice of Intent to the county agricultural commissioner at least 24 hours prior to beginning your application. The county agricultural commissioner may allow less than the required 24-hour Notice of Intent if they determine that

- because of the nature of the commodity or pest problem, you need to start your application sooner to attain effective pest control

OR

- they do not need 24 hours to evaluate the intended application

The Notice of Intent may be submitted to the county agricultural commissioner by the property operator, the operator's authorized representative, or the licensed pest control business making the pesticide application, and must provide information about the proposed application. If this information has already been provided on the restricted materials permit, you can just make reference to the permit on the Notice of Intent. The Notice of Intent must supply the following information:

- the restricted materials permit number
- the name and address of the permittee and the applicator
- the location of areas to be treated and the name of the farm operator
- the crop or commodity, or if there is no crop or commodity, the site to be treated
- the approximate acres or other units to be treated
- the method of application and the restricted material or restricted materials to be used
- the dilution, the volume per acre or other units, and the dosage
- the pest or pests to be controlled
- the date the intended application is to commence
- the locations and identity of areas that have changed since the permit was issued and that may be adversely impacted

Restricted Materials Permit Evaluation. Before issuing any restricted materials permit and when evaluating a Notice of Intent, the county agricultural commissioner must consider the environmental impact of the proposed pesticide use. If they determine that a substantial adverse effect on the environment is likely, they must decide whether there is a feasible alternative—including the alternative of no pesticide application—or feasible mitigation measures that could substantially reduce the adverse impact. If they identify feasible alternatives or mitigation measures, they must deny the permit or intended pesticide application, or approve it on the condition that mitigation measures be used.

When they make these determinations, the county agricultural commissioner must consider and make use of their knowledge of local conditions, applicable sections of the California Food and Agricultural Code and the California Code of Regulations, pest management guidelines, restricted material hazard charts, DPR's Pesticide Safety Information Series (PSIS) leaflets, information obtained from monitoring other pest control operations, and any other information provided by the Director of DPR.

In addition to the required information specified in the nonagricultural and agricultural portions of the permit, each permit must contain the following:

- any appropriate conditions or limitations on the use of the pesticide or pesticides, including available PSIS leaflets for each pesticide included on the permit

- the requirements, if any, for a Notice of Intent prior to the pesticide application
- any other appropriate conditions or limitations such as those described in pest management guidelines (The county agricultural commissioner will inform the permittee which of the pest management guidelines are applicable to the pest control authorized in the permit, and where to obtain them.)

Pesticide Safety Information Series (PSIS) Leaflets. DPR has developed PSIS leaflets to provide additional information about pesticides, groups of pesticides, or general information about pesticide use (e.g., first aid, respiratory protection, storage, and disposal). The county agricultural commissioner will provide all applicable PSIS leaflets to restricted materials permittees when a permit is issued. PSIS "Series A" has been written for use in agricultural settings, and PSIS "Series N" is for use in noncrop settings. The PSIS leaflets are available on DPR's web site at http://www.cdpr.ca.gov/whs/psisenglish.htm.

Generalized Effects. If at any time pesticide residues, symptoms, or health hazards appear generally throughout any area, the DPR Director or the county agricultural commissioner may make a field inspection. If they determine that substantial loss, damage, or injury is likely to result from continued application of a specific pesticide within such an area, they may cancel all permits for applications of that pesticide within that area and specify that no additional permits may be issued until further notice.

Use Requirements. California restricted materials regulations apply to everyone who receives a restricted materials permit and may include, for example, restrictions regarding

- the amount of pesticide that can be applied
- the methods of application
- where the restricted material can be applied
- additional protective clothing and safety equipment that must be worn or used

Employers are required to supply their employees with all specified protective clothing and safety equipment and to ensure that the employees wear and use the required equipment. This employer requirement applies under all circumstances when employees handle pesticides.

Pest Control Dealer Responsibility. Before licensed pest control dealers may sell or deliver a restricted material, they must obtain a copy of the prospective buyer's restricted materials permit. The permit demonstrates that the buyer is authorized to possess or use the kind and quantity of the restricted material they are seeking to purchase on the date the restricted material will be delivered. Other pest control dealer requirements are addressed in Chapter 3.

Exempt Materials. DPR's Director exempts some pesticides from permit requirements. These are pesticides that DPR determines require no further restrictions beyond those imposed by federal regulations and the label. DPR maintains a list of exempt materials.

Materials Exempt from Restriction. DPR's Director also exempts from restrictions certain materials. These materials contain pesticides (active ingredients) that are otherwise restricted by permit, but usually in amounts below a certain percentage by weight or in formulations that may be considered less hazardous. DPR maintains a list of materials exempt from restrictions. If the label designates

the material as a Federal Restricted Material, the Director's exemption does not apply.

Refusal, Suspension, or Revocation of a Restricted Materials Permit. Your restricted materials permit may be refused, revoked, or suspended if you violate any condition of the permit, or any provision of the laws or regulations. Violations could include

- failure to prepare pesticide use records and keep these on file for two years, or failure to report pesticide use as required by the Director of DPR or the county agricultural commissioner
- preparing false or fraudulent records or reports
- refusing to allow the county agricultural commissioner or the Director of DPR to enter and inspect a treatment site or storage facility or to inspect application equipment, or the pesticide product or products being used

REVIEW QUESTIONS

(answers on page 119)

1. **The U.S. EPA may classify a pesticide as a restricted use pesticide if it**
   - ☐ a. is ineffective unless used at twice the label-recommended rate
   - ☐ b. presents a significant dermal hazard to applicators
   - ☐ c. leaves visible residues on treated surfaces
   - ☐ d. does not break down within 7 days

2. **Any person in California who applies or supervises the application of a restricted use pesticide must**
   - ☐ a. attend 20 hours of special training
   - ☐ b. notify the local UC Cooperative Extension advisor before making or supervising an application
   - ☐ c. obtain a medical release from a physician
   - ☐ d. be a California-certified commercial or private applicator

3. **Which of the following is *not* a criterion for DPR to classify a pesticide as a California restricted material?**
   - ☐ a. the pesticide is effective and practical
   - ☐ b. the pesticide could be dangerous to public health
   - ☐ c. there is a hazard to subsequent crops through persistent soil residues
   - ☐ d. there is a hazard to honey bees from direct application or drift

4. **Which two documents must individuals who are engaged in pest control for hire have available when making an agricultural use application of a pesticide that requires a permit?**
   - ☐ a. copies of their business license and the applicable UC Pest Management Guideline
   - ☐ b. a valid driver's license and the current restricted materials permit
   - ☐ c. the grower's work order and a valid driver's license
   - ☐ d. copies of the written pest control recommendation or grower's work order and the current restricted materials permit

5. **An application for a restricted materials permit for nonagricultural use must include the**
   - ☐ a. name and address of the nearest agricultural commissioner's office
   - ☐ b. name and address of the individual who will be making the application
   - ☐ c. criteria for determining the need for the pesticide application
   - ☐ d. known health effects of the pesticide to be applied

6. **Permits for the agricultural use of restricted pesticides must be**
   - ☐ a. site and time specific
   - ☐ b. mailed or personally delivered to anyone living within 1/4 mile of the application
   - ☐ c. approved by the Director of the California Department of Food and Agriculture
   - ☐ d. posted in a central location for 30 day after the application

7. **A restricted materials permit is valid for up to _____ year(s) for certain types of perennial agricultural plantings.**
   - ☐ a. 1
   - ☐ b. 3
   - ☐ c. 5
   - ☐ d. 7

8. A Notice of Intent must be filed with the county agricultural commissioner no less than _____ hours before applying an agricultural use restricted pesticide.

- ☐ a. 12
- ☐ b. 24
- ☐ c. 48
- ☐ d. 72

9. Which of the following is *not* required information on a Notice of Intent?

- ☐ a. the date the intended application will begin
- ☐ b. an indication of the approximate acres or units to be treated
- ☐ c. the pest or pests to be controlled
- ☐ d. a signed statement releasing the property owner or operator from liability

10. The Pesticide Safety Information Series (PSIS) leaflets with the "N" designation are written for

- ☐ a. non-certified pesticide handlers
- ☐ b. noncrop settings
- ☐ c. non-traditional methods of pesticide application
- ☐ d. non-English speaking pesticide handlers

11. Restricted use pesticides may be exempt from permit requirements in California if the DPR Director determines that the pesticide

- ☐ a. application may be supervised by a non-certified handler
- ☐ b. will cause no hazards in California
- ☐ c. is too hazardous to use in California
- ☐ d. requires no further restrictions beyond those imposed by federal regulations and the label

12. A restricted materials permit may prescribe

- ☐ a. additional protective clothing and safety equipment that must be worn or used
- ☐ b. the specific brand of application equipment that must be used
- ☐ c. the temperature of the water used to fill the spray tank
- ☐ d. a specific number of years of experience for the person making the application

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ANYONE WHO ADVERTISES, solicits, or operates as a pest control business in California must be licensed by the Department of Pesticide Regulation (DPR) or the Structural Pest Control Board (SPCB).* DPR issues licenses to people who perform pest control for hire. Exempted from DPR's licensing requirements are people who engage for hire in any of the following:

- preservative treatment of fabrics or structural materials
- seed treatment that is incidental to (occurs while performing) the individual's regular business
- structural pest control
- household or industrial sanitation services
- live capture and release of vertebrate pests

Also, if you regularly engage in the business of tree surgery, you are not required to obtain a license to remove diseased or infested tissues or to apply disinfectants to wounds or cavities incidental to tree surgery. If you want to engage in pest control activities other than tree surgery, you must obtain a license from DPR.

DPR also issues licenses or certificates to

- pest control advisers
- individuals who use or supervise the use of restricted materials
- people making aerial pesticide applications

AND

- those individuals who supervise the operations of licensed pest control dealers and businesses

To obtain these licenses and certificates applicants must pass examinations prepared and administered by DPR. The passing score is 70 percent on the "Laws, Regulations, and Basic Principles" examination and one or more category examinations.

Pest Control Business License

Anyone who advertises, solicits, or operates as a pest control business must obtain a Pest Control Business License (unless they fall under the licensing exemptions listed above). Each pest control business must also have a qualified applicator licensee responsible for the pest control operations of the business. To obtain a Qualified Applicator License (QAL) you must pass DPR's "Laws, Regulations, and Basic Principles" examination. This examination covers laws and regulations pertaining to pesticides and pest control operations and basic safety principles. In addition, you must also pass one or more of the category examinations listed in Sidebar 3, depending on what type of pest control will be conducted by the business.

Minimum Requirements. You can apply for a Pest Control Business License by submitting a completed application and the required fee to DPR. The name of the person who holds the QAL and is responsible for the operations must be listed on the application, including the license

*If you need help determining whether you need a DPR pest control license or a structural pest control license, contact DPR's Pest Management and Licensing Branch or the SPCB for advice on which license is required. See the "Introduction" for SPCB contact information.

SIDEBAR 3

Qualified Applicator License and Certificate Pest Control Categories

(A) Residential, Industrial, and Institutional

(B) Landscape Maintenance

(C) Right-of-Way

(D) Plant Agriculture

(E) Forest

(F) Aquatic

(G) Regulatory

(H) Seed Treatment

(I) Animal Agriculture

(J) Demonstration and Research

(K) Health-Related

(L) Wood Preservation (subcategory of A and C).

(M) Antifouling-Tributyltin (subcategory of A).

(N) Sewer Line Root Control (subcategory of A).

(Q) Maintenance Gardener (subcategory of B).

number. If your business has employees, you must also include each of the following:

- name of the worker's compensation insurance carrier
- policy number
- policy expiration date

In addition, you must provide proof of financial responsibility for damages resulting from your pest control work. You can satisfy this requirement by submitting evidence of one of the following:

- liability insurance
- a Surety Bond
- a Certificate of Deposit in the DPR Director's name

You cannot be issued a Pest Control Business License unless all of these requirements are satisfied.

County Registration. Once you have secured a Pest Control Business License, before you conduct any work you must register with the agricultural commissioner in each county in which you intend to operate your pest control business. Most counties require a fee for registration of the principal office location and for each branch office location. Registration is required annually and covers one calendar year. Contact the county agricultural commissioner for more information.

Pest Control Equipment. If you engage in the business of pest control for hire you must conspicuously and legibly identify each piece of equipment you use for mixing or applying pesticides. You must mark each ground

rig, service rig, and similar equipment you use for mixing or applying pesticides with either the name of the business or with "Licensed Pest Control Operator," "Fumigation Division," or similar wording. You must also include your pest control operator license number or that of the firm. These markings must be large enough to be readable at a distance of 25 feet.

In addition, you must register each piece of application equipment in each county where you intend to use this equipment. The county agricultural commissioner may arrange to have all of your firm's pest control equipment inspected when you register it to ensure that it is properly marked and in safe working condition.

Notice. When you perform pest control you must give notice to the operator of the property you will be treating and obtain that person's consent *before* you apply any pesticide. The operator of the property must then give notice to everyone known to be on the property or likely to enter while any restrictions on entry are in effect. If this notice is given to farm labor contractors, the contractors are responsible for giving notice to their employees. Each notice must

- state the date of the application
- identify the pesticide by brand name or common chemical name
- be adequate to advise of the precautions, including restricted-entry provisions, from the registered label or applicable laws and regulations that must be observed

Completion Notice. In addition to the notice requirements described above, a pest control business that applies pesticides *for the production of an agricultural commodity* must also give a completion notice to the operator of the treated property (or the operator's designated employee) within 24 hours after completing the pesticide application. The operator's designated employee must have the authority and ability to, if necessary, reschedule or stop activities that involve fieldworkers who perform cultural practices (e.g., irrigation, thinning, tree-limb propping, weeding, harvesting). The completion notice must include the following information:

- the location of the property, including the site identification number, and the acreage that was treated
- the pesticide or pesticides that were applied
- the date and hour that the application was completed
- the applicable restricted-entry and pre-harvest intervals, *unless* a copy of a written recommendation made by a licensed Agricultural Pest Control Adviser was given to the operator of the property being treated

If the operator of the property (or the operator's designated employee) will not be available to receive the completion notice within the 24-hour period, the operator of the property must communicate to the pest control business, in writing, the method by which they choose to receive this notification. The method may be, but is not limited to, any of the following:

- posting or leaving the completion notice in a designated location on the operator's property
- recording the completion notice on a phone answering machine or voicemail
- sending the completion notice by FAX

The operator whose property was treated must maintain the following records:

- an application completion notice for each site that was treated
- a copy of the written notification instructions the property operator gave to the pest control business, if that was necessary

The pest control business must retain a copy of the written notification instructions they received from the property operator. The pest control business must also maintain a written record that documents the following:

- the name of the operator of the property that was treated
- the location of the property, including the site identification number
- the date and time the completion notice was given
- the method that was used for notification and the name of the person who was notified

These records must be retained for two years and made readily available to the county agricultural commissioner or Director of DPR upon request.

Recommendation and Use Permit. When you engage for hire in the business of pest control you must keep available a copy of both the written pest control recommendation and the restricted materials permit covering each *agricultural use* application of a pesticide that requires a restricted materials permit.

Accident Reports. When you engage for hire in the business of pest control you must report accidents to the county agricultural commissioner as soon as possible. You must do this by the most expedient method (e.g., radio or telephone). The accidents you must report include

- any forced landing
- any emergency or accidental release of pesticides

The report must include the location of the accident, the pesticide involved, and the estimated amount of pesticide released.

Pesticide Use Records. When you engage for hire in the business of pest control you must maintain records of pesticide use. The records must include the following information for each pest control operation:

- the date of application
- the name of the operator of the property treated
- the location of the property treated
- the crop, commodity, or site treated
- the total acreage or units treated at the site
- the name of the pesticide, including the U.S. EPA or state registration number on the pesticide label, and the amount used

In addition to the required information listed above, the operator of a property producing an agricultural commodity and the pest control business applying pesticides to that property must keep records of the following information for each pest control operation:

- the location of the property treated, by county, section, township, range, base, and meridian
- the hour the treatment was completed
- the operator identification number issued to the operator of the property treated
- the site identification number issued to the operator of the property treated
- the total planted acreage or units at the site
- the name of the person who made and supervised the pesticide application if it was made by a pest control business

The property operator and the pest control business must retain these records for two years and make them immediately available to the county agricultural commissioner or the Director of DPR upon request.

Pesticide Use Reports for Production Agriculture. When a pest control business applies pesticides for the production of an agricultural commodity, they must report this use to the

agricultural commissioner of the county in which the pest control was performed. They must do this by hand delivery or mail *within seven days of completion of the pesticide application.* If they mail the report, the postmark is the date of delivery. Within 30 days of completion of the pesticide application, the pest control business must send a copy of the pesticide use report to the operator of the property where the pest control was done. The property operator must retain a copy of the business's pesticide use report by site for two years.

Pesticide use reports must be on a DPR form (available from the county agricultural commissioner) or in a format approved by the Director of DPR. Reports must include the information specified in the "Pesticide Use Records" section above and the name and address of the pest control business that made the application.

This pesticide use reporting system is designed to generate data to address the numerous issues (e.g., fieldworker and restricted-entry, groundwater, endangered species) that California agriculture faces or will face.

Operator Identification Numbers. In each county where pest control work will be performed, property operators producing an agricultural commodity must obtain an operator identification number from the county agricultural commissioner before the purchase and use of pesticides registered *for the production of an agricultural commodity.* Property operators must provide their operator identification number to each pest control business that applies pesticides to their property for the production of an agricultural commodity.

Negative Pesticide Use Reports. A licensed pest control business must submit a negative Pesticide Use Report during any month in which they performed no pest control work. This negative use report must be submitted to the county agricultural commissioner in each county where the business is registered. They must do this *by the tenth day of the following month.* If the report is mailed, the postmark is the date of delivery.

Violations. When you perform pest control for hire, it is against the law for you to do any of the following:

- make any false or fraudulent record or report
- operate in any county without first having registered with the county agricultural commissioner
- operate without first having obtained a pest control business license from the Director of DPR
- operate equipment with incompetent or unqualified people in charge of the equipment
- use any fraud or misrepresentation in making application for a license or for renewal of a license

No Fee Pest Control Business License

If you do not regularly engage in the business of pest control and if you operate only in the vicinity of your own property and for the accommodation of your neighbors, you do not need to pay the pest control business license fee. However, you are still required to obtain the pest control business license.

Before you can apply for this license, you must obtain a Qualified Applicator License by passing the "Laws, Regulations, and Basic Principles" examination. You must also pass one or more of the category examinations listed in Sidebar 3, depending on the type of pest control you will be conducting. Usually, this is the Plant Agriculture Pest Control category. You must complete continuing education hours

before you can renew your Qualified Applicator License. (You must pay a fee to obtain the required Qualified Applicator License.) If you want to apply for the no-fee pest control business license, contact your local county agricultural commissioner to obtain the appropriate application form and further instructions.

Maintenance Gardener Pest Control Business License

Gardeners, landscape maintenance service companies, and interiorscape service companies that apply pesticides as an incidental part of (in the context of) their business must be licensed as Maintenance Gardener Pest Control Businesses. This license is required for any incidental pest control when it is done for hire, including the use of snail bait and other pesticides that are provided by the home owner.

If you contract to do landscape maintenance with parks, golf courses, or cemeteries you must obtain a Pest Control Business License if your work includes pest control. Pest control for hire in these settings is not covered under the scope of a Maintenance Gardener Pest Control Business License.

Minimum Requirements. To qualify for the Maintenance Gardener Pest Control Business License you must first obtain a Qualified Applicator Certificate (or a Qualified Applicator License) by passing the "Laws, Regulations, and Basic Principles" examination as well as the Landscape Maintenance Pest Control Category examination (see Sidebar 3). You can apply for the Maintenance Gardener Pest Control Business License by submitting a completed application and the required fee to DPR. The name of the person who holds the Qualified Applicator License and the license number must be listed on the application. If your business has employees, you must also include the name of the worker's compensation insurance carrier, the policy number, and the policy expiration date. In addition, as the applicant, you must be financially able to respond to damages resulting from the pest control work.

County Registration. Once you have secured a Maintenance Gardener Pest Control Business License, before you conduct any work you must register with the county agricultural commissioner in each county in which your business intends to perform pest control. Most counties require a fee for registration. Registration is required annually and covers one calendar year.

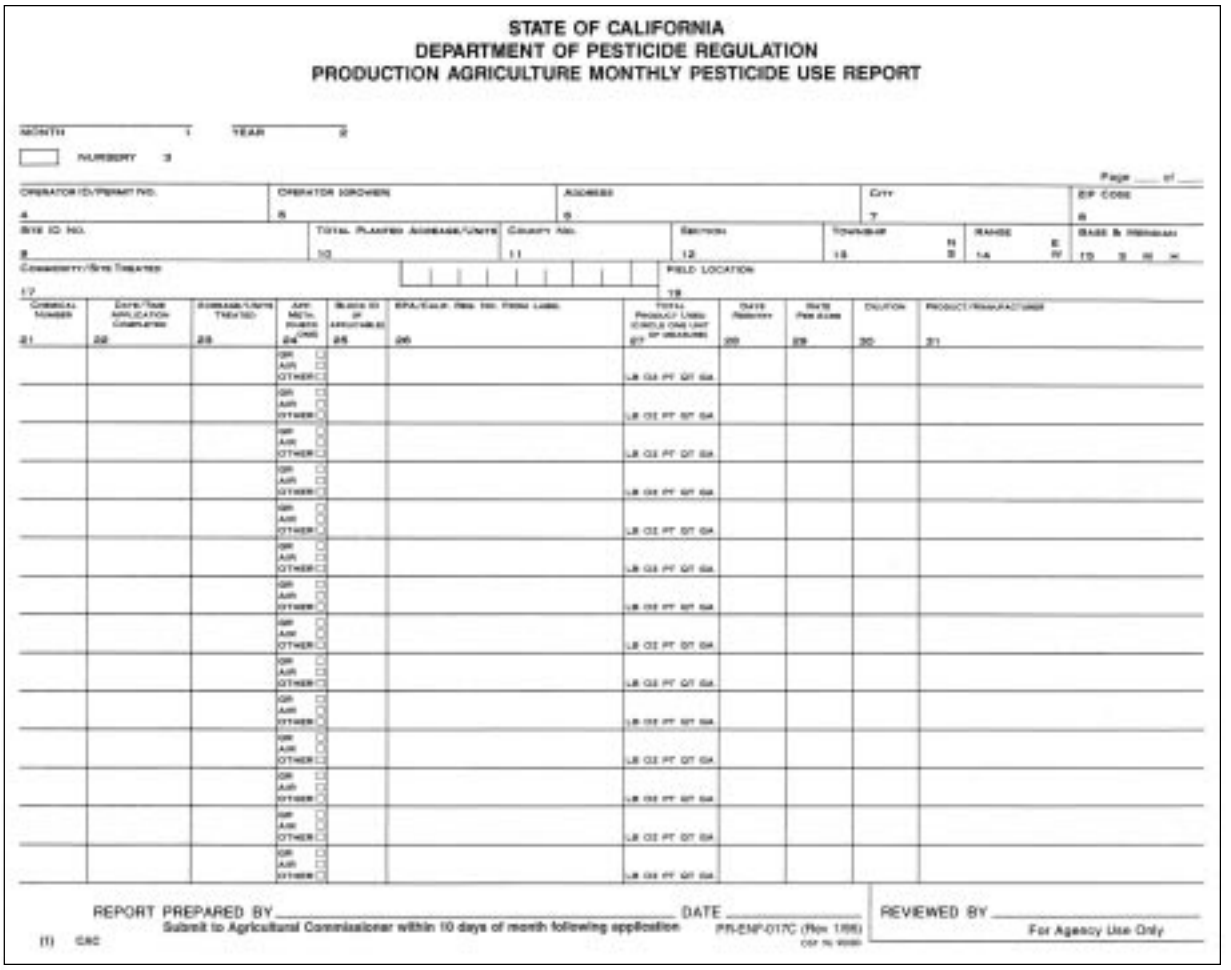
You must make arrangements with the county agricultural commissioner to inspect your pest control equipment for proper markings and proper safe working conditions.

Pesticide Use Records. When you engage for hire in the business of pest control you must maintain records of pesticide use. The records must include the following information for each pest control operation:

- the date of application
- the name of the operator of the property treated
- the location of the property treated
- the crop, commodity, or site treated
- the total acreage or units treated at the site
- the name of the pesticide, including the U.S. EPA or state registration number on the pesticide label, and the amount used

You must retain these records for two years and promptly make them available to the county agricultural commissioner or Director of DPR upon request.

Monthly Summary Pesticide Use Reports. Maintenance gardener pest control businesses that are required to maintain pesticide use records must



STATE OF CALIFORNIA
DEPARTMENT OF PESTICIDE REGULATION
PRODUCTION AGRICULTURE MONTHLY PESTICIDE USE REPORT

MONTH 1 YEAR 2

NURSERY 3

Page ___ of ___

OPERATOR ID/PERMIT NO.	OPERATOR GROWER	ADDRESS	CITY	ZIP CODE
4	5	6	7	8

SITE ID NO.	TOTAL PLANTED ACREAGE/UNITS	COUNTY NO.	SECTION	TOWNSHIP N S	RANGE E W	BASE & MERIDIAN
9	10	11	12	13	14	15 B M H

COMMODITY/SITE TREATED 17 | FIELD LOCATION 18

CHEMICAL NUMBER 21	DATE/TIME APPLICATION COMPLETED 22	ACREAGE/UNITS TREATED 23	APP. METH. (CHECK ONE) 24	BLOCK ID OR APPLICABLE 25	EPA/CALIF. REG. NO. FROM LABEL 26	TOTAL PRODUCT USED (CIRCLE ONE UNIT OF MEASURE) 27	DATE REENTRY 28	RATE PER ACRE 29	DILUTION 30	PRODUCT/MANUFACTURER 31
			GR ☐ AIR ☐ OTHER ☐			LB OZ PT QT GA				
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			GR ☐ AIR ☐ OTHER ☐			LB OZ PT QT GA				

REPORT PREPARED BY _____ DATE _____ REVIEWED BY _____
Submit to Agricultural Commissioner within 10 days of month following application PR-ENF-017C (Rev 1/99) For Agency Use Only
(1) CAC

FIGURE 3-1.

Maintenance gardener pest control businesses that are required to maintain pesticide use records must report a monthly summary of pesticide use to the agricultural commissioner of the county in which the work was performed.

report a monthly summary of pesticide use to the agricultural commissioner of the county in which the work was performed. This must be done by hand delivery or by mail by the tenth day of the month that follows the month in which the work was performed. If the report is mailed, the postmark is the date of delivery.

The report must be made on DPR's Monthly Summary Pesticide Use Report form (which may be obtained from the county agricultural commissioner; see Figure 3-1) or in a format approved by the Director of DPR. The report must include the following:

- the name and address of the person, business, or organization who applied the pesticides
- the county where the pest control was performed
- the month and year of the pesticide use
- the crop, commodity, or site treated, except when using a designated use code as specified on DPR's Monthly Summary Pesticide Use Report form
- the pesticide, including the U.S. EPA or state registration number that is on the pesticide label, and the amount used

- the number of applications made with each pesticide and the total number of applications made during the month
- the total acres or units treated with each pesticide, except when using a designated use code as specified on DPR's Monthly Summary Pesticide Use Report form

Negative Pesticide Use Reports. A licensed maintenance gardener pest control business must submit a negative Pesticide Use Report to the county agricultural commissioner during any month in which they perform no pest control work in a county where the business is registered. They must do this *by the tenth day of the following month.* If the report is mailed, the postmark is the date of delivery.

Violations. When you perform pest control incidental to (in the context of) a maintenance gardening business, it is against the law for you to do any of the following:

- operate without first having obtained a Pest Control Business License in the Maintenance Gardener Pest Control category from the Director of DPR
- make any false or fraudulent record or report
- operate in any county without first having registered with the county agricultural commissioner
- operate equipment with incompetent or unqualified people in charge of the equipment
- use any fraud or misrepresentation in making application for a license or for renewal of a license

Pest Control Dealer License

Anyone (including manufacturers, distributors, or retailers) who engages in any of the following business activities is required to be licensed as a pest control dealer:

- selling pesticides for an agricultural use, or selling dual use pesticides (pesticides that can be used for an agricultural use or nonagricultural use)
- selling users any method or device for control of agricultural pests such as biological agents, lures, or insect trapping devices
- soliciting sales of pesticides by making agricultural use recommendations through field representatives or other agents
- selling a pesticide classified as a restricted material that requires either a permit for possession and use or that may be used only by or under the direct supervision of a certified applicator

Any other branch, sales yard store, or sales location owned and operated by the pest control dealer must be licensed as a branch location. Each pest control dealer is responsible for the actions of each employee regarding the solicitation and sale of pesticides and regarding all claims and recommendations for the use of pesticides.

A Pest Control Dealer's License is not required for a person who has a Pest Control Business License or a Structural Pest Control License and sells only the pesticides they apply. Government agencies are also exempt from having to be licensed as pest control dealers. Many county agricultural commissioners sell rodenticides and bird control materials at cost to the public.

County Registration. County registration for Pest Control Dealer Licenses is not required at this time.

Minimum Requirements. To obtain a Pest Control Dealer License, you must submit an application to the Director of DPR, specifying the location of the main business and any branch sales yards, stores, or sales sites. Your application must also show that you

have qualified individuals responsible for actively supervising all sales activities at each main and branch location.

Supervision. Each licensed pest control dealer must have and maintain at the principal office and at each branch location, a designated agent to actively supervise all operations conducted at the location. The designated agent must possess a

- Pest Control Dealer Designated Agent License
- Agricultural Pest Control Adviser License
- Pest Control Aircraft Pilot Certificate (either Journeyman or Apprentice)

OR

- Qualified Applicator License

Appropriate Products. A licensed pest control dealer must sell or deliver a pesticide only when the recommendation provided to the dealer, or written by someone employed by the dealer, corresponds to the pesticide label. It is against the law for a pest control dealer to knowingly sell or deliver a pesticide

- for a use not shown in the label
- if the label cannot be complied with
- if the pest control recommendation is in conflict with the label

Dealer Records. Pest control dealers are required to prepare and maintain a record of all pesticides they have sold or delivered except for pesticides labeled for home use only. The pest control dealer must maintain these records at the sales office for two years and keep them available for inspection, filed by purchaser name, to the county agricultural commissioner or Director of DPR upon request. The records must include the following:

- the purchaser's name and address
- the pesticide and the amount purchased
- the date of purchase
- the operator identification number or a statement on the invoice indicating that the purchaser was not required to obtain an operator identification number
- a copy of the adviser's written recommendation, or the following statement (or a substantially similar statement) on the invoice or delivery slip: "No recommendation has been made by, or provided to, the seller concerning the use of the pesticide covered by this invoice."
- if the dealer delivered the pesticide, the location where the pesticide was delivered, including the name of the person or business that received the shipment

If the registrant or pesticide broker is not the first person to sell into or within California any pesticide that is labeled for agricultural use, the pest control dealer who first sells into or within California must pay a *mill assessment* to the DPR Director for every dollar of pesticide sales. The assessment must be reported quarterly to the Director of DPR. Records of purchases, sales, and distributions of pesticides into or within California must be maintained for four years.

Supplemental Label. When a written recommendation includes a use that is only found on a supplemental label, the dealer must deliver both the written recommendation and the supplemental label to the applicator in sufficient time to allow the applicator to properly prepare for the application.

Dealer Responsibilities. It is extremely important for a dealer to know which restricted use pesticides require a permit. For instance, a permit for possession or use is not required when a federally restricted material included in Food and Agricultural Code Section 6400(a) is possessed or used by or under the supervision of a certified

FIGURE 3-2.

Before sale or delivery of pesticides, dealers must obtain a copy of the qualified applicator license or certificate, private applicator certificate, or a signed statement that contains all of the information in this sample.

I am a certified applicator authorized by the scope of my _____ license/certificate, Number _____, to use the restricted material(s) I am purchasing. My license/certificate is valid until _____ (date).

_____ _____

Certified Applicator's Signature Date

commercial or private applicator, unless otherwise required by the agricultural commissioner. Licensed pest control dealers who sell restricted materials that require a permit for use or possession must obtain a copy of the purchaser's permit before they sell or deliver the pesticide. Also, before sale or delivery the dealer must obtain a copy of the qualified applicator license or certificate, private applicator certificate, or a signed statement that contains the information included in Figure 3-2.

Certain federal restricted use materials are designated as having the potential to pollute ground water when they are used according to the label in agricultural, outdoor institutional, or outdoor industrial settings. Dealers must sell or deliver these materials only to certified applicators, although a possession or use permit is not required.

Periodically, the county agricultural commissioner will inspect the dealer's records to check their licensing status, their supervision by a qualified person, their record maintenance, their sale and delivery of appropriate pesticides, and other record requirements.

Dealer Requirements for Ground Water Protection Materials. Refer to Chapter 9.

Dealer Requirements for Antifouling Paints or Coatings Containing Tributyltin. Antifouling paints or coatings containing tributyltin may be applied only to and sold only

- for aluminum vessel hulls
- when the vessel hull is 82 feet or more in length
- for outboard motors and lower drive units

Except as provided above, antifouling paints or coatings containing tributyltin may not be applied to any surface or object that will come into contact with fresh water or marine environments. This prohibition includes, but is not limited to, use on docks, piers, nets, and other fishing equipment.

Prior to selling these materials, the pest control dealer must obtain a copy of the vessel registration to verify the vessel has either an aluminum hull or its hull length is 82 or more feet. If no vessel registration exists, or the paint or coating will be applied to an outboard motor or lower drive unit, the pest control dealer must obtain a sworn statement from the purchaser to verify that the use corresponds to one or more of the three requirements specified above. The sworn statement must be made using the same (or substantially similar) wording as in the example in Figure 3-3.

The dealer must prepare and maintain the following records for all sales of antifouling paints that contain tributyltin:

- the name and address of the vessel owner

FIGURE 3-3.

Certified applicators must sign a sworn statement before they purchase antifouling paints or coatings that contain tributyltin. The statement must be made using wording that is the same as (or similar to) this example.

I, _____, declare under penalty of perjury
name of certified applicator

that the antifouling paint or coating containing tributyltin that I am purchasing shall be applied only to an aluminum vessel hull; a vessel hull 82 feet or more in length; or an outboard motor or lower drive unit. The serial number of the vessel is _____.

_____ _____
Certified Applicator's Signature Date

- the name and certificate number of the certified commercial applicator (certified in Category M—Antifouling-Tributyltin)
- the location of the vessel where the application is to be made
- the date of sale and the quantity sold
- a copy of the vessel registration or sworn statement verifying the vessel length or vessel hull composition requirements or the intended use on an outboard motor or lower drive unit and registration number. If no registration number exists, the vessel serial number must be included.

The dealer must maintain the records specified above in a separate sales log for two years, and the records must be kept available for inspection by the county agricultural commissioner or the Director of DPR upon request.

Pest Control Dealer Designated Agent License

Licensed pest control dealers must have a designated agent at the principal office and at each branch location. A person may qualify as a designated agent by possessing a valid Pest Control Dealer Designated Agent License. A designated agent is required to actively supervise all operations conducted at that location.

Minimum Qualifications. Before an initial license is issued, or before a license is issued to a person who has not possessed a valid Pest Control Dealer Designated Agent License within the last 12 months, applicants must pass an examination to demonstrate their knowledge of the laws and regulations governing the use and sale of pesticides and the responsibilities involved in carrying on the business of a pest control dealer.

Continuing Education Requirements. No continuing education is required at this time for the renewal of this license.

Denial, Revocation, or Suspension of a Pest Control Dealer Designated Agent License. Your Pest Control Dealer Designated Agent License may be denied, revoked, or suspended by the Director of DPR, after a hearing, for any of the following:

- failure to notify the Director of DPR, in writing, of any change of address
- failure to comply with the laws and regulations relating to pesticides
- making false or fraudulent statements, or misrepresenting or failing to disclose important facts when you apply for a license or renewal of a license
- making false or misleading statements in written records or reports relating to pesticides, or making false or misleading statements regarding the pest control dealer business where you work

Pesticide Broker License

Whether you reside out-of-state or in California, if you are engaged in the sale or distribution into or within California of California-registered pesticides that are labeled for agricultural use, you must be licensed as a pesticide broker. Exceptions include

- registrants selling their own California-registered agricultural use pesticides
- licensed pest control dealers

As a broker, you must retain records of purchases, sales, and distributions of pesticides into or within California for four years. You must make these records available to the county agricultural commissioner or the Director of DPR upon request.

Continuing Education Requirements. Continuing education is not required at this time for the renewal of the Pesticide Broker License.

County Registration. County Registration is not required at this time.

Denial, Revocation, or Suspension of a Pesticide Broker License. Your Pesticide Broker License may be denied, revoked, or suspended by the Director of DPR, after a hearing, for any of the following:

- failure to notify the Director of DPR, in writing, of any change of address
- failure to comply with the laws and regulations relating to pesticides
- making false or fraudulent statements, or misrepresenting or failing to disclose important facts when you apply for a license or renewal of a license
- making false or misleading statements in written records or reports relating to pesticides

Pest Control Aircraft Pilot Certificate

If you perform pest control while operating an aircraft you must hold a valid Pest Control Aircraft Pilot Certificate issued by the Director of DPR, a valid commercial pilot's certificate, a current medical certificate issued by the Federal Aviation Administration (FAA), and meet all other FAA requirements.

There are two types of pilot certificates: Apprentice and Journeyman. Before an initial certificate is issued, you must pass an examination to demonstrate

- your ability to legally and safely conduct aerial pest control operations
- your knowledge of the nature and effect of materials used in pest control

Minimum Requirements for the Apprentice Pilot. Before you start to make aerial pest control applications in California you must obtain an apprentice certificate by passing the examinations. As a certified apprentice pilot you may conduct pest control activities only under the direct and personal supervision of someone who holds a valid journeyman's certificate from DPR. The journeyman pilot responsible for supervising you must be aware of the conditions at the application site and be available to direct and control the manner in which you make applications. The availability of the journeyman must be directly related to the actual or potential hazard of the situation.

Minimum Requirements for the Journeyman Pilot. Once you are an apprentice pilot for at least one year you may take the journeyman pilot examination after you have completed a minimum of 150 hours of pest control in a fixed-wing aircraft or 50 hours of pest control in a nonfixed-wing aircraft within the past two calendar years. You must have the journeyman pilot who supervised you complete and sign a "Statement of Supervision," and you must return the statement with the application when you apply to take the Journeyman Pilot Examination.

Pesticide Handling by Pilots. Pilots operating a pest control aircraft must not transfer, mix, or load liquid pesticides that are labeled with the signal word *Danger* or *Warning* and that contain organophosphates or carbamates unless a closed system is used.

County Registration. Before a pest control pilot can operate in any county, they must register with the county agricultural commissioner. In each county where they register, the apprentice pilot must include the name of the journeyman pilot responsible for providing supervision of their pest control activities. The journeyman pilot named on the apprentice pilot's county registration must also be currently registered with that county. If the journeyman pilot named on the apprentice's registration can no longer provide the supervision, the apprentice pilot must immediately notify the county agricultural commissioner and amend the registration.

You must register in person in one county, but then registration with any other county may be done by mail. There is a registration fee of $10 for a pilot registering in the first county, and $5 for each additional county. You are required to register annually, and registration covers one calendar year. You can request the appropriate forms for registration by mail from the county agricultural commissioner where you register in person.

Continuing Education Requirements. Your Pest Control Aircraft Pilot Certificate cannot be renewed unless you have completed a minimum of 20 hours of DPR-approved pest management and pesticide instruction within each two-year certificate period. Included in the 20 hours of instruction must be at least four hours pertaining to pesticide laws and regulations, and four hours pertaining to application equipment and techniques (see Table 3-1). The continuing education record-

TABLE 3-1.

Adviser and Applicator Continuing Education Hours Summary.

LICENSE AND CERTIFICATE TYPE	LAWS AND REGULATIONS HOURS	APPLICATION EQUIPMENT AND TECHNIQUES HOURS	OTHER HOURS[1]	TOTAL HOURS[2]
Agricultural Pest Control Adviser License	4		36	**40**
Pest Control Aircraft Pilot Certificate (Apprentice and Journeyman)	4	4	12	**20**
Qualified Applicator Certificate and License	4		16	**20**
Qualified Applicator Certificate and License[3] (Possessing only Category Q AND currently possessing a valid Maintenance Gardener Pest Control Business License or employed by a valid licensed Maintenance Gardener Pest Control Business.)	2		6	**8**
Qualified Applicator Certificate and License[4] (Possessing only Category H)	2		2	**4**

1 Other hours include, but are not limited to, the following topics: laws and regulations, chemical formulation, labeling and label interpretation, application equipment, pests, identification of environmentally sensitive areas, drift prevention, pesticide registration, integrated pest management, cultural practices, pesticide worker safety, ground water protection, and biological control methods.

2 Total hours required every 2-year renewal period.

3 This includes Qualified Applicators who have *only* the Landscape Maintenance Pest Control Category (Category Q) and currently possess a valid Maintenance Gardener Pest Control Business License or are employed by a valid licensed Maintenance Gardener Pest Control Business.

4 This includes Qualified Applicators who have *only* the Seed Treatment Pest Control Category (Category H).

keeping requirements for all licensees and certificate holders are addressed later in this chapter. There is no grace period. If you fail to earn the required number of continuing education hours before the certificate expiration date, you cannot renew. To again possess the certificate you must again pass the examinations.

Denial, Revocation, and Suspension of a Pest Control Aircraft Pilot Certificate. The Director of DPR may refuse to issue a certificate to any pest control aircraft pilot, and may revoke or suspend the certificate of any pilot, after a hearing, for any of the following:

- The pilot is not qualified to conduct the pest control operations in accordance with the Certificate.
- The pilot does not hold an appropriate and valid commercial pilot's certificate and a current appropriate medical certificate issued by the FAA.
- The pilot has violated any provisions of the laws and regulations pertaining to pesticides, any industrial safety order of the Department of Industrial Relations, or has not complied with any order of the county agricultural commissioner or the Director of DPR.

The Director of DPR may also condition the certificate of any pest control aircraft pilot if they find that the continuance of the certificate endangers public welfare or safety.

Qualified Applicator Certificate

You must obtain the Qualified Applicator Certificate (QAC) if you intend to use or supervise the use of restricted use pesticides. In addition, some agencies and businesses require you, as their employee, to have a QAC if you use or supervise the use of any pesticide, including general use pesticides.

In general, if you possess only this certificate you cannot engage in the business of pest control for hire. However, there is an exception if you are a Qualified Applicator Certificate holder only under the Landscape Maintenance Pest Control Category B or Q and you possess (or are working under a qualified applicator who possesses) the Maintenance Gardener Pest Control Business License. You are limited to working *only* in areas covered by the Landscape Maintenance Pest Control Category. Specifically, the primary work done under this category is landscape maintenance and pesticide application that is incidental to (done in the context of) the maintenance of ornamental and turf plantings indoors or ornamental and turf plantings in commercial parks or surrounding structures.

Minimum Requirements. Before an initial Qualified Applicator Certificate is issued, or before a certificate is issued to a person who has not possessed a valid Qualified Applicator Certificate within the last 12 months, applicants must pass the "Laws, Regulations, and Basic Principles" examination. In addition they must pass one or more of the category examinations listed in Sidebar 3, depending on what type of pest control will be conducted. A Qualified Applicator Certificate holder may use or supervise the use of any pesticide (restricted use or general use) *only* in areas corresponding to the categories in which they have been found qualified through the examination process.

Continuing Education Requirements. To renew your Qualified Applicator Certificate you must complete a minimum of 20 hours of DPR-approved pest management and pesticide instruction within each two-year certificate period. At least four hours of this continuing education must pertain to pesticide laws and

regulations (see Table 3-1). There is no grace period. If you fail to earn the required number of continuing education hours before the certificate expiration date, you cannot renew. To again possess the certificate you must again pass the examinations.

A Qualified Applicator Certificate holder who has only the Maintenance Gardener Pest Control Category (Category Q) and possesses or is the qualified applicator under a valid Maintenance Gardener Pest Control Business License must have a minimum of eight hours of DPR-approved pest management and pesticide instruction for each two-year certificate period. Included in the eight hours of instruction must be at least two hours pertaining to pesticide laws and regulations.

A Qualified Applicator Certificate holder who has only the Seed Treatment Pest Control Category (Category H) must have a minimum of four hours of Department-approved pest management and pesticide instruction for each two-year certificate renewal period. Included in the four hours of instruction must be at least two hours pertaining to pesticide laws and regulations. The continuing education record-keeping requirements for all license and certificate holders are addressed later in this chapter.

Denial, Revocation, and Suspension of a Qualified Applicator Certificate. A Qualified Applicator Certificate may be denied, revoked, or suspended by the Director of DPR, after a hearing, for any of the following:

- making any false or fraudulent record or report
- failure to adequately supervise the use of a restricted material
- failure to comply with the laws and regulations governing pesticides and pesticide use

Qualified Applicator License

The Qualified Applicator License (QAL) is required for supervising the pest control operations of a licensed Pest Control Business, whether restricted use pesticides or general use pesticides are being used. A person with this license may also use or supervise the use of pesticides under a licensed Maintenance Gardener Pest Control Business, if they are qualified in the Landscape Maintenance Pest Control Category. However, it is the Qualified Applicator Certificate that is primarily held by people who supervise the pest control operations of a licensed maintenance gardener pest control business.

Minimum Requirements. Before an initial Qualified Applicator License is issued, or before a license is issued to a person who has not possessed a valid Qualified Applicator License within the last 12 months, applicants must pass the "Laws, Regulations, and Basic Principles" examination. In addition, they must pass one or more of the category examinations listed in Sidebar 3, depending on what type of pest control will be conducted by the business. A Qualified Applicator License holder may use or supervise the use of any pesticide (restricted use or general use) *only* in the categories in which they have been found to be qualified through the examination process.

Continuing Education Requirements. To renew your Qualified Applicator License you must complete a minimum of 20 hours of DPR-approved pest management and pesticide instruction within each two-year license period. At least four hours of this continuing education must pertain to pesticide laws and regulations (see Table 3-1). There is no grace period. If you fail to earn the required

number of continuing education hours before the license expiration date, you cannot renew. To again possess the license you must again pass the examinations.

A Qualified Applicator licensee who has only the Maintenance Gardener Pest Control Category (Category Q) and possesses or is the qualified applicator under a valid Maintenance Gardener Pest Control Business License must have a minimum of eight hours of DPR-approved pest management and pesticide instruction for each two-year license period. Included in the eight hours of instruction must be at least two hours pertaining to pesticide laws and regulations.

A Qualified Applicator licensee who has only the Seed Treatment Pest Control Category (Category H) must have a minimum of four hours of DPR-approved pest management and pesticide instruction for each two-year license period. Included in the 4 hours of instruction must be a least two hours pertaining to pesticide laws and regulations. The continuing education record-keeping requirements for all licensees and certificate holders are addressed later in this chapter.

County Registration. County registration is not required for Qualified Applicator licensees. However, if you are the qualified applicator for a pest control business and the business plans to work in a particular county, the pest control *business* must register with that county's agricultural commissioner. Your Qualified Applicator License card will be imprinted on the County Registration form, since you are the business's qualified applicator.

Most counties require a fee for pest control business license registration. The fee applies to the registration of the principal office location and each branch office location. Registration is required annually and covers one calendar year. For information on the county registration fees, contact the county agricultural commissioner's office where your business intends to operate.

Denial, Revocation, and Suspension of a Qualified Applicator License. A Qualified Applicator License may be denied, revoked, or suspended by the Director of DPR, after a hearing, for any of the following:

- failure to adequately supervise the use of a restricted material
- failure to comply with the laws and regulations governing pesticides and pesticide use
- making any false or fraudulent record or report

Agricultural Pest Control Adviser License

If you do any of the following, you must be licensed as an Agricultural Pest Control Adviser:

- provide pest control recommendations concerning any agricultural use
- offer yourself as an "authority" on any agricultural use
- solicit services or sales for agricultural use outside of a fixed place of business

Exemptions. The following people are exempt from the adviser licensing requirements:

- officials of federal, state, and county departments of agriculture
- University of California personnel, provided their recommendations are for specific applications on specific parcels and in writing

Minimum Qualifications. If you have never possessed a valid California Pest Control Adviser License you must meet the minimum qualifications listed below and pass the Pest Control Adviser License examination before you can be issued a license. If you have

not possessed a valid California Pest Control Adviser License within the last 12 months you must retake and pass the examination. The minimum qualifications for first-time Pest Control Adviser License applicants include

A. having a Bachelor's Degree (B.A. or B.S.) in agricultural sciences, biological sciences, or pest management

OR

B. having 60 semester units (90 quarter units) of college-level curriculum in the agricultural sciences, biological sciences, or pest management, plus two years of technical experience as an assistant to a licensed Agricultural Pest Control Adviser, or other technical experience equivalent to work such as
   - an assistant to a pest management specialist
   - a field sweeper
   - a field checker or scout
   - a participant in field or lab research activities relating to pest control
   - a participant in agricultural pest control or management activities at the federal, state, or county level
   - a Qualified Applicator Licensee employed by a licensed pest control business (No more than 12 months of experience solely in the Landscape Maintenance Pest Control Category or the Health Related Pest Control Category must be used.)
   - an authorized licensee listed on a Structural Pest Control Operator License (No more than 12 months of work experience as a licensed structural pest control operator must be used.)
   - a farm operator

The college-level curricula specified in A and B above must include the following:

- 12 semester/18 quarter units of biological science courses, including one chemistry course

AND

- 18 semester/27 quarter units of agricultural science courses, including both production and pest management courses

AND

- 9 semester/13.5 quarter units of agricultural science, biological science, pest management and/or chemistry courses

This is a total requirement of 39 semester units or 58.5 quarter units. Applicants must submit official transcripts from colleges or universities they attended. See Sidebar 4 for new minimum requirements that will take effect in January, 2003.

Adviser Licensing Categories. Agricultural Pest Control Advisers may make recommendations *only* in categories in which they have been found to be qualified through the examination process. See Sidebar 5.

County Registration. Before Agricultural Pest Control Advisers can make agricultural use recommendations in any county, they must register with the county agricultural commissioner. Do this by first registering in person with the county agricultural commissioner in your home county (indicated by the address on your Pest Control Adviser license). If your address is not in California, register in person in your county of occupational choice.

When you register you must tell the county agricultural commissioner where your written recommendations will be available for review. This information will be written on your county registration form. You can register in additional counties by mail in cases where the county agricultural

SIDEBAR 4

New Agricultural Pest Control Adviser Minimum Requirements (effective January 1, 2003)

Effective January 1, 2003, if you have never held an agricultural pest control adviser license you must meet the following minimum qualifications:

A. have a bachelor's degree (B.A. or B.S.) in the agricultural sciences, biological sciences, or pest management

OR

B. have 45 semester units (67.5 quarter units) of college-level curricula in the physical and biological sciences, crop health, pest management systems and methods, and production systems topic areas, *plus* 24 months of technical experience equivalent to work as

- ☐ an assistant to a pest management specialist
- ☐ a field sweeper
- ☐ a field checker or scout
- ☐ a participant in field or lab research activities relating to pest control
- ☐ a participant in agricultural pest control or management activities at the federal, state, or county level
- ☐ a Qualified Applicator Licensee employed by a licensed pest control business (No more than 12 months of experience solely in the Landscape Maintenance Pest Control Category or the Health Related Pest Control Category must be used.)
- ☐ an authorized licensee listed on a Structural Pest Control Operator License (No more than 12 months of work experience as a licensed structural pest control operator must be used.)
- ☐ a farm operator

The college-level curricula specified in A and B must include at least 45 semester units (67.5 quarter units) as shown here:

AREA OF STUDY	Semester Units	Quarter Units
Physical and biological sciences such as introduction to inorganic chemistry, organic chemistry, biochemistry, plant biology or botany, ecology, soils, irrigation, genetics, plant physiology, entomology, and zoology.	15	22.5
Crop health such as vegetative management or weeds, plant pathology, agricultural/economic entomology, plant nutrition or fertility, nematology, and vertebrate management.	12	18
Pest management systems and methods, with at least one course in pest management systems and one course in pest management methods.	9	13.5
Pest management systems topics such as agricultural chemical applications, properties of pesticides, mode of action of agricultural chemicals, toxicology, environmental impact of pesticides, and biological control.		
Pest management methods topics such as integrated pest management, alternative cropping systems, and sustainable agricultural systems.		
Production systems such as environmental horticulture, horticulture, ornamental horticulture, forestry, agronomy, crop science, vegetable crops, animal science, or other production systems.	9	13.5
Total Units Required	**45**	**67.5**

SIDEBAR 5

Agricultural Pest Control Adviser License Categories

(A) Insects, Mites, and Other Invertebrates

(B) Plant Pathogens

(C) Nematodes

(D) Vertebrate Pests

(E) Weed Control

(F) Defoliation

(G) Plant Growth Regulation

commissioner allows it. Additional registrations by mail must be made on prescribed forms. Obtain and process these forms at the agricultural commissioner's office in your home county or county of occupational choice.

There is a registration fee of $10 for pest control advisers to register in their home county or county of occupational choice and $5 for each additional county registration. Registration is required annually and covers one calendar year. For further information on county registration fees, contact the county agricultural commissioner's office where you intend to operate.

Recommendations. You must make all agricultural use recommendations in writing. You must sign and date one copy of each written recommendation and furnish it to the operator of the property prior to the application. When a pesticide use is recommended, you must also furnish a copy of the recommendation to the dealer and the applicator prior to the application. Each recommendation must include, when applicable, the following:

- the name and dosage of each pesticide to be used or a description of the method recommended (Recommendations are not always for the use of a pesticide.)
- the accepted common name of the pest to be controlled
- the owner or operator of the property and the acreage to be treated and its location
- the commodity, crop, or site to be treated
- the suggested schedule, time, or conditions for the pesticide application or other control method
- a warning of the possibility of damages by the pesticide application that reasonably should have been known by the Agricultural Pest Control Adviser to exist
- the total acres or units to be treated
- the concentration and volume per acre or other units
- the worker restricted-entry interval, if one has been established; the preharvest or preslaughter interval; and the label restrictions on use or disposition of the treated commodity, by-products, or treated area
- the criteria used for determining the need for the recommended treatment
- certification that alternatives and mitigation measures that would

substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted
- the signature and address of the adviser; the date, and the name and address of the business the adviser represents

Advisers must retain a copy of each written recommendation for one year following the date of the recommendation.

Advisories for Ground Water Protection. Each ground water protection advisory must be in writing and be specific to only one chemical. Only a licensed Agricultural Pest Control Adviser who has completed the Ground Water Protection Training Program approved and administered by DPR may write a Ground Water Protection Advisory. Advisories are required when pesticides containing certain active ingredients will be used in a Pesticide Management Zone (PMZ). The specific information that must be included in an advisory and the record-keeping requirements are addressed in Chapter 9.

Continuing Education Requirements. To renew your Agricultural Pest Control Adviser License you must complete a minimum of 40 hours of DPR-approved pesticide or pest management instruction within each two-year license period. The 40 hours of instruction must include at least four hours pertaining to pesticide laws and regulations (see Table 3-1). There is no grace period. If you fail to earn the required number of continuing education hours before the license expiration date, you cannot renew. To again possess the license you must again pass the examinations.

Denial, Revocation, and Suspension of the Agricultural Pest Control Adviser License and County Registration. An Agricultural Pest Control Adviser License may be refused, revoked, or suspended by the Director of DPR, after a hearing, for the following reasons:

- failure to put recommendations in writing
- making false or fraudulent statements in written recommendations
- violation of applicable state or federal laws or regulations, or violating regulations adopted by the local county agricultural commissioner
- failure to pass the examination on laws and regulations, or failing to pass at least one category examination
- making a recommendation in a category in which he or she is not licensed

The county agricultural commissioner may refuse, revoke, or suspend an adviser's county registration for the same reasons. If the county agricultural commissioner takes any disciplinary action against the registration of an adviser, the adviser may appeal to the Director of DPR, in writing, within ten days of the commissioner's decision.

Continuing Education Information and Record Keeping Requirements for Licensees and Certificate Holders

Your license or certificate cannot be renewed unless you complete the specified number of hours of continuing education within each license or certificate's valid period (Table 3-1). There is no grace period. If you fail to earn the required number of continuing education hours before the license or certificate expiration date, you cannot renew. To again possess the license or certificate you must again pass the examinations.

Your continuing education must directly pertain to pesticides and pest management. Sales-oriented courses are not acceptable. The continuing

education requirement is designed to augment your proficiency as an adviser or applicator and assure that you have up-to-date knowledge of pesticide laws and regulations, pesticides, and pest management.

DPR-approved continuing education is provided through public and private sources. Some of the public sources include city and state colleges, universities, the UC Cooperative Extension Service, and the county agricultural commissioner's office. Private sources include industry professional organizations and private businesses specializing in pest management training. A listing of DPR-approved instruction is available through the DPR web site, www.cdpr.ca.gov. Also, many industry professional organizations regularly receive updated lists of DPR-approved instruction.

The instructor or sponsoring organization of DPR-approved continuing education courses must maintain a record of licensees and certificate holders who successfully complete courses or programs. These records must be retained for three years and must contain the same information that licensees or certificate holders are required to maintain.

Record Keeping Requirements for Licensees and Certificate Holders. As a licensee or certificate holder you are required to maintain a record of all approved continuing education hours you acquire during each license or certificate period. You must retain these records for three years, and the records must include the following information:

- the certificate holder or licensee's name
- the certificate or license number
- the title and location of the instruction
- the name of the instructor or sponsoring organization and the number of hours of credit you accrued
- the Identification Code Number assigned to the course or program by DPR

A certificate of course completion or a written statement containing the information specified in the above list, issued by the course instructor or sponsoring organization, is sufficient to meet the record keeping requirements. Licensees or certificate holders are required to submit their continuing education records to DPR at the time of renewal.

Multiple License or Certificate Holders. If you maintain two or more licenses or certificates you may use continuing education hours obtained for one license or certificate to satisfy the continuing education requirements for each additional license or certificate. For example, if you possess both a Qualified Applicator License (20 hours) and an Agricultural Pest Control Adviser License (40 hours), you would need a minimum of 40 hours of continuing education, including four hours pertaining to pesticide laws and regulations, to renew both licenses.

If you hold multiple licenses or certificates you should use only one license or certificate number when you sign the sponsoring organization's or instructor's attendance sheet to show attendance at the meeting or course. Sign in using the highest ranking license or certificate. The licenses and certificates are ranked as follows:

1. Agricultural Pest Control Adviser License
2. Pest Control Aircraft Pilot Certificate Holder (Journeyman or Apprentice)
3. Qualified Applicator License
4. Qualified Applicator Certificate

For example, if you have an Agricultural Pest Control Adviser License and a Qualified Applicator License you should sign the attendance sheet with your Pest Control Adviser license number.

Continuing Education Requirements for New Advisers and Applicators. If you are a first-time adviser or applicator with a license or certificate that you have held for less than 12 months at renewal time, no continuing education hours are required for the renewal of the license or certificate. If you have held your initially issued license or certificate for 12 to 20 months at renewal time, one half of the two-year period of continuing education hours is required for the renewal of your license or certificate. If you have held your initially issued license or certificate for 21 to 24 months at renewal time, all of the hours for your particular license or certificate are required for renewal of your licensing. See Table 3-2.

License or Certificate Renewal

Licenses or certificates of individuals whose last name begins with a letter from A–L, and of businesses whose name begins with a letter from A–L, expire in even-numbered years. Licenses or certificates of individuals whose last name begins with a letter from M–Z, and of businesses whose name begins with a letter from M–Z, expire in odd-numbered years.

All licenses and certificates expire on December 31 of the "Valid Through" year on the licenses and certificates. Completed renewal applications, with appropriate fees, must be postmarked by December 31 to avoid a $10 late penalty. **All required continuing education hours must be completed by December 31 of the expiration year, or your license or certificate cannot be renewed.**

Anyone who has not possessed a valid license or certificate within 12 months of the date they apply for that same kind of license or certificate must pass the appropriate examinations before DPR will issue the license or certificate they seek. A license or certificate, including a renewal, is not valid until it has been issued by DPR.

Note: You must register annually with the county agricultural commissioner even when you obtain a two-year license or certificate, for the first time or through the renewal process.

Applicator Responsibilities

If you apply pesticides either for hire or for your own personal use you must

- use only pest control equipment that is in good repair and safe to operate

TABLE 3-2.

Continuing Education Hours Required for New *Advisers and Applicators*

Number of Months License or Certificate Valid Before Renewal	ADVISER HOURS	APPLICATOR HOURS		
Less than 12 months	0	0	0	0
12 to 20 Months	20*	2*[1]	4*[2]	10*[3]
21 to 24 Months	40	4[1]	8[2]	20[3]

* The laws and regulations hours for *new* advisers and applicators, and application equipment and technique hours if applicable, are reduced by one-half the normal required amount.

1 Qualified Applicators possessing *only* Category H.

2 Qualified Applicators possessing *only* Category B or Q and currently possessing a valid Maintenance Gardener Pest Control Business License.

3 All other Qualified Applicators.

- perform all pest control in a careful and effective manner
- use only methods and equipment suitable to ensure proper application of pesticides
- perform all pest control under climatic conditions suitable to ensure proper application of pesticides
- exercise reasonable precautions to avoid contamination of the environment
- have a copy of the registered label available at each use site to show that the label allows the manner in which you are using the pesticide
- measure or weigh concentrated pesticides accurately, using only devices that are calibrated to the smallest unit in which the pesticide is being weighed or measured
- maintain a uniform mixture, at all times, in both application and service rigs
- clean pest control equipment thoroughly, whenever necessary, to prevent illness or damage to people, plants, or animals from residues of pesticides previously used in the equipment
- avoid contamination of water by equipping each piece of application equipment and service rig that handles pesticides and draws water from an outside source with an air-gap separation, a reduced pressure principle back-flow prevention device, or a double-check valve assembly acceptable to both the water purveyor and the local health department

Age Requirement

No one (employee or non-employee) under 18 years of age is permitted to mix or load a pesticide when the label or regulations require the use of any of the following:

- air supplied respiratory protection
- a closed system
- full-body chemical-resistant clothing

Protection of People, Animals, and Property

Prior to and while applying pesticides, applicators must evaluate the equipment to be used, the meteorological conditions, the property to be treated, and surrounding properties to determine the likelihood of harm or damage. No pesticide application is permitted to be made or continued by anyone under any of the following situations:

- when there is a reasonable hazard of contamination of the bodies or clothing of people not involved in the application process
- when there is a reasonable possibility of damage to nontarget crops, animals, or other public or private property
- when there is a reasonable possibility of contamination of nontarget public or private property, including the creation of a health hazard that prevents the normal use of the property

Protection of Bees

When you use a pesticide on blossoming plants that is known to be toxic to bees, special procedures must be followed. This includes those pesticides specified as either highly or moderately toxic by the University of California and those pesticides specified as being toxic to bees by the pesticide label.

Notifying Beekeepers. If you intend to apply such a pesticide to a blossoming plant you must consult with the agricultural commissioner prior to the

application to determine whether there are beekeepers with apiaries within one mile of the application site that have requested notice about such applications. If notice has been requested, you must notify the beekeeper of the following at least 48 hours in advance of your application:

- the time and place the application is to be made
- the crop and acreage to be treated
- the method of application
- the name and dosage rate of the pesticide to be applied
- how the person performing pest control may be contacted by the beekeeper

The 48-hour warning period may be increased or decreased by the county agricultural commissioner or by agreement between the beekeeper and the person performing the pest control work.

Notification Region. Butte, Glenn, and Tehama Counties have been established as a region in which notification of apiary owners is required. Pest control operators registered with the agricultural commissioners of any of these counties are required to give notification to beekeepers prior to pesticide applications. The agricultural commissioner of Glenn County serves as the coordinator for the region. Once they register with any of the county agricultural commissioners in this region, pest control operators must pay a $75 annual fee to the coordinator.

Citrus/Bee Protection Area. Areas within one mile of any citrus planting that consists of one acre or more in Fresno, Kern, and Tulare Counties have been designated as citrus/bee protection areas. Special bee protection requirements apply in these counties. Beekeepers, pesticide dealers, pest control advisers, and pesticide applicators in these counties should consult with the county agricultural commissioner for further information.

Agricultural Pest Control Advisory Committee

The California Food and Agricultural Code provides for an Agricultural Pest Control Advisory Committee to advise the Director of DPR on all matters concerning the licensing, certification, and regulation of people and firms that are licensed or certified to make agricultural use recommendations, to sell certain pesticides, or to apply pesticides under Division 6 of the Code. The committee consists of 14 members representing

- Agricultural Pest Control Advisers
- Pest Control Business licensees
- Maintenance Gardener Pest Control licensees
- Aircraft Pilot Pest Control Certificate holders
- Pest Control Dealers
- Qualified Applicator Certificate holders
- pesticide registrants
- the California Agricultural Commissioners Association
- the University of California Division of Agriculture and Natural Resources
- the Board of Trustees of the California State University System
- the Board of Governors of the California Community College System
- producers
- the general public
- the California Department of Food and Agriculture

REVIEW QUESTIONS

(answers on page 119)

1. **People who are engaged in the following businesses for hire are *not* exempted from DPR's licensing requirements**
   - ☐ a. preservative treatment of fabrics or structural materials
   - ☐ b. household or industrial sanitation services
   - ☐ c. control of tree pests
   - ☐ d. structural pest control

2. **Which of the following qualifications must the person who is responsible for the pest control operations of a pest control business have?**
   - ☐ a. pest control business license
   - ☐ b. qualified applicator license
   - ☐ c. pest control adviser license
   - ☐ d. agricultural commissioner license

3. **A pest control business that has one or more employees must have**
   - ☐ a. at least two service vehicles
   - ☐ b. proof of workers' compensation insurance
   - ☐ c. 24-hour phone service
   - ☐ d. a permit from the Office of Environmental Health Hazard Assessment

4. **A pest control business must be registered with the**
   - ☐ a. County Board of Supervisors in the county where the business operates
   - ☐ b. Department of Industrial Relations
   - ☐ c. Department of Pesticide Regulation
   - ☐ d. county agricultural commissioner offices in counties where the business operates

5. **Each piece of mixing and application equipment owned by a pest control business must be**
   - ☐ a. painted a conspicuous color
   - ☐ b. given a special identification number
   - ☐ c. inspected weekly by the county agricultural commissioner's office
   - ☐ d. marked with the name of the business or other similar wording

6. **Before making a pesticide application on someone's property, a pest control business must**
   - ☐ a. obtain permission from the operator of the property
   - ☐ b. file a "Notice of Intent" with the county health officer
   - ☐ c. give notice to anyone living within 1/4 mile of the application
   - ☐ d. mark off the treatment area with yellow "caution" tape

7. **Within 24 hours after completing a pesticide application, the pest control business must give a completion notice to the property operator if the property where the pesticide was applied**
   - ☐ a. is within 2 miles of a school
   - ☐ b. is within 1/4 mile of any water source such as a stream, river, lake, or irrigation canal
   - ☐ c. contains one or more inhabited dwellings
   - ☐ d. produces agricultural commodities and the pesticide application involves production of one of these commodities

8. **Records pertaining to each pesticide application for hire must be kept by the pest control business for**
   - ☐ a. 1 year
   - ☐ b. 2 years
   - ☐ c. 3 years
   - ☐ d. 4 years

9. **Any emergency or accidental release of pesticides involving a pest control business must be reported to the**
   - ☐ a. Office of Emergency Services
   - ☐ b. Department of Pesticide Regulation
   - ☐ c. county agricultural commissioner
   - ☐ d. Office of Environmental Health Hazard Assessment

10. **Reports of pesticides applied for the production of an agricultural commodity by a pest control business must be filed with the agricultural commissioner in the county where the application took place within**
    - ☐ a. 24 hours
    - ☐ b. 5 days
    - ☐ c. 7 days
    - ☐ d. 30 days

11. **Before a pest control business applies a pesticide for the production of an agricultural commodity, the property operator must provide the business with**
    - ☐ a. a detailed map of the application site
    - ☐ b. their operator identification number
    - ☐ c. a pesticide use report
    - ☐ d. a copy of the property's liability insurance policy

12. Which type of pesticide application for hire is *not* covered under the provisions of a Maintenance Gardener Pest Control Business license?
- ☐ a. spraying an herbicide during landscape maintenance in a cemetery
- ☐ b. applying snail bait supplied by the homeowner around the homeowner's property
- ☐ c. applications incidental to maintaining ornamental plants in a shopping mall
- ☐ d. spraying an herbicide during landscape maintenance at a private residence

13. Required reports of pesticide applications made by maintenance gardener pest control businesses must be filed with the county agricultural commissioner within
- ☐ a. 24 hours
- ☐ b. 7 days
- ☐ c. 30 days
- ☐ d. 10 days after the end of the month in which the pesticide was applied

14. A Pest Control Dealer's License is *not* required for a person or business who
- ☐ a. has a Pest Control Business License and sells only pesticides they apply
- ☐ b. solicits sales of pesticides by making agricultural use recommendations through field representatives or other agents
- ☐ c. sells insect trapping devices for agricultural pests
- ☐ d. sells pesticides that can be used for either agricultural or nonagricultural purposes

15. A person who holds a Pest Control Dealer Designated Agent License is responsible for
- ☐ a. actively supervising applications for the pest control business
- ☐ b. ordering fertilizers from the manufacturer or supplier
- ☐ c. actively supervising all operations conducted at the location
- ☐ d. making pesticide use recommendations for customers of the business

16. A person who holds a Qualified Applicator Certificate in the "Plant Agriculture" category *cannot*
- ☐ a. supervise the use of restricted use pesticides on agricultural property
- ☐ b. sell or supervise people who sell agricultural pesticides
- ☐ c. apply general and restricted use pesticides on agricultural property
- ☐ d. supervise the use of general use pesticides on agricultural property

17. A Qualified Applicator Certificate (QAC) or Qualified Applicator License (QAL) holder in all categories except Maintenance Gardener and Seed Treatment must complete a minimum of _____ hours of DPR-approved pest management and pesticide instruction every two years to renew their certificate or license.
- ☐ a. 4
- ☐ b. 10
- ☐ c. 20
- ☐ d. 40

18. An Agricultural Pest Control Adviser License is required if you
- ☐ a. sell pesticides at a chemical supply dealer facility
- ☐ b. apply pesticides for hire on any agricultural property
- ☐ c. solicit services or sales for agricultural uses
- ☐ d. work for the University of California and make written recommendations

19. A Pest Control Adviser must complete a minimum of _____ hours of DPR-approved pest management and pesticide instruction every two years to renew their license.
- ☐ a. 4
- ☐ b. 10
- ☐ c. 20
- ☐ d. 40

20. If the pesticide label requires the use of full-body chemical-resistant clothing, the person who mixes or loads the pesticide must be at least _____ years of age.
- ☐ a. 16
- ☐ b. 18
- ☐ c. 20
- ☐ d. 21

21. When a beekeeper requests notice of application within one mile of apiaries, you must file this notice at least _____ hours in advance of your application.
- ☐ a. 12
- ☐ b. 24
- ☐ c. 48
- ☐ d. 72

4 Pesticide Storage, Transportation, and Disposal

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If you improperly store, transport, handle, or dispose of pesticides and opened pesticide containers, you may cause injury to people, animals, or the environment. That is why the California Food and Agricultural Code requires that pesticides and containers that hold (or have held) pesticides must be stored, transported, handled, and disposed of in accordance with the pesticide label and with regulations adopted by the Director of DPR. The county agricultural commissioner may take possession of unattended pesticides or empty pesticide containers that present a hazard to people, animals (including bees), food, feed, crops, or property.

Pesticide Storage Requirements

On any property that you control, you are responsible for all containers and equipment that hold or have held a pesticide. To prevent contact by people who are not authorized to be in contact with these containers and equipment you must do one of the following at all times when you are not in personal control of them:

- Provide a person to maintain control over the pesticide containers and application equipment.

OR

- Store the pesticide containers in a locked enclosure.

In the case of liquid material packaged in a container larger than 55 gallons, the container does not have to be in a locked enclosure if the container's closure is locked. Pesticides must be stored in accordance with the pesticide label and the labeling on all other products held in the same storage area, including non-pesticidal products. *Do not store pesticides and fertilizers together.* Pesticides and fertilizers can chemically react with each other and cause a fire. Also, if pesticides contaminate fertilizers this creates the possibility of crop damage or illegal residues on crops. Do not store pesticides near food, feed, or personal protective equipment because of the possibility of contamination.

Posting Warning Signs. When a storage area contains pesticides that are labeled with the signal words *Danger* or *Warning,* you must post warning signs around the storage area (Figure 4-1). The signs must be visible from any direction of probable approach. The lettering on these signs must be large enough to be readable from 25 feet away. If you anticipate that people who do not read English will approach the pesticide storage area, you must repeat your warning signs in a suitable language other than English.

Pesticide Service Container Label Requirements. When you store or transport containers, except service containers, that hold or have held pesticides, the containers must carry the registrant's label. A service container is any container other than the original labeled pesticide container that is used to hold, store, or transport pesticides. Service container labels must include the following:

- the name and address of the person or firm responsible for the container

FIGURE 4-1.

Warning signs similar to the one shown here must be posted around pesticide storage areas that contain pesticides with either the signal word Danger *or* Warning.

- the identity of the pesticide in the container
- the signal word *Danger, Warning,* or *Caution* from the label of the original container

The *only exception* to the service container label requirements is when a service container is being used by a person engaged in the business of farming on their own property.

Illegal Containers. It is illegal to place or store pesticides in any type of container that is commonly used for food, drink, or any other household products. This is to help prevent accidental pesticide poisonings or injuries, especially those involving children (Figure 4-2).

Delivery of Pesticides

If you are in charge of delivering containers that hold or have held pesticides to a property, you must deliver the containers directly to one of the following:

- the person who is in charge of the property
- the agent of the person in charge of the property

FIGURE 4-2.

It is illegal to store pesticides in any type of container commonly used for food, drink, or any other household products. This is to help prevent accidental pesticide poisonings or injuries, especially those involving children.

- a pest control business licensee
- the pest control business licensee's employee

If none of these people are at the property when you make your delivery, you must leave the containers in a locked enclosure that is posted with appropriate warning signs, as described above.

Transportation of Pesticides

Pesticides must never be transported in the same vehicle compartment with people, food, or animal feed. You must secure pesticide containers to the vehicle during transportation in a way that will prevent spills into or off of the vehicle. Cover pesticide containers made of paper, cardboard, or similar material when necessary to protect them from moisture. All pesticide containers must have either the original registered product label or proper service container labeling. To get further information and regulations on transporting pesticides contact the California Highway Patrol or the U.S. Department of Transportation.

Pesticide Bag Disposal Requirements

The state's Department of Toxic Substances Control has concluded that properly emptied pesticide bags do not pose a significant risk to human health or to the environment. Their policy states that pesticide bags that have been properly emptied according to DPR's "Guidelines for Emptying and Burning Pesticide Bags" will *not* be regulated as hazardous waste. These pesticide bags that are properly emptied may be disposed of at Class III landfills or by burning. Pesticide bags *not* properly emptied are subject to all laws and regulations pertaining to the management of hazardous waste. Check with the Regional Water Quality Control Board for locations of these landfills and the Department of Pesticide Regulation for any changes to the policy.

Guidelines for Emptying Pesticide Bags. Disposal of properly emptied pesticide bags at landfills is currently the most environmentally sound disposal method. Follow these emptying guidelines:

- Open and empty the pesticide bag until no pesticide material remains in the bag that can be poured, drained, or otherwise feasibly removed.
- Empty the pesticide bag completely, holding the bag upside down for five seconds after continuous particle flow ceases.
- Straighten out the seams so that the bag is in its original "flat" position.
- Again, hold the bag upside down for five seconds after continuous particle flow ceases. Shake the bag twice and hold for five seconds, or until continuous particle flow ceases.

Guidelines for Burning Pesticide Bags. Another, but less desirable, disposal option is burning under an agricultural burn permit that has been issued to a grower by the local air pollution control district. Growers with burn permits are allowed to burn at the field location to dispose of agricultural waste, such as prunings and cardboard boxes. They can also burn properly emptied pesticide bags that are handled according to the following guidelines:

- Burn pesticide bags only at the location specified on the agricultural burn permit.
- Select a location likely to minimize the amount of smoke that will blow over areas where people or domestic animals might be. Consider the distances to homes, parks, schools, and businesses; the wind speed and direction; temperature inversions; and the length of time it is likely to take to burn the bags.

- Place a rock, brick, or similar noncombustible weight on top of the stack of bags to be burned.
- Light the bottom-most bag.
- Stand upwind of the burn site to avoid breathing the smoke.
- Control the site until the burning is completed and the fire is extinguished.

Commercial applicators are allowed to burn properly emptied pesticide bags if the bags were opened and emptied at the site of application and are burned under the conditions of the grower's burn permit.

Container Rinsing Requirements

Containers that have held less than 28 gallons of a liquid pesticide must be rinsed and drained by the user at the time of use, unless

- they are returned to the registrant
- they held an undiluted, ready-to-use pesticide

See Sidebar 6 for pesticide container rinsing procedures. Follow these procedures to be sure you have properly rinsed the containers. *A closed system must also include a rinsing system that meets these requirements.*

SIDEBAR 6

Rinsing Procedures for Pesticide Containers

Method 1—Triple Rinse and Drain

1. Use the following amount of water or other appropriate rinse solution for each rinse:

Size of Container	Amount of Rinse Medium
Less than 5 gallons	1/4 container volume
5 gallons or over	1/5 container volume

2. Place the required minimum amount of rinse medium in the container. Replace the closure securely, and agitate the container to make sure all the interior surfaces of the container get rinsed.
3. Drain the rinse solution from the container into the tank mix. Allow the container to drain an additional 30 seconds after it is empty.
4. Repeat the entire procedure at least two more times to provide a total of at least three rinses, or until the rinsate is clear. It is important that you drain the rinse solution into the mix tank and apply it to the crop or site that is being treated.

Method 2—Continuous or Jet-Rinse

1. Invert the emptied container over a nozzle that is located in the opening of a spray tank or nurse rig and that is capable of rinsing all inner surfaces of the container.
2. Activate the rinse nozzles, allowing the rinse solution to drain into the tank.

Continue rinsing until the rinse solution appears clear and a minimum of one-half of the container volume of rinse solution has been used. Use a minimum of 15 pounds of pressure per square inch to ensure proper rinsing. Avoid high pressures to prevent misting, splashing, or other undesirable effects potentially hazardous to people at the rinse site.

Other rinse methods, equivalent in effectiveness to the methods above, may be used if approved by the Director of DPR.

Pesticide and Container Disposal

Disposal sites that accept pesticides and used pesticide containers (Figure 4-3) must do so in accordance with requirements set down by California's Department of Toxic Substances Control, the State Water Resources Control Board, and the Regional Water Quality Control Board. In some counties, you may be required to obtain a special certificate or permit from the county agricultural commissioner before you dispose of properly rinsed pesticide containers at approved disposal sites. Check with the county agricultural commissioner about local requirements before you dispose of any pesticides or rinsed or unrinsed used pesticide containers.

Unrinsed, emptied pesticide containers may also be returned to the pesticide registrant, with the registrant's prior approval. You must tighten all lids or closures securely. Contact the California Highway Patrol or the U.S. Department of Transportation for specific transportation requirements.

You may need a Hazardous Waste Facility Permit to store old pesticide materials or unrinsed pesticide containers awaiting disposal. Unrinsed containers include those from which you cannot adequately remove the contents by rinsing or those that contained an undiluted, ready-to-use pesticide. Contact the Department of Toxic Substances Control for specific requirements.

Exemptions

Exemptions from the requirements discussed in this chapter apply in the following cases:

- Containers that hold or have held pesticides packaged, labeled, and used for home use and that are in the possession of homeowners on their own property are exempt from the requirements for delivery, storage area posting, transportation, and rinsing.
- Containers that hold or have held pesticides registered for spray adjuvant uses are only exempt from the pesticide container rinse and disposal requirements.
- Outer shipping containers that have not become contaminated with pesticides are exempt from the pesticide container rinse and disposal requirements.

Check with you local county agricultural commissioner if you have any questions regarding these exemptions.

FIGURE 4-3.

Pesticide wastes include partially full containers of pesticide that are not used, leftover mixtures in spray tanks, rinse water from pesticide containers, rinse water from inside and outside of spray equipment, and, as shown here, empty pesticide containers.

REVIEW QUESTIONS

(answers on page 119)

1. A person who is responsible for pesticide containers must
- ☐ a. store the containers in a locked enclosure or provide a person to maintain control over the containers at all times
- ☐ b. keep the containers off the ground in the back of a vehicle when they are to be unattended
- ☐ c. cover the containers with a tarp if they cannot be put into a storage facility
- ☐ d. keep the containers on the application equipment at all times

2. The signs attached to a pesticide storage area must be readable from
- ☐ a. 10 feet
- ☐ b. 15 feet
- ☐ c. 25 feet
- ☐ d. 50 feet

3. Generally, a service container is
- ☐ a. the original pesticide container
- ☐ b. any container other than the original labeled pesticide container
- ☐ c. a special heavy duty container provided by the pesticide manufacturer
- ☐ d. a special container approved by the Department of Defense

4. Which of the following information *is not* required to be on the label of a service container?
- ☐ a. identity of the pesticide in the container
- ☐ b. signal word from the label of the original container
- ☐ c. name of the manufacturer of the pesticide in the service container
- ☐ d. name and address of the person or firm responsible for the container

5. It is illegal to store pesticides in
- ☐ a. service containers
- ☐ b. original pesticide containers
- ☐ c. spray equipment that is properly identified with labeling
- ☐ d. containers that are commonly used for food, drink, or other household products

6. Pesticides being carried in the back of a vehicle such as a truck must be properly secured in order to
- ☐ a. prevent theft
- ☐ b. allow other items to be transported with them
- ☐ c. prevent spills into or off of the vehicle
- ☐ d. comply with Food Quality Protection Act regulations

7. Empty pesticide bags can be disposed of as nonhazardous waste at certain Class III landfills as long as they
- ☐ a. have been properly emptied according to DPR's "Guidelines for Emptying and Burning Pesticide Bags"
- ☐ b. have been properly triple rinsed
- ☐ c. do not have the signal word *Danger* or *Warning*
- ☐ d. have been punctured so they cannot be reused

8. Proper rinsing of an empty container involves
- ☐ a. filling the pesticide container three times and pouring the contents onto the ground at the application site
- ☐ b. draining the empty pesticide container into the application equipment for 30 seconds
- ☐ c. washing the application equipment tank with soap and water three times after an application
- ☐ d. partially filling an empty pesticide container with water, shaking, and draining the contents into the spray tank, then repeating this process two more times

9. Which containers that have held pesticides are exempt from the container storage, triple rinsing, or disposal requirements of this chapter?
- ☐ a. containers that hold less than 5 gallons of liquid
- ☐ b. containers that hold one gallon or less of liquid
- ☐ c. containers that hold home use pesticides and that are in the possession of homeowners on their own property
- ☐ d. no containers are exempt from these requirements

10. Under which of the following conditions may empty pesticide bags be burned?
- ☐ a. under the conditions of an agricultural burn permit that has been issued to a grower by the local air quality control district
- ☐ b. by permission of the county Board of Supervisors
- ☐ c. only between October 1 and February 27
- ☐ d. only in areas that receive greater than 12 inches of annual rainfall

5 Pesticide Handler Safety

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THE DPR HAS ESTABLISHED worker safety regulations

- to provide safe working conditions for fieldworkers and other workers
- to reduce the risk of exposure
- to ensure the availability of medical services for employees who mix, load, apply, store, transport, or otherwise *handle* (see Glossary) pesticides for any use

Employers have the responsibility to make sure employees handle and use pesticides in accordance with the pesticide label and all applicable laws and regulations.

Hazard Communication Information for the Handler Employee

Hazard communication regulations require employers to identify workplace hazards, to inform employees about the hazards they face in the workplace, and to make sure employees understand the procedures they must follow to protect themselves. The regulations establish specific procedures employers must follow in maintaining and disseminating hazard communication information to employees who may be exposed to pesticides during the course of their work.

Before handler employees are allowed to handle pesticides, the employer must display in a central location a copy of *Hazard Communication Information for Employees Handling Pesticides in Agricultural Settings* (Pesticide Safety Information Series leaflet A-8) or *Hazard Communication Information for Employees Handling Pesticides in Noncrop Settings* (Pesticide Safety Information Series leaflet N-8). If an employee asks, the employer must read him or her Pesticide Safety Information Series leaflet A-8 and/or N-8 in a language the employee understands.

Employers must maintain the following information at a central location and make it accessible to employees, their physicians, or their representatives:

- pesticide use records for pesticides and pesticide handling activities that are conducted by the employees
- copies of Pesticide Safety Information Series leaflets for the pesticides and pesticide handling activities that are listed in the pesticide use records

AND

- a Material Safety Data Sheet (MSDS) for each pesticide listed in the pesticide use records referred to above

Employers must inform employees of the location and availability of these records and other documents before employees are allowed to handle pesticides, and at least annually thereafter. If the location of the records and other documents changes, employers must promptly inform their employees of the new location.

Application Specific Information for the Handler Employee

In general, for the commercial or research production of an agricultural plant commodity, the property operator must provide specific application information at a central location. This information must include

- the identification of the treated area
- the date and time of application
- the restricted-entry interval
- the product name

These regulations do not cover employees involved in manufacturing, formulating, or repackaging pesticides. These employees are covered under the California Department of Industrial Relations, Division of Occupational Safety and Health.

Handler Employee Training Requirements

Employers must have a written training program for employees who handle pesticides. The written program must describe the materials that will be used (e.g., study guides, pesticide labels, or videotapes) and the information that will be provided when they train their employees. Employers must maintain a copy of the written training program in a central location at the workplace where it is accessible to employees. The written copy must be available while they are using the program and for two years after they finish using it.

The employer's written training program must address each of the subjects listed below. Employers must train each employee who handles pesticides and make sure employees understand all of the following items for each pesticide or chemically similar group of pesticides they use:

- the pesticide product label format and the meaning of label information, such as precautionary statements about human health hazards
- the hazards of pesticides—including acute and chronic effects, delayed effects, and sensitization—as identified in pesticide product labels, Material Safety Data Sheets, or Pesticide Safety Information Series (PSIS) leaflets
- the routes by which pesticides can enter the body
- the signs and symptoms of pesticide overexposure
- emergency first aid for pesticide overexposure
- how to obtain emergency medical care
- routine and emergency decontamination procedures, including spill cleanup and the need to shower thoroughly with soap and warm water after the exposure period
- the appropriate use and sanitation of any required personal protective equipment, and the need for heat-related limitations on its use (see later section in this chapter, "Chemical-Resistant Protective Clothing")
- prevention, recognition, and first aid for heat-related illness
- safety requirements and procedures for handling, transporting, storing, and disposing of pesticides (including engineering controls such as closed systems and enclosed cabs)
- environmental concerns such as drift, runoff, and wildlife hazards
- warnings about taking pesticides or pesticide containers home
- requirements relating to pesticide safety, Material Safety Data Sheets, and Pesticide Safety Information Series leaflets as found in Chapters 3 and 4 of the California Code of Regulations, Title 3
- the purposes of, and requirements for, medical supervision when organophosphate and carbamate pesticides with the signal words *Danger* or *Warning* on the label are

mixed, loaded, or applied for the commercial or research production of an agricultural plant commodity
- the location of the leaflet *Hazard Communication Information for Employees Handling Pesticides* (Pesticide Safety Information Series leaflet A-8) and other Pesticide Safety Information Series leaflets and Material Safety Data Sheets
- employee rights, which include
  A. the right to personally receive information about pesticides they may be exposed to
  B. the right to have their physician or employee representative* receive information about the pesticides they may be exposed to
  C. the right to be protected against retaliatory action in response to the exercise of any of their rights

Employees must complete pesticide handler safety training before they are allowed to handle any pesticide, and the training must be continually updated to cover any new pesticides the employee will handle. Training must be repeated at least annually after that. Certified Applicators are considered trained for the purposes established in these regulations.

Employers may waive initial pesticide handler safety training of a new employee if the employee is able to submit a training record. The employee's training record must show that their training met requirements in the regulations and covered the pesticides and use situations applicable to their new employment situation. Employers must record the date and extent of initial and annual required training they provide to employees and the jobs they assign. Each employee training record must be verified by the employee's signature and retained by the employer for two years at a central location at the workplace accessible to employees.

Qualified Safety Trainers for Pesticide Handlers

Anyone who trains employees handling pesticides for commercial or research production of an agricultural plant commodity must be qualified as one of the following:
- a California Certified Commercial Applicator
- a California Certified Private Applicator
- a person holding a valid County Biologist License in Pesticide Regulation or Investigation and Environmental Monitoring issued by the California Department of Food and Agriculture
- a farm advisor employed by University of California Cooperative Extension
- a person who has completed an "instructor trainer" program presented by one of the following:
  A. the University of California Statewide Integrated Pest Management Project, after January 1, 1993
  B. other instructor training program approved by the Director of DPR
- a California licensed Agricultural Pest Control Adviser
- a California Registered Professional Forester
- a trainer qualified in some other way that is approved by the Director of DPR

Employee Medical Requirements

Regulations describe specific ways in which employers are required to arrange for emergency care and medical supervision, keep records, and review employee work practices when necessary.

*An employee representative could be a representative of the California Rural Legal Assistance Foundation, a union representative, a family member, or any person the employee has designated to act on their behalf.

Emergency Medical Care. Employers must make advance emergency medical care arrangements for employees who handle pesticides. They must inform employees of the name and location of the facility where they have arranged for this care. In addition, the name, address, and telephone number of this facility (whether it is a clinic or a hospital emergency room) must be conspicuously posted at the work site, or in the work vehicle if there is no designated work site. If the emergency facility is not reasonably accessible from the work location, the employer must post the procedures employees should follow to obtain emergency medical care.

Employers must ensure that an employee is taken immediately to a physician when there are reasonable grounds to *suspect* that the employee has a pesticide illness or injury. Reasonable grounds to suspect a possibility of a pesticide illness or injury include the presence of symptoms or indications such as

- headache
- weakness
- dizziness
- blurred vision
- nausea
- abdominal cramps
- sweating
- tightness of the chest
- when exposure to a pesticide has occurred that might reasonably be expected to lead to an illness or injury

Medical Supervision. Employers must maintain use records that identify the employee, the name of the pesticide, and the date of handling whenever an employee handles a pesticide

- that carries the signal word *Danger* or *Warning*
- that contains an organophosphate or carbamate

AND

- that is used for the commercial or research production of an agricultural plant commodity

Employers who have employees who *regularly handle* (see Glossary) organophosphate or carbamate pesticides that carry the signal word *Danger* or *Warning* and that are used for the commercial or research production of an agricultural plant commodity must have a signed written agreement with a doctor. The agreement must include the names and addresses of both the doctor who will provide medical supervision and the employer responsible for the employees. Employers must give a copy of this agreement to the county agricultural commissioner *before* an employee begins to regularly handle these pesticides. The designated doctor must possess and be familiar with the publication *Medical Supervision of Pesticide Workers—Guidelines for Physicians,* which is available from the California Department of Health Services.

Cholinesterase Determinations. Employees who regularly handle organophosphate or carbamate pesticides that carry the signal word *Danger* or *Warning,* and that are used for the commercial or research production of an agricultural plant commodity are required to have baseline red cell and plasma *cholinesterase determinations.* These determinations must be verified every two years. For new employees, the medical supervisor may accept previously established baseline values if these values

- were obtained according to the regulations
- were obtained by the same laboratory methodology that the new laboratory uses
- are acceptable to the new laboratory that will analyze the employee's blood samples

Employers are responsible to make sure that employees who were not under medical supervision as their employees in the past obtain red cell and plasma cholinesterase determinations. They must do this within three working days after the end of each 30-day period

during which these employees regularly handle these pesticides. After employees have had three tests at 30-day intervals, further periodic monitoring must be specified in writing by the medical supervisor. If the medical supervisor does not make a written recommendation for continued periodic monitoring of employees who regularly handle these pesticides, the testing interval must be 60 days (or every second period).

Employers must maintain the following records for three years:

- the medical supervision agreement
- pesticide use records
- all recommendations
- all test results

These records must be kept available for inspection by the employee, the Director of DPR, the county agricultural commissioner, the county, and state health officials.

If an employee's red cell or plasma cholinesterase level falls below 80 percent of their baseline, the employer must investigate the employee's work practices, including

- employee sanitation
- pesticide handling procedures
- equipment usage

This investigation also includes a review of the safety equipment and its condition. Employers must maintain a written record of their findings, any changes they made in equipment or procedures, and any recommendations they made to the employee.

Employers must remove an employee from exposure to organophosphate or carbamate pesticides if the employee's plasma cholinesterase level falls to 60 percent or less of the employee's baseline plasma cholinesterase level, or if their red cell cholinesterase falls to 70 percent or less of their baseline red cell cholinesterase level. That employee must be removed from further exposure until their cholinesterase values return to 80 percent or more of their baseline values. The employer must maintain written records of the date the employee was removed from exposure and the date the employee was returned to exposure.

Working Alone

When employees mix, load, or apply pesticides that carry the signal word *Danger* and that are used for the commercial or research production of an agricultural commodity, they must observe the following rules about working alone:

- *Daylight operations:* working alone is permitted only when the employee makes personal, radio, or telephone contact with a responsible adult at least every two hours.
- *Nighttime operations:* working alone is permitted only when the employee makes personal, radio, or telephone contact with a responsible adult at least every hour.
- A pilot, mixer, loader, and flagger team is considered to be working together.
- Two ground applicators working in the same field and able to see each other or each other's application vehicles are considered to be working together.

Change and Decontamination Facilities

Pesticide handler safety regulations include specific requirements for employers to provide employees with facilities for changing, washing, and decontamination.

Change Area. For any employee who regularly handles pesticides with the signal word *Danger* or *Warning,* and for all employees who handle any pesticides used for the commercial or research production of an agricultural plant commodity, employers must

provide an area for employees to change clothes and wash themselves at the location where they complete their work day. Employers must provide clean towels, soap, and adequate water for thorough washing. Employers must also provide a clean, pesticide-free place for employees to store any of their personal clothing that is not in use while they are at work handling pesticides.

Decontamination Facilities. Employers must ensure that employees have sufficient water, soap, and single-use towels for routine washing of their hands and face and for emergency eye flushing and washing of the entire body. The quality and temperature of the water must not cause illness or injury when it comes into contact with employees' skin or eyes, or if they swallow it. This water must be stored separately from water used for mixing with pesticides, unless the tank holding the water for mixing with pesticides is equipped with appropriate valves to prevent *backflow* of pesticides into the tank. The employer must keep one change of clean coveralls available at each decontamination facility.

For all employees who handle pesticides for the commercial or research production of an agricultural plant commodity, the decontamination facility must be located at the mixing and loading site. This must be no more than 1/4 mile from—or must be at the nearest point of vehicular access to—other handlers, including flaggers. For pilots, the decontamination facilities may be at the loading site.

Decontamination facilities must not be in an area that is being treated or that is under a restricted-entry interval unless all of the following are true:

- The handlers using the facility are working in the area that is being treated or that is under a restricted-entry interval.
- The soap, the single-use towels, and the extra change of clean coveralls are in an enclosed container.
- The water is running tap water, or it is enclosed in a container.

If the pesticide product label requires protective eyewear, one pint of water for emergency eye flushing must be kept immediately available for each employee handling pesticides used for the commercial or research production of an agricultural plant commodity. The eye flush water must be carried by the handler or kept in the vehicle or aircraft that is being used by the handler.

Employers must provide a decontamination site that is within 100 feet of the mixing and loading site when employees handle pesticides with the signal word *Danger* or *Warning* for uses other than the commercial or research production of an agricultural plant commodity.

Personal Protective Equipment

Employers must provide all required personal protective equipment (PPE). They are responsible for its daily inspection, cleaning, and repair, and its replacement when necessary. Employers must assure that all PPE is maintained and kept in a clean, specially-designated place or locker when it is not in use. When applicators use any of the exceptions to PPE requirements (found in the California Code of Regulations, Title 3, Section 6738[i]), they must keep the label-required PPE immediately available for use in an emergency.

Employers must assure that PPE is properly used and that handlers are directed not to take potentially contaminated PPE home. Also, employers must assure that appropriate measures are taken to prevent heat-related illnesses.

FIGURE 5-1.

Employers must ensure that each employee who handles any pesticide with the signal word Danger *or* Warning *is provided with clean coveralls at the start of each workday.*

FIGURE 5-2.

Unless the label specifies the type of eyewear, you may use safety glasses that have a brow piece and side shields when handling pesticides.

Coveralls. Employers must ensure that each employee who handles any pesticide with the signal word *Danger* or *Warning* is provided with—and wears—clean coveralls at the start of each workday (Figure 5-1). Coveralls means a one- or two-piece garment of closely-woven fabric that covers the entire body except for the head, hands, and feet.

Employees are required to remove their coveralls and wash themselves at the end of each workday. They must not take potentially contaminated coveralls home. However, when an employee does not return to the employer's headquarters at the end of the workday, they can remove their coveralls and store them in a sealable container outside their own living quarters for later return to the employer.

Employers must provide for the laundering of coveralls. They must inform the person or firm doing the laundry that they will receive pesticide-contaminated clothing and that it should be laundered separately. Exceptions to this requirement may be found in the California Code of Regulations, Title 3, Section 6738(i). Employees using fumigants are not required to wear coveralls unless that is expressly required by the pesticide label.

Eye Protection. Employers must provide employees with eye protection and assure the employees use it

- when it is required by the label, except as provided in the California Code of Regulations, Title 3, Section 6738
- when employees are mixing and loading pesticides. Eye protection is required when employees use closed systems that operate under pressure. When employees use other closed systems, eye protection must be available at the work site, and they must wear it when they make or break equipment connections, insert or remove probes, or at any other time when the integrity of the system is broken.
- when employees are adjusting, cleaning, or repairing application equipment or mixing and loading equipment that contains pesticides in hoppers, tanks, or lines
- when employees are conducting hand applications, except when
  - (A) applying vertebrate pest control baits that are placed without being propelled from application equipment
  - (B) applying solid fumigants to vertebrate burrows
  - (C) baiting insect monitoring traps

    OR
  - (D) applying non-insecticidal lures
- when engaging in ground application activities using towed or vehicle-mounted equipment except when
  - (A) injecting or incorporating pesticides into soil
  - (B) vehicle-mounted spray nozzles are located below the employee and the nozzles are directed downward
  - (C) working in an enclosed cab
- when employees are flagging, except when they are in an enclosed cab

Protective Gloves. Employers must provide employees with gloves and assure that all employees who handle any pesticide use them when the label requires it (except as provided in California Code of Regulations, Title 3, Section 6738) or when they are

- mixing or loading
- adjusting, cleaning, or repairing contaminated mixing, loading, or application equipment
- making hand applications or using hand-held equipment except when they are using equipment that prevents hand contact with

FIGURE 5-3.

If the type of glove required is not specified on the pesticide label, employers must provide gloves made of rubber, neoprene, or other chemical-resistant material that provides equivalent or better protection from the pesticide being handled.

rodenticide bait or with contaminated equipment

The exception to this requirement is when the pesticide label specifies that gloves *must not* be worn.

Whenever gloves are required, employers must provide employees each workday with unused gloves or with previously used clean gloves

- that are in good condition
- that have no rips or cracks
- that have been thoroughly washed inside and outside with soap and water

If the type of glove required is not specified on the pesticide label, employers must provide gloves made of rubber, neoprene, or other chemical-resistant material that provides equivalent or better protection from the pesticide being handled (Figure 5-3). If chemical-resistant gloves do not provide adequate suppleness and durability, leather gloves may be worn over chemical-resistant liners. Once leather gloves have been used for this purpose, they must not be worn in any other situation.

Chemical-Resistant Protective Clothing. When the label or regulations specify waterproof or impervious pants and coat, or a rain suit, employers must provide—and assure that employees wear—a full-body, chemical-resistant suit (Figure 5-4) that covers the torso, head, arms, hands, legs, and feet. If an employee works as an applicator in an enclosed cab or as a flagger in an enclosed vehicle, they must keep the full-body, chemical-resistant protective clothing immediately available and stored in a chemical-resistant container.

When an employee mixes, loads, or transfers pesticides with the signal word *Danger* or *Warning* through a closed system or in sealed water-soluble packets, they must wear—at a minimum—coveralls, a chemical-resistant apron and chemical-resistant gloves. However, they must keep the full-body, chemical-resistant protective clothing immediately available at the work site.

No employee may handle any pesticide that requires a full-body, chemical-resistant protective suit when the ambient temperature exceeds 80°F during daylight hours or 85°F during nighttime hours (sunset to sunrise). The exception is when employees use cooled, chemical-resistant suits or other control methods to maintain an effective working environment at or below the daylight and nighttime temperatures just mentioned.

Footwear. When the pesticide label specifies chemical-resistant footwear (Figure 5-5), employers must assure that employees wear one of the following types of footwear:

- chemical-resistant shoes
- chemical-resistant boots
- chemical-resistant coverings worn over boots or shoes

Employees do not need to wear chemical-resistant footwear when they are operating aircraft.

FIGURE 5-4.

Chemical-resistant garments provide the maximum amount of protection from pesticide exposure.

FIGURE 5-5.

Chemical-resistant footwear protects your feet from pesticide exposure.

FIGURE 5-6.

Employers must provide approved respiratory protective equipment when pesticide labeling or regulations require it or when respiratory equipment is needed to maintain employee exposure below an applicable recognized exposure standard.

Head Gear. When the pesticide label specifies chemical-resistant head gear, employers must assure that employees wear either a chemical-resistant hood or a chemical-resistant hat with a wide brim. For aircraft operation, a helmet may be substituted for chemical-resistant head gear.

Apron. When the pesticide label specifies a chemical-resistant apron, employers must assure that employees wear one that covers the front of the body from mid-chest to the knees.

Respiratory Protection. Respiratory protection required by the pesticide label or by the Worker Protection Standard must be currently approved by the National Institute for Occupational Safety and Health or the Mine Safety and Health Administration for the specific chemical and exposure condition. Employers must provide—and assure that employees wear—approved respiratory protective equipment when the pesticide label or regulations require it or when respiratory equipment is needed to maintain employee exposure below an applicable recognized exposure standard (Figure 5-6).

Employers must have a written program that outlines the procedures for selecting, fitting, cleaning and sanitizing, inspecting, and maintaining respiratory equipment. Employees with facial hair that prevents an adequate seal (e.g., beards) cannot work where respiratory protection is required unless the employer provides them with respiratory protection that does not require a face-to-facepiece seal for proper operation.

Employers are responsible for repairing or replacing equipment as necessary when it becomes worn or deteriorated. Respirators must be inspected before each use to ensure that all components are present and operate properly. Respirator air-purifying elements (cartridges) must be changed according to pesticide product label directions or the respirator manufacturer's recommendations, whichever is more frequent. In the absence of any instructions about their service life, air-purifying elements must be changed at the end of each day's work. If the respirator user senses an odor, chemical taste, or irritation, they must leave the area, check the respirator for fit or function, and change the cartridge if necessary.

Employers must inform employees that certain medical conditions may interfere with wearing a respirator. A statement in substantially the form shown in Figure 5-7 must be signed and dated by each employee who is assigned to do work that requires wearing a respirator. This statement must be kept on file by the employer. If the employee indicates that they have such a medical condition, the employer must obtain a doctor's report of evaluation and approval for respirator use and place it on file before the employee may do work requiring the use of a respirator. The employer must keep this statement on file for the duration of the individual's employment.

Personal Protective Equipment: Exceptions and Substitutions

The following exceptions and substitutions are permitted for PPE that is required by the regulations or by the pesticide label:

A. People using a closed system to handle pesticides that carry the signal word *Danger* or *Warning* may use coveralls, chemical-resistant gloves, and a chemical-resistant apron instead of the PPE specified by the pesticide label.
B. People using a closed system to handle pesticides with the signal word *Caution* may use work clothing instead of the PPE specified by the pesticide label.
C. People using a closed system that operates under positive pressure must wear protective eyewear in addition to the PPE listed in A and B above. People using any closed system must keep the PPE that is specified on the pesticide label immediately available for use in an emergency.
D. People properly mixing pesticides packaged in water-soluble packets are considered to be using a closed mixing system (under California Code of Regulations, Title 3, Section 6738[i][4]).
E. People working in an enclosed cab, including an enclosed cockpit, may substitute work clothing for the PPE specified by the pesticide label. If respiratory protection is required, it must be worn, except in an enclosed cockpit.
F. People working in an enclosed cab that is acceptable for respiratory protection may use work clothing instead of the PPE specified by the pesticide label.
G. People working in an enclosed cab as specified in E and F above must keep all label-specified PPE immediately available and stored in a chemical-resistant container. Label-specified PPE must be worn if it is necessary to work outside the cab and contact pesticide treated surfaces in the treated area. Once the PPE is worn in the

FIGURE 5-7.

Employers must inform employees that certain medical conditions may interfere with wearing a respirator. A statement in substantially the form shown here must be signed and dated by each employee who is assigned to do work that requires wearing a respirator.

To the best of my knowledge, I have__/have no__ medical conditions that would interfere with wearing a respirator while engaged in hazardous exposure situations.

I understand that heart disease, high blood pressure, lung disease, or the presence of a perforated eardrum require specific medical evaluation by a physician before safe use of a respirator can be determined.

_____ _____

Employee Signature Date

treated area, the employee must remove it and store it in a chemical-resistant container before reentering the cab.

H. A chemical-resistant suit may be used in place of coveralls and a chemical-resistant apron.

I. Pest control aircraft pilots are not required to wear gloves while they work, but gloves must be worn by any person entering or exiting an aircraft contaminated with pesticide residues. Gloves in the cockpit must be stored in a chemical-resistant container.

Equipment Requirements

Employers are responsible to provide adequate workplace lighting, to carry out equipment inspection, to notify employees who service application equipment of potential hazards, and to provide closed mixing systems when these are required.

Lighting. Whenever natural light in a mixing and loading area is not adequate to allow an employee to read the label and work in a safe manner, the employer must provide artificial light that is sufficient to allow the employee to perform these activities safely.

Safe Equipment. Employers must assure that the equipment employees will use for mixing, loading, or applying pesticides is inspected before each day of use and found to be in good repair and safe to operate. Employers must repair equipment with any safety defect to remove the hazard prior to its further use.

Employers must equip all openings on tanks used for mixing or applying pesticides with tightly-fitting covers that prevent splashes or spills (Figure 5-8). And they must not allow any flexible hose that is under pressure and carrying a liquid pesticide with the signal word *Danger* or *Warning* to pass unshielded through the cockpit of an airplane or helicopter.

Employers must install shut-off devices on the exit end of all hoses attached to mixing tanks that carry liquid pesticides with the signal word *Danger* or *Warning.* These devices must be designed so that they prevent pesticides from splashing onto the employee doing the loading when the employee stops filling the application vehicle's tank and removes the filler hose from the tank's inlet. A reversing action pump (or a similar system) that will empty the hose and eliminate dripping once the filling operation has stopped may be used instead.

Aerial or ground application tanks that have a capacity of 49 gallons or more and that are used to mix or apply

FIGURE 5-8.

Employers must equip all openings on tanks used for mixing or applying pesticides with tightly-fitting covers that prevent splashes or spills.

pesticides with the signal word *Danger* or *Warning* must have either

- a properly functioning sight gauge or other means to indicate the liquid level inside the tank to help prevent over-filling

OR

- a tank or filler hose nozzle with a device that automatically stops the filling operation when the tank is full, preventing the pesticide mixture from spilling over

Equipment Maintenance. Employers who own or operate pesticide mixing, loading, or application equipment must provide hazard notification to equipment maintenance workers. Each employee under their control who may be involved in cleaning, servicing, or repair of this equipment must be informed of the pesticide hazards they may encounter and how to protect themselves against injury. If cleaning, servicing, or repairing is done by someone other than employees, the person in charge of performing these services must be notified. Employers must provide employees with any necessary protective equipment or clothing. During maintenance operations employers must instruct and supervise these employees in a way that reduces hazards or exposure.

Closed Systems. The most hazardous pesticide handling activity is the hand-pouring of highly toxic pesticides. This activity has resulted in many serious illnesses. Employers are required to provide closed systems for employees who, for the production of an agricultural commodity,

- mix or load liquid pesticides with the signal word *Danger* (see exception below)
- load diluted liquid mixes derived from dry pesticides with the signal word *Danger*
- mix or load any minimal exposure pesticides

OR

- mix and transfer certain cotton harvest aids

Proper use of a closed system reduces the potential for exposure. It is important that closed systems be properly operated, cleaned, and maintained. Closed systems are not required for employees who handle a total of one gallon or less per day of pesticides that have the signal word *Danger* and that are handled exclusively in original containers of one gallon or less.

A closed system's design and construction must meet the DPR Director's closed system criteria and must be adequate to prevent exposure of people to the pesticide being handled. Refer to the Pesticide Safety Information Series leaflet A-3 for further information on California's closed system criteria. Address questions concerning closed system requirements to DPR's Pesticide Enforcement Branch.

REVIEW QUESTIONS

(answers on page 119)

1. **The specific application information that an agricultural property operator must provide to workers at a central location include all the following *except* the**
   - ☐ a. identification of the treated area
   - ☐ b. name or description of the pest
   - ☐ c. product name
   - ☐ d. date and time of application

2. **Which of the following *is not* one of the handler employee training requirements?**
   - ☐ a. environmental concerns such as drift, runoff, and wildlife hazards
   - ☐ b. the location of pesticide purchase receipts
   - ☐ c. warnings about taking pesticides or pesticide containers home
   - ☐ d. how to obtain emergency medical care

3. **Engineering controls for handling pesticides include**
   - ☐ a. water retention basins
   - ☐ b. wheel-move sprinklers
   - ☐ c. closed mixing systems
   - ☐ d. global positioning units

4. **Pesticide handler safety training for employees must be completed before**
   - ☐ a. employees are allowed to handle any pesticide
   - ☐ b. the first work day of each month in which a pesticide might be handled
   - ☐ c. by the 10th of the month following the month in which pesticides were used
   - ☐ d. the beginning of each year

5. **Employers must retain training records of pesticide handler employees for**
   - ☐ a. one year
   - ☐ b. two years
   - ☐ c. three years
   - ☐ d. four years

6. **A newly-hired pesticide handler employee may not need to be trained because**
   - ☐ a. the employer is not required to train new employees for their first 60 days
   - ☐ b. new employees are exempt from training requirements during the first year
   - ☐ c. new employees must work under the supervision of a trained employee for the first three months
   - ☐ d. the employee submitted a training record from a previous employer that meets the new employer's current legal requirements

7. **Which of the following qualifications enables a person to train pesticide handler employees in commercial or research production of an agricultural plant commodity?**
   - ☐ a. any employee of the University of California
   - ☐ b. a California Certified Private Applicator
   - ☐ c. a Certified Crop Consultant
   - ☐ d. a California licensed Pest Control Dealer

8. **Reasonable grounds to suspect the possibility of a pesticide illness or injury include all but which one of the following symptoms?**
   - ☐ a. scratches on the arms or hands
   - ☐ b. headache
   - ☐ c. blurred vision
   - ☐ d. abdominal cramps

9. **Employers must maintain use records that identify the employee, the name of the pesticide, and the date of handling whenever an employee handles a pesticide that**
   - ☐ a. carries the signal word *Danger* or *Warning* and is used for landscape pest control
   - ☐ b. contains an organophosphate or carbamate and is used for right-of-way pest control
   - ☐ c. carries the signal word *Caution* and is used for the commercial production of an agricultural plant commodity
   - ☐ d. contains an organophosphate compound and is used for research production of an agricultural plant commodity

10. **Employers that have employees who handle organophosphate pesticides in an agricultural plant production operation must have a signed written agreement from a doctor for medical supervision if**
    - ☐ a. any of the employees are under 21 years of age
    - ☐ b. any pesticides used in the operation contain the signal words *Danger* or *Warning*
    - ☐ c. the employees *regularly handle* organophosphate pesticides with the signal words *Danger* or *Warning*
    - ☐ d. employees apply any pesticide for 6 or more days

11. **Employers must maintain records pertaining to medical supervision of handler employees for a period of**
    - ☐ a. one year
    - ☐ b. two years
    - ☐ c. three years
    - ☐ d. five years

12. An employee who mixes, loads, or applies pesticides with the signal word *Danger* in the production of an agricultural commodity may work alone at night if the employee

- ☐ a. makes personal contact by radio with a responsible adult at least every hour
- ☐ b. makes personal contact by radio with a responsible adult at least every two hours
- ☐ c. carries a cellular telephone at all times
- ☐ d. receives special training

13. Decontamination facilities must be equipped, at a minimum, with

- ☐ a. soap, single-use towels, and high pressure water for emergency washing
- ☐ b. sufficient water, soap, and single-use towels for routine washing of the hands and face, and emergency washing of the entire body
- ☐ c. soap, single use towels, and enough water for routine hand washing and emergency washing of the face
- ☐ d. single-use towels, soap, warm water, and one pint of water for eye washing

14. When employees handle pesticides with the signal word *Danger* or *Warning* for uses other than the commercial or research production of an agricultural plant commodity, decontamination sites must be within _____ of the mixing and loading site.

- ☐ a. 50 feet
- ☐ b. 100 feet
- ☐ c. 200 feet
- ☐ d. 1/4 mile

15. _____ are responsible for providing for the laundering of coveralls used by pesticide handler employees.

- ☐ a. employees
- ☐ b. commercial laundries
- ☐ c. field supervisors
- ☐ d. employers

16. An exception to the mandated requirement to wear eye protection when handling pesticides is when

- ☐ a. the pesticide label requires the use of goggles
- ☐ b. using a pressurized closed mixing system
- ☐ c. conducting all hand application operations
- ☐ d. working in an enclosed cab

17. Chemical resistant gloves must always be worn by pesticide handler employees *except* when

- ☐ a. mixing or loading pesticides
- ☐ b. the pesticide label specifies that gloves ***must not*** be worn
- ☐ c. repairing contaminated application equipment
- ☐ d. using a backpack sprayer to spray weeds with an herbicide

18. A pesticide that requires the person applying it to wear a full-body chemical-resistant protective suit cannot be applied during daylight hours if the ambient temperature exceeds

- ☐ a. 75 degrees
- ☐ b. 80 degrees
- ☐ c. 85 degrees
- ☐ d. 90 degrees

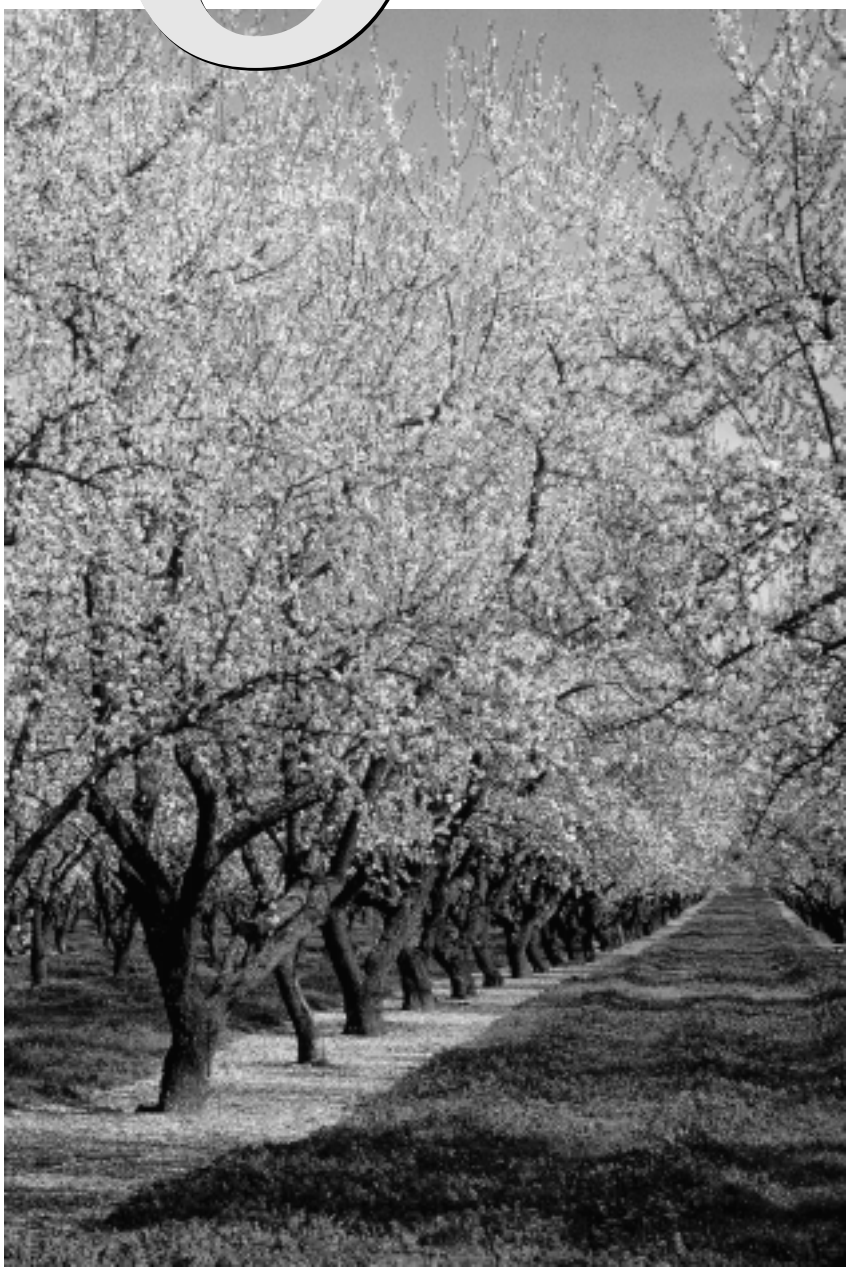
19. Which of the following *is not required* in a written pesticide respirator program?

- ☐ a. procedures for selecting and fitting the respirator
- ☐ b. procedures for repairing damaged respirator cartridges
- ☐ c. procedures for cleaning and sanitizing the respirator
- ☐ d. procedures for inspecting and maintaining the respiratory equipment

20. People who properly mix pesticides packaged in water-soluble packets are considered to be using

- ☐ a. personal protective equipment
- ☐ b. a non-engineering control device
- ☐ c. a passive rinsing system
- ☐ d. a closed mixing system

6 Fieldworker Safety



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THE PRIMARY PURPOSE OF fieldworker safety regulations is to protect fieldworkers from pesticide residues in treated fields. These regulations require employers to take certain precautionary or safety measures *before* fieldworkers enter the treated field. These measures include

- fieldworker pesticide safety training
- displaying pesticide application information
- application notification
- setting up decontamination facilities
- providing hazard communication

The employer is responsible for the safety of employees. The requirements described in this chapter are intended to prevent employees from being exposed to pesticides or pesticide residues.

Fieldworker Training

Fieldworkers *must* receive pesticide safety training *before* they are allowed to work in a treated field. Training must be given at least every five years and must cover all of the following topics:

- routine decontamination and thorough washing after the exposure period
- restricted-entry interval (REI), posting, and the standard format of state and federal posting signs
- where workers may encounter pesticides and their residues
- routes of exposure (Figure 6-1)
- pesticide hazards; chronic, acute and delayed effects; and sensitization effects
- common signs and symptoms of pesticide overexposure
- first aid, decontamination, eye flushing, and getting emergency medical attention
- warnings about taking pesticides or pesticide containers home
- hazard communication requirements
- employee rights to information and protection against retaliatory action for exercising employee rights

The training must be conducted in a manner that is understood by all employees. It must be presented orally from written materials or audiovisually, using nontechnical terms. The trainer must respond to employee questions. The training must be provided by a qualified trainer. A qualified trainer is any of the following:

- a California Certified Applicator
- a person holding any other valid license or certificate of personal pesticide qualification issued by DPR
- a person who has completed an "instructor training" program presented by one of the following:
  A. the University of California Statewide Integrated Pest Management Project, after January 1, 1993
  B. other instructor training program approved by the Director of DPR

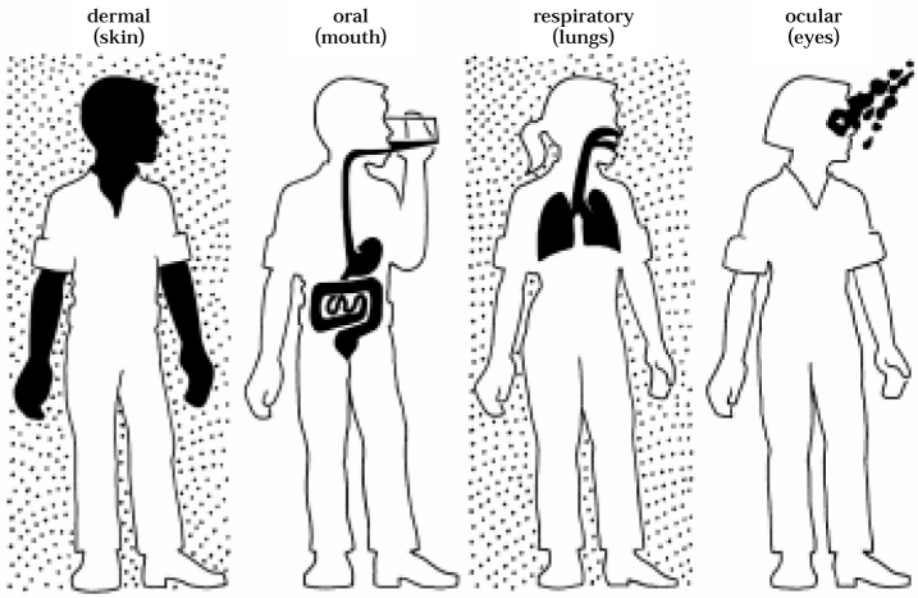

FIGURE 6-1.

The most common ways for pesticide exposure to occur are through the skin (dermal), through the mouth (oral), through the lungs (respiratory), and through the eyes (ocular).

- a California Registered Professional Forester
- a person holding a valid County Biologist License in Pesticide Regulation or Investigation and Environmental Monitoring issued by the California Department of Food and Agriculture
- a farm advisor employed by University of California Cooperative Extension
- a person holding any other valid trainer qualification approved by the Director of DPR

Hazard Communication for Fieldworkers

Whenever employees are working as fieldworkers in a treated field, employers—including labor contractors—must display a completed copy of the Pesticide Safety Information Series (PSIS) leaflet A-9, *Hazard Communication Information for Employees Working in Fields* at the work site, or in certain instances, at a central location. This leaflet is available from the county agricultural commissioner in both English and Spanish. It can also be downloaded from the DPR web site at http://www.cdpr.ca.gov/whs/psisenglish.htm

One possible way to display this information would be to place it in a binder that is readily accessible to employees. It could also be provided as a handout at the work site. If an employee is unable to read, and if the employee requests it, the employer must read, or provide someone to read, the leaflet to the employee in a language the employee understands.

The operator of the property must maintain the following records and documents in a central location at the workplace. These must be accessible to employees, including employees of a labor contractor, who may enter a treated field:

- pesticide use records, which include the information identified in Chapter 3 of this study guide, for all the pesticides that have been applied to the field within the last two years
- copies of the PSIS leaflets specific to the pesticides listed in the pesticide use records, or general information about pesticides
- a Material Safety Data Sheet (MSDS) for each pesticide listed in

the pesticide use records (Figure 6-2). The MSDS is developed by the registrant and may not exist or be available for every pesticide. If the registrant does not provide an MSDS but an employee, employee representative, or the employee's physician requests the MSDS, the operator of the property must make a written inquiry to the pesticide registrant requesting the MSDS be sent to him or her. The employer must make this written inquiry within seven working days of the request, and they must follow certain procedures in their request. Contact the county agricultural commissioner or DPR for further instructions on the procedures to follow.

Before employees are allowed to enter pesticide treated fields, the property operator must inform them of the availability and location of the pesticide use records, PSIS leaflets, and MSDSs. The PSIS leaflets provide additional information about a specific pesticide, the use of closely-related pesticides, or general information about pesticide safety (e.g., first aid, respiratory protection, storage, and disposal).

PSIS leaflets are written and developed by DPR. If employees are working for a labor contractor, the property operator must inform the labor contractor of the location of these records and other documents. The labor contractor must then inform the employees. If the location of records, documents, or information changes, the property operator must *immediately* inform employees or the labor contractor of their new location.

Employers are required to inform their employees that they, their physicians, and their representatives have the right to access information about pesticides to which they may be exposed. Also, employers must inform their employees that they are protected against discharge or other discrimination for exercising their rights.

Upon request, the property operator must make the above-specified records and documents available to the employee, the employee representative, the labor contractor, or the employee's physician within 48 hours.

Employer Responsibilities

Employers are responsible for supplying application information, understanding who is qualified to be in treated areas, and planning emergency medical care and providing decontamination facilities for employees.

Application-Specific Information. When employees work in treated fields on property used for commercial or research production of an agricultural

FIGURE 6-2.

Property operators must keep certain records accessible to employees, including a Material Safety Data Sheet for each pesticide that has been applied to the field within the last two years.

MONSANTO MATERIAL SAFETY DATA ROUNDUP® ULTRA herbicide Page 1 of 6

MONSANTO PRODUCT NAME
ROUNDUP® ULTRA Herbicide

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name:	ROUNDUP® ULTRA herbicide
Synonyms:	MON 65005
EPA Reg. No.:	524-475
Company ID:	Monsanto Company 800 North Lindbergh St. Louis, MO 63167, U.S.A.
Phone #s:	Emergency Phone Number (call collect): (314) 694-4000 Non-Emergency Information: 1-800-332-3111
Revisions:	Sections containing a revision or new information are marked with a ♣

MSDS Number: S00012770 Date: November, 1995 Supersedes: None

plant commodity, the property operator must display all of the following information at a central location:

- identification of the treated area
- the time and date of the pesticide application
- the restricted-entry interval
- the product name, the EPA registration number, and the active ingredients

The information must be displayed when employees work within 1/4 mile of a treated field, and it must remain displayed until the area no longer meets the definition of a treated field or employees are no longer on the establishment, whichever occurs first. (See the Glossary for the definition of a *treated field.*)

Fieldwork During Pesticide Application. On farms or in forests, only the people making the application can be directed or allowed to enter or remain in a treated area.

In treated nurseries and greenhouses, only the people making the application can be directed or allowed to enter or remain in a treated area. The treated area boundaries of different sorts of nursery and greenhouse pesticide applications are described below.

If the pesticide is applied in a nursery

- by aircraft, in an upward direction, or at a pressure of more than 150 pounds per square inch, or is applied as a fumigant, smoke, fog, or aerosol, the prohibited area is the treatment site plus 100 feet in all directions within the confines of the property
- by ground, in a downward direction from a height greater than 12 inches from the soil or other planting medium, as a fine spray, or using pressure of more than 40 pounds per square inch, but not more than 150 pounds per square inch, or that requires respiratory protection on the product label, the prohibited area is the treatment site plus 25 feet in all directions within the confines of the property

If the pesticide is applied in a greenhouse

- as a space treatment with a fumigant, smoke, fog, aerosol, or mist or is a pesticide for which the product label requires respiratory protection, the prohibited area is the entire enclosed area plus any adjacent area that is not sealed sufficiently to prevent pesticide transfer from the treatment site, until the ventilation criteria have been met
- as a spray from a height greater than 12 inches from the soil or other planting medium, as a fine spray, or using a pressure of more than 40 pounds per square inch, the prohibited area is the treatment site plus 25 feet in all directions within the enclosed area

Otherwise, in both the nurseries and greenhouses, the prohibited area is the treatment site.

Greenhouse Ventilation Criteria. When a greenhouse application involves a pesticide with label directions that require respiratory protection, or when any pesticide is applied as a fumigant, smoke, mist, fog, or aerosol, the greenhouse must be ventilated until:

- the concentration is measured and found not to exceed any pesticide label standard

OR

- one of the following has occurred if there is no label standard:
  A. ten air exchanges are complete
  B. two hours of mechanical ventilation
  C. four hours of passive ventilation
  D. twenty-four hours, with no ventilation
  E. any combination of percentage portions of A, B, C, and D above, the sum of which equals 100%

Emergency Medical Care. When employees are required to enter pesticide-treated fields, emergency medical care must be planned for in advance. The employer must locate the nearest medical facility where emergency medical care will be available for all employees who will work in treated fields. Employees or their field supervisors must be informed of the name and location of the medical facility or doctor where emergency medical care is available. If the identified facility is not readily accessible from the work location, the employer must outline the procedures employees should follow in order to obtain emergency medical care.

Employers must ensure that employees are immediately taken to a doctor when there is reason to believe they have a pesticide illness or injury, or when an exposure to a pesticide has occurred that might lead to an employee's illness.

Fieldworker Decontamination Facilities. Whenever fieldworkers are working in a treated field, decontamination facilities must be within 1/4 mile from—or at the nearest point of vehicular access to—the fieldworkers. The employer must assure that these facilities contain sufficient water, soap, and single-use towels for hand and face washing and for emergency eye flushing. The water must be of a quality and temperature that will not cause illness or injury to skin or eyes, or if it is swallowed.

Decontamination facilities must not be in an area that is being treated or is under a restricted-entry interval, unless the fieldworkers are performing early-entry activities.

Restricted-Entry Intervals

A restricted-entry interval (REI) is the period of time after a crop or commodity has been treated with a pesticide when restrictions on entry are in effect to protect employees from potential exposure to a hazardous level of pesticide residue. Restricted-entry intervals are specified in the regulations and on the pesticide labels. In case of an inconsistency between the regulation-specified restricted-entry interval and label-specified restricted-entry interval, the longer restricted-entry interval must be followed. If more than one REI in regulations can be applied to a given situation, the longer one applies.

When reference is made in a restricted-entry interval to pounds of a pesticide, it means pounds of active ingredient. Each day referenced in a restricted-entry interval is considered to be a 24-hour period beginning at the completion of the application. The regulation-required restricted-entry interval applies to the pesticide-crop combinations listed in the regulations.

Field Reentry After Pesticide Application

A treated field may be entered by any employee without restriction after the REI expires. But no employee must be directed to enter or remain in a treated field until the label- or regulation-specified restricted-entry interval has expired, *except as explained below*:

Employees may enter a treated field during a restricted-entry interval to conduct pesticide-handling activities, including soil incorporation, watered-in or mechanical, if they use the pesticide handler PPE listed on the pesticide label (Figure 6-3).

Employees may enter a treated field during a restricted-entry interval to perform *no contact* activities. "No contact" means the employee will not have any contact with any treated surface, including soil, water, air, equipment, or plant surfaces. Before employees are allowed or directed to enter a treated area, the inhalation exposure level must meet the label standard. For greenhouses, the ventilation criteria outlined earlier in this

FIGURE 6-3.

Employees may enter a treated field during a restricted-entry interval to conduct pesticide handling activities if they use the pesticide handler personal protective equipment listed on the pesticide label.

chapter must be met. The "no contact" requirement is met if the employee is operating a tractor or other equipment and is separated from the treated surfaces by an enclosed cab, shields, or operator placement on the equipment in relation to the treated plants.

Employees may enter a treated field during a label-required REI to conduct *limited-contact* activities, including limited-contact irrigation, that are necessary and unforeseen *only if*

A. the label does not require posting *and* oral notification of employees
B. at least four hours have elapsed since the application was completed
C. the inhalation exposure does not exceed the label standard, or if the ventilation criteria outlined earlier in this chapter have been met
D. exposure is minimal and limited to the feet, the legs below the knees, the hands, and the forearms below the elbows
E. the PPE specified on the label for early-entry workers—or at least the following—is worn: coveralls, socks, chemical-resistant footwear, chemical-resistant gloves, and protective eyewear if required by the label
F. each employee spends no more than eight hours in any 24-hour period in the treated field
G. employees are informed that this exception is being used and about the provisions in B, C, and F above, orally or by posting a notice

Employees may enter a treated field to perform activities *other than* pesticide handling, no-contact activities, or limited-contact activities that do not involve hand labor, provided that

- at least four hours have elapsed since the end of the application
- the inhalation exposure does not exceed the label standard, or the ventilation criteria outlined earlier in this chapter have been met
- employees use the PPE required by the label for early entry
- employees remain in the treated field for no more than 1 hour in any 24 hour period

Employees may enter a treated field to conduct activities other than hand labor after expiration of the label-required restricted-entry interval, but while a restricted-entry interval in regulation is still in effect, if they wear work clothing with long sleeves and long legs, shoes with socks, and gloves.

When employees operate tractors or other equipment with enclosed cabs, or when they are prevented from coming into contact with anything that was treated, they are considered to be engaging in a "no contact" activity.

Restricted-Entry Interval Adjustments

The restricted-entry interval adjustments described below and in Sidebar 7 can be made only to restricted-entry intervals found in the regulations, not to those prescribed on the pesticide label.

Restricted-entry intervals may change from time to time. Read the pesticide label or consult your county agricultural commissioner for current information.

Shortening the Restricted-Entry Interval. With prior authorization from the county agricultural commissioner, restricted-entry intervals can be shortened as follows:

- When there is no foliage on the plant that has been treated, and when any crop cover or weed cover in the treated area is not over four inches in height, the restricted-entry interval can be reduced by 50 percent, but in no case to less than the label-specified restricted-entry interval.
- When the pesticide label requires you to adjust the restricted-entry interval if you make outdoor applications in a geographical area that averages less than 25 inches of rain annually, you must observe the label's special restricted-entry interval requirements for these dry areas. But, if you can present your county agricultural commissioner with valid rainfall data from an official government source showing that the area in your county where you want to apply pesticides averages 25 inches of rain or more annually, your agricultural commissioner is allowed to shorten the restricted-entry interval.

Warning and Posting Requirements

When property is used for commercial or research production of an agricultural commodity, property operators must assure that their employees, including the employees of any contractor they hire, are notified of all scheduled pesticide applications. Property operators must give the notification prior to the application

- to any person in the field
- to any person likely to enter during the application
- to any person who may enter during the restricted-entry interval
- to any employee who walks within 1/4 mile of the treated field

SIDEBAR 7

Restricted-Entry Interval Adjustments: An Example

To determine what the restricted-entry interval should be when you are applying a mixture of two or more organophosphate pesticides with differing restricted-entry intervals, add *50 percent of the next longest restricted-entry interval* to *the longest restricted-entry interval.* For example, when treating a crop with a combination of Pesticide A and Pesticide B, the restricted-entry interval would be 15 days:

Restricted-Entry Interval	Calculations
Pesticide A—14 days Pesticide B—2 days	50% of 2 days = 2 x .5 = 1 14 + 1 = 15 days

People who apply the pesticides or supervise the applications need not be given notification.

The notice must be given in a manner that is understood by the people notified. The notice must include the description and location of the treated area, the time period during which entry is restricted, and instructions to stay out of the treated field, except as provided for early entry, until the restricted-entry interval expires. Oral notification is not required if the field is posted as specified in the regulations, unless the pesticide label requires both oral warnings and field posting.

When the pesticide label requires it, property operators must assure that signs are posted around treated fields during the application and throughout the restricted-entry interval. Signs are not required if control measures prevent employees—except for the handlers making the application—from walking within 1/4 mile of, entering, working in, or remaining in the treated field.

In addition, all greenhouse applications require posting of warning signs unless control measures prevent employees—except for the handlers making the application—from entering, working in, remaining in, or passing through the greenhouse during the application and the restricted-entry interval.

Warning signs are required when any pesticide application results in a restricted-entry interval greater than seven days after any adjustments allowed in the regulations.

Warning Signs. Warning signs must have a skull and crossbones symbol near the center. The words "DANGER," "PELIGRO," "PESTICIDES," and "PESTICIDAS" must appear in the upper portion of the sign, while the words "KEEP OUT" and "NO ENTRE" must appear in the lower portion. The wording must be readable and the symbol visible to a person with normal vision from 25 feet. The colors of the letters and symbols must contrast with their immediate background. The signs must be posted no earlier than 24 hours prior to an application and must be removed within three days after expiration of the restricted-entry interval, before employees enter to perform activities prohibited during the restricted-entry interval. The sign must remain posted and clearly legible throughout the application and restricted-entry interval. When the sign is used for a restricted-entry interval greater than seven days, the following information must appear in the lower portion of the sign: the date when entry will become unrestricted, the name of the property operator, and the field identification, if any.

Warning signs must be posted so they are visible at all usual points of entry to the treated field. This includes each road, foot path, walkway, or aisle that enters the treated field. The signs must be posted along the border with any labor camp that is adjacent to the treated field. If the treated field borders an unfenced public right-of-way such as a road, trail, or path, additional signs must be posted at each end of the treated field and along the border at intervals no greater than 600 feet.

When a minimal exposure pesticide or a pesticide with the signal word "DANGER" on the label is applied through an irrigation system, signs must be posted in the same manner as previously described. However, such warning signs must also contain an octagon STOP sign symbol at least eight inches in diameter containing the word "STOP" in English. Also, the words "KEEP OUT" and "NO ENTRE" must appear above the symbol, and the words "PESTICIDES IN IRRIGATION WATER" and "PESTICIDAS EN AGUA DE RIEGO" must appear below the symbol. All letters must be at least 2-1/2 inches tall, and the color of the

symbol and letters must contrast sharply with the background.

If a fumigant is applied to a field, warning signs must be posted as described above. However, the sign must instead have the skull and crossbones symbol and the following words and information:

- "DANGER/PELIGRO"
- "AREA UNDER FUMIGATION, DO NOT ENTER/NO ENTRE"
- "(Name of the fumigant) FUMIGANT IN USE"
- the date and time of the fumigation
- the name, the address, and the telephone number of the applicator

See Sidebar 8 for examples of warning signs.

SIDEBAR 8

Examples of Warning Signs

When the restricted-entry interval is seven days or less, or posting is required by the labeling or the regulations, the following sign must be used:

DANGER **PELIGRO**

PESTICIDES **PESTICIDAS**

KEEP OUT **NO ENTRE**

When the restricted-entry interval is greater than seven days, or posting is required by the labeling or the regulations, the following sign must be used:

DANGER **PELIGRO**

PESTICIDES **PESTICIDAS**

KEEP OUT **NO ENTRE**

[Date of Unrestricted Entry]

[Name of Property Operator]

[Field Identification (if applicable)]

Requirements for Early-Entry Fieldworkers

Employees may be allowed to perform tasks in a treated field after completion of the application and while a restricted-entry interval is in effect *ONLY* if employers meet all of the requirements specified below:

- Employers must assure that early-entry fieldworkers are informed of pesticide label requirements regarding: human hazards or precautions; first aid; symptoms of poisoning; use and care of label-required PPE for early entry workers; prevention, recognition, and first aid for heat-related illnesses; and the importance of washing themselves thoroughly at the end of the exposure period.
- Employers must provide all required PPE and provide for its cleaning according to pesticide label instructions. In the absence of any instructions the PPE must be washed in hot water with detergent.
- Employers must replace PPE when it cannot be properly cleaned or repaired. Employers must assure the PPE is inspected before each day's use and that all PPE is kept separate from personal clothing in a pesticide free, specifically designated place when not in use. All required PPE must meet the applicable standard in the California Code of Regulations, Title 3, Section 6738.
- Employers must assure that all PPE is used correctly for its intended purpose.
- Employers must assure that cleaned PPE is dried, or stored in a well-ventilated place to dry, and that contaminated PPE is kept and washed separately from other clothing or laundry.
- PPE must remain the property of the employer. The employer must not direct or allow employees to take contaminated PPE home. The employer must inform anyone who cleans or launders PPE that it may be contaminated, the hazards it presents, and how to properly handle and clean it.
- When the pesticide label requires eye protection, employers must assure that each early-entry worker has in their possession, or in their work vehicle, at least one pint of eyeflush water.

REVIEW QUESTIONS

(answers on page 119)

1. **The primary purpose of fieldworker safety regulations is to**
   - ☐ a. reduce pesticide exposure to children of fieldworkers
   - ☐ b. shield employers from liability
   - ☐ c. protect fieldworkers from pesticide residues in treated fields
   - ☐ d. comply with federal mandates

2. **When must pesticide safety training be given to fieldworkers?**
   - ☐ a. within one month after they begin work
   - ☐ b. immediately after each pesticide application
   - ☐ c. before they are allowed to work in a treated field
   - ☐ d. when fieldworkers request training

3. **How often must fieldworkers receive pesticide safety training?**
   - ☐ a. every year
   - ☐ b. every two years
   - ☐ c. every four years
   - ☐ d. every five years

4. **Who is qualified to provide training to fieldworkers in California?**
   - ☐ a. a person who has completed an approved instructor training program
   - ☐ b. another fieldworker who attended a fieldworker training session
   - ☐ c. any field supervisor or farm manager
   - ☐ d. any University of California employee

5. **What document must be displayed at the work site or central location when fieldworkers are working in a pesticide-treated field?**
   - ☐ a. the Pest Control Recommendation signed by a licensed Pest Control Adviser
   - ☐ b. a completed Pesticide Safety Information Series leaflet A-9
   - ☐ c. an outline of the pesticide safety training provided to the workers
   - ☐ d. a list of the trained workers employed by the farming operation

6. **Before fieldworker employees are allowed to enter pesticide-treated fields, what information must the property operator inform them about that is mandated by California's pesticide laws?**
   - ☐ a. the location of drinking water
   - ☐ b. the work hours, including break and lunch periods
   - ☐ c. the availability and location of the pesticide use records, PSIS leaflets, and MSDSs
   - ☐ d. how to protect themselves from sun exposure

7. **Which of the following information about a pesticide-treated field is *not* required to be displayed at a central location?**
   - ☐ a. the time and date of the pesticide application
   - ☐ b. the restricted-entry interval
   - ☐ c. the product name, the EPA registration number, and the active ingredients
   - ☐ d. the name of the person who made the pesticide application

8. **When a pesticide that requires the use of a respirator is applied to a small number of plants in one section of a greenhouse, the *treated area* is considered to be**
   - ☐ a. 25 feet in all directions from the treated plants
   - ☐ b. the entire enclosed area plus any adjacent area that is not sealed from the treatment site
   - ☐ c. 100 feet in all directions from the treated plants
   - ☐ d. the treatment site only

9. **When employees are required to enter pesticide-treated fields, emergency medical care must be**
   - ☐ a. obtained by the employees if needed
   - ☐ b. provided if needed after the employer consults with a medical advisor
   - ☐ c. planned and arranged for in advance by the employer
   - ☐ d. arranged for by the local county agricultural commissioner's office

10. **In general, decontamination facilities must be located within _____ of fieldworkers who are working in a pesticide treated field.**
    - ☐ a. 100 feet
    - ☐ b. 500 feet
    - ☐ c. 1/4 mile
    - ☐ d. 1/2 mile

11. **When there is an inconsistency between the regulation-specified restricted-entry interval and the label-specified restricted-entry interval, you must always**
    - ☐ a. average the two restricted-entry intervals
    - ☐ b. follow the regulation-specified interval
    - ☐ c. follow the label-specified interval
    - ☐ d. use the longest interval

12. Which of the following is one of the restrictions for employees entering a pesticide-treated area *before* the restricted-entry interval expires to conduct limited-contact activities?
- ☐ a. at least 12 hours have elapsed since the application was completed
- ☐ b. the label requires posting and oral notification of employees
- ☐ c. each employee spends no more than eight hours in any 24-hour period in the treated field
- ☐ d. employees are wearing long-sleeved shirts, long pants, and shoes and socks

13. Which of the following would be considered a *no contact activity* in a pesticide-treated area in which the restricted-entry interval has not expired?
- ☐ a. performing hand labor activities
- ☐ b. limited-contact irrigation activities
- ☐ c. adjusting or repairing the pesticide sprayer
- ☐ d. operating a tractor that is equipped with an enclosed cab

14. Two organophosphate pesticides, both with restricted-entry intervals, are being applied together to an orchard. Pesticide "A" has a restricted-entry interval of 10 days. Pesticide "B" has a restricted-entry interval of 6 days. What is the new restricted-entry interval?
- ☐ a. 6 days
- ☐ b. 10 days
- ☐ c. 13 days
- ☐ d. 16 days

15. You are applying a pesticide that has a label-specified restricted-entry interval of 3 days, but it has a regulation-specified restricted-entry interval of 8 days. There is no foliage on the trees you are treating and there are no weeds or groundcover in the orchard. You have received authorization from the local agricultural commissioner to allow you to shorten the restricted-entry interval. The *minimum* restricted-entry interval can now be
- ☐ a. 3 days
- ☐ b. 4 days
- ☐ c. 7 days
- ☐ d. 13 days

16. Notification of an impending pesticide application *does not* have to be given to
- ☐ a. a person who is supervising the application
- ☐ b. any person working in the field that will be treated
- ☐ c. employees who are likely to enter the area during the application
- ☐ d. employees who walk within 1/4 mile of the treated field

17. Even if the label does not require posting of a treated area, posting is required if the restricted-entry interval is greater than
- ☐ a. 3 days
- ☐ b. 5 days
- ☐ c. 7 days
- ☐ d. 9 days

18. If a field is treated with a pesticide that does not require posting as a method of notification, oral notification is not required if the
- ☐ a. restricted-entry interval is less than 25 hours
- ☐ b. field is posted
- ☐ c. restricted-entry interval is 12 hours or less
- ☐ d. restricted-entry interval is 4 hours

19. When using posting as a method of notification about a pesticide restricted-entry interval, posting signs must be placed no further apart than
- ☐ a. 100 feet
- ☐ b. 250 feet
- ☐ c. 500 feet
- ☐ d. 600 feet

20. When the pesticide label requires eye protection, employers must provide each early-entry worker with
- ☐ a. sun glasses
- ☐ b. at least one pint of eyeflush water
- ☐ c. three pairs of goggles
- ☐ d. prescription eye drops

21. Which of the following *is not* an employer responsibility before allowing employees into a treated field after completion of a pesticide application and while a restricted-entry interval is in effect?
- ☐ a. providing instructions on where and how to store personal protective equipment at home
- ☐ b. providing all required personal protective equipment
- ☐ c. providing instructions to employees to wash thoroughly at the end of the exposure period
- ☐ d. providing information on recognizing, preventing, and giving first aid for heat-related illnesses

7 Fumigation Worker Safety

General Fumigation Safe-Use Requirements 98

Fumigation of Enclosed Spaces 98

Field Fumigation 100

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EMPLOYERS OF FUMIGATION workers are responsible for ensuring safe working conditions for these employees. They must make sure employees have the proper respiratory equipment or are monitored or protected in other ways specified below. They must have accident plans and train their employees how to respond in case of accidents. And they must observe regulations regarding fumigating enclosed spaces and fields and posting of warning signs.

General Fumigation Safe-Use Requirements

When fumigant concentrations cannot be controlled, and the employee's exposure exceeds the Permissible Exposure Limit (PEL) as specified in the California Code of Regulations, Title 8, Section 5155, or when the product label specifies more stringent requirements, employers must provide—and require employees to wear—approved respiratory equipment.

When an employee may be exposed above an exposure limit to methyl bromide, sulfuryl fluoride (Vikane), or any other fumigant for which the only type of approved respiratory equipment is air-supplied equipment, the employer has the option to do one of the following:

- require the employee to use air-supplied respiratory equipment, either self-contained breathing apparatus (SCBA) or an air-line respirator
- provide continuous monitoring to warn the employee before the PEL is reached
- Upon written request by an employer, the Director of DPR will review and may accept a fumigation safety program that describes methods, work practices, devices, or processes that the DPR Director determines will ensure employees will not be exposed to concentrations of fumigants in excess of the PEL.

Accident Response Plan. Employers must have an accident response plan at each work site, providing instructions to protect employees during situations such as spills, fire, and leaks. The employer must train employees in the accident management procedures found in the plan.

Fumigation of Enclosed Spaces

Enclosed spaces include, but are not limited to, vaults, chambers, greenhouses, vans, boxcars, ships, planes, vehicles, and tarp-covered structures and commodities. When you fumigate tarp-covered commodities inside of buildings, or when you fumigate areas or things inside enclosed greenhouses, the following requirements apply to the entire structure. Whenever a pesticide is used for fumigation inside an enclosed space, at least two employees, trained in pesticide safety and an accident response plan, must be present at all times. The trained employees must be present in the following situations:

- when the fumigant is introduced
- when anyone enters the enclosed space to facilitate aeration
- when anyone enters the enclosed space to determine the fumigant concentration

In all of these cases, personal protective equipment must be worn when it is required by the pesticide product label or the regulations. The second employee must have immediate access to the label-required personal protective equipment for pesticide handlers, in case it becomes necessary to enter the fumigated enclosed space for rescue.

The only exception is when solid fumigants, including aluminum phosphide, magnesium phosphide, and smoke cartridges, are introduced into the enclosed space from a position outside the enclosed space. In these cases only one trained employee must be present. The employer must ensure that the hazard communication and worker safety requirements outlined in Chapter 5 of this study guide are met.

Warning Signs. Before you start any fumigation, you must post plainly visible warning signs (see Sidebar 9) at all entrances to the space that will be fumigated. You must not remove warning signs until fumigation and ventilation have been completed and the premises are safe for reentry.

Warning signs must be printed in red on a white background. They must contain, in English and Spanish, the following statement in letters that are no less than two inches in height: "DANGER—FUMIGATION." The signs must also have a skull and crossbones that is no less than one inch in height. And in letters that are no less than one-half inch in height the signs must state all of the following:

SIDEBAR 9

Warning Sign for Fumigation of Enclosed Spaces

Before you start any fumigation, you must post plainly visible warning signs like this at all entrances to the space that will be fumigated.

DANGER **PELIGRO**

FUMIGATION **FUMIGACION**

[Name of Pesticide] [Pesticida (Veneno)]

[Date and Time Fumigant was Injected]

[Applicator's Name]

[Address]

[Telephone Number]

- the name of the fumigant
- the date and time the fumigant was injected
- the name, address, and telephone number of the applicator performing the fumigation

Unless fumigant concentration in the area is known to be at or below the PEL, employers must not allow employees to enter fumigated enclosed areas, except to determine the fumigant concentration or to facilitate aeration. If there are more stringent requirements stated on the product label, those requirements must be followed.

Fumigants must not be released into an occupied work area. And after the completion of any fumigation, employers must manage the treated area or products so that employees who enter the area or work with the treated products are not exposed to concentrations in excess of the PEL. If there are more stringent requirements stated on the product label, those requirements must be followed.

Field Fumigation

For soil fumigations using methyl bromide, alone or in combination with chloropicrin or any other pesticide or warning agent, signs must be posted as described in Chapter 6 and must remain in place until aeration is complete. For the following discussion of field fumigation requirements, "handling" includes:

- assisting with covering the tarp at the end of the rows (shoveling)
- observing the overall operation
- checking tarp placement
- changing cylinders (copiloting)
- operating application equipment (driving)
- tarp cutting and removal

Employer Recordkeeping. Employers must maintain records for all employees involved in application, tarp cutting, tarp repair, or tarp removal. The records must identify

- the employee's name
- the work activities they performed
- the dates they performed the activities
- the duration of handling
- the U.S. EPA registration number
- the brand name of the methyl bromide product that was handled

The employer must maintain these records at a central location for two years, and the records must be kept available for review upon request by the agricultural commissioner.

Employee Protection Requirements for Fumigation Handlers. Employees involved primarily in shoveling must work only at the ends of the application rows. Whenever methyl bromide is used for field soil fumigation, by itself or with chloropicrin or any other pesticide or warning agent, at least two trained employees must be present during introduction of the fumigant and removal of tarps if they have been used.

Limited Work Hours. An employee may work in more than one work task or application method in a 24-hour period as long as their total work hours do not exceed the lowest total hours specified in Sidebar 10 for any one work task or application method performed. During the injection period and during the restricted-entry interval, no employee may work in fumigation handling activities for more than the hours specified in Sidebar 10 in a 24-hour period.

Tarp Cutting and Removal Procedures. Tarp cutting and removal must be discontinued if the presence of gas is readily evident. This would be indicated by eye irritation or odor. Tarps used for broadcast fumigations must be cut using only mechanical methods (e.g., all-terrain vehicles or tractors with a cutting wheel). Each tarp panel used for broadcast fumigations must be cut lengthwise.

SIDEBAR 10

Limited Work Hours for Fumigation Workers

FUMIGATION METHOD/ ACTIVITIES	MAXIMUM WORK HOURS IN A 24-HOUR PERIOD	MAXIMUM APPLICATION RATE
Nontarpaulin/Shallow/Bed		
Application Equipment Driving	4*	200 lbs
Nontarpaulin/Deep/Broadcast		
Application Equipment Driving	4*	400 lbs
Tarpaulin/Shallow/Broadcast		
Application Equipment Driving	4*	
Shoveling, Copiloting	3*	400 lbs
Tarpaulin Cutting	4	
Tarpaulin Removal	7	
Tarpaulin/Shallow/Bed		
Application Equipment Driving	4*	
Shoveling, Copiloting	4*	250 lbs
Tarpaulin Cutting	4	
Tarpaulin Removal	7	
Tarpaulin/Deep/Broadcast		
Application Equipment Driving	4*	
Shoveling, Copiloting	3*	400 lbs
Tarpaulin Cutting	4	
Tarpaulin Removal	7	
Drip System—Hot Gas		
Applicators	2*	
Tarpaulin Cutting	4	225 lbs
Tarpaulin Removal	7	

* If the actual methyl bromide application rate is less than the maximum application rate shown in the chart above for the particular fumigation method used, the maximum work hours may be increased in accordance with the following formula:

$$\frac{\text{maximum application rate for method}}{\text{actual application rate}} \times \text{maximum work hours in a 24-hour period} = \text{revised maximum work hours in a 24-hour period}$$

Tarp Repair. The property operator must provide a "tarp repair response plan" to the county agricultural commissioner. This plan must identify the responsibilities of the licensed pest control business or the permittee regarding detection of tarp damage and repair. The plan must indicate the people responsible for repair. It must also specify when tarp repair must be conducted, and it must consider

- hazards to the public, residents, or workers
- the proximity to occupied structures
- the size of the damaged area or areas
- the timing of the damage

- the feasibility of repair
- environmental factors like wind speed and direction

The ambient air near the tarp that needs repair must be tested for methyl bromide concentration. This must be done using a label-specified testing device, and it must be done by one of the following:

- a certified applicator employed by the pest control business that made the application
- a certified applicator employed by the permittee
- a certified applicator permittee

Certified applicators must wear respiratory protective equipment when they conduct these tests. All repair work areas must test less than 5 ppm methyl bromide before any employee not wearing respiratory protection can be allowed to enter and conduct tarp repair. That employee is limited to one work hour in a 24-hour period.

Warning signs. See Chapter 6, page 90, "Warning and Posting Requirements," regarding warning signs for field fumigation.

REVIEW QUESTIONS

(answers on page 119)

1. **Employers must provide and require employees to wear approved respiratory equipment when**
   - ☐ a. fumigant concentrations are kept below the Permissible Exposure Limit
   - ☐ b. fumigant concentrations are controlled at safe levels
   - ☐ c. the fumigants being used are non-toxic to people
   - ☐ d. fumigant concentrations cannot be controlled

2. **A fumigation accident response plan must be located**
   - ☐ a. in the employer's files
   - ☐ b. on the employee bulletin board
   - ☐ c. at each work site
   - ☐ d. in one of the employees' vehicles

3. **When a fumigated enclosed space is being entered to facilitate aeration, how many *trained* employees must be present?**
   - ☐ a. none
   - ☐ b. one
   - ☐ c. two
   - ☐ d. four

4. **Before starting any fumigation, you must post plainly-visible warning signs**
   - ☐ a. at all entrances to the space
   - ☐ b. around the main entrance to the space
   - ☐ c. at three or more locations around the space
   - ☐ d. at a central location close to the space

5. **For soil fumigation using methyl bromide, posting signs must be placed**
   - ☐ a. at the main entrance to the fumigated field
   - ☐ b. at 1/4 mile intervals around the field
   - ☐ c. so they are visible at all usual points of entry to the field, at each end of the field, and along the border at intervals no greater than 600 feet
   - ☐ d. at all usual points of entry to the field

6. **The purpose of combining chloropicrin with methyl bromide for fumigation is to**
   - ☐ a. to reduce the amount of methyl bromide used
   - ☐ b. speed up the penetration of methyl bromide into the soil
   - ☐ c. have the chloropicrin serve as a warning agent
   - ☐ d. lessen the toxicity of the methyl bromide to people

8 Pesticide Residue

Monitoring Produce for Pesticide Residues 104

Residue Tolerances 104

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Commercial Laboratories 105

REVIEW QUESTIONS 106

THE DPR'S RESIDUE MONITORing Program is a key element in the integrated regulatory program designed to ensure the safe use of pesticides in California. This chapter will give you an overview of the laws and regulations concerning pesticide residues.

Monitoring Produce for Pesticide Residues

Pesticide residue is the remnant of a pesticide that can be found on a crop or commodity after application. Residues may result from any of the following:

- direct application
- off-site movement such as drift, volatilization, and runoff from irrigation or rain water
- uptake from contaminated soil
- other environmental sources

Monitoring for Residues. DPR, the U.S. Food and Drug Administration (U.S. FDA), and county agricultural commissioners collect samples of various produce commodities for pesticide residue analyses. DPR collects samples throughout the year from chain store distribution centers, wholesale markets, and points-of-entry. These samples include domestic and foreign produce. County agricultural commissioners may collect and analyze produce samples from the fields at any time during the growing season. The purpose of sampling is to monitor for illegal pesticide use or pesticide residues. The U.S. FDA samples domestic and imported produce in interstate commerce within California and throughout the United States. They have strengthened their import program in the last few years and now give special attention to imported foods.

Residue Tolerances

Residue tolerances for produce in California are the same as those established by the U.S. Environmental Protection Agency (U.S. EPA). The *tolerance* is the highest residue level of a particular pesticide that is legally allowed on a particular commodity. The purpose of the tolerance is to ensure that consumers are not exposed to unsafe levels of pesticide residues in food. Tolerances are based upon extensive toxicological information developed by pesticide registration applicants. This information is developed through the use of test animals and through actual field dissipation studies. These data are then evaluated by qualified scientists at U.S. EPA.

The best way for you to avoid pesticide residue problems is to read and carefully follow the label instructions and follow any laws or regulations that may govern the use of a specific pesticide. You should always consider what is being produced on adjoining properties. Then select the proper pesticide and method of application, and confine the pesticide to the property you are treating.

Laws and regulations do not justify or permit pesticide residue on produce unless a tolerance has been established for that specific pesticide and produce combination. In some instances, the Director of DPR may authorize an exemption from a tolerance.

Parts Per Million. Pesticide residues are normally measured in parts per million (ppm). One part per million equals one part of a chemical per million parts of the commodity. In general, pesticide residues are measurable at a minimum detectable level of 0.01 ppm.

Tolerances for Combinations of Pesticide Residues

Agricultural commodities can be quarantined or prohibited from harvest if they are found to carry an unacceptable residue level from a combination of related or unrelated pesticides. See Sidebar 11 for examples of how combinations of related and unrelated residues can add up to legal or illegal tolerance levels.

Quarantine

When an agricultural commodity is found to carry pesticide residues in excess of the legal tolerance, the commodity is quarantined and removed from sale and distribution. This is also what happens if it is found to have a residue for which there is no tolerance established. The grower is then subject to prosecution, and so are the packer and shipper. The quarantined lot cannot be moved or disposed of without approval from DPR.

Seizure

If you treat a crop, commodity, or site with a pesticide that is not registered for use on that crop, commodity, or site, it is considered a public nuisance. It may be seized by the Director of DPR to prevent its harvest or sale and to prevent planting of the site.

Commercial Laboratories

Many growers and chemical firms use the services of commercial laboratories that provide pesticide residue analysis. All laboratories that analyze produce for pesticide residues must be accredited by the California Department of Health Services. You can obtain the names and locations of these laboratories by contacting your local county agricultural commissioner.

SIDEBAR 11

Tolerances for Combinations of Related and Unrelated Pesticide Residues

Related Pesticide Residue Combination

Consider a lettuce crop treated with pesticide X and pesticide Y, both organophosphates. The established tolerance for pesticide X on lettuce is 2 ppm, and the established tolerance for pesticide Y is 7 ppm. One lot of packed lettuce was found to carry 1 ppm of pesticide X and 4 ppm of pesticide Y. To determine the percent of allowable tolerance, related chemical residues are added on a percentage basis:

Pesticide	Tolerance	Residue	Residue in Percent of Tolerance
X	2 ppm	1 ppm	50.0
Y	7 ppm	4 ppm	57.1
			107.1

One ppm is 50 percent of 2 ppm, and 4 ppm is 57.1 percent of 7 ppm. When 50 percent and 57.1 percent are added together, the result is 107.1 percent. This lot is in violation, because the combined residues exceed 100 percent of the allowed tolerance for organophosphates.

(sidebar continued on next page)

Unrelated Pesticide Residue Combination
Consider what happens if the residue found on this lot of lettuce had been 1 ppm of pesticide A, an organophosphate, and 2 ppm of pesticide B, a chlorinated hydrocarbon:

Pesticide	Tolerance	Residue	Residue in Percent of Tolerance
A	1 ppm	1 ppm	100
B	2 ppm	2 ppm	100

This time the residue on the lettuce is legal, because unrelated pesticides are not added on a percentage basis. Therefore, 100 percent tolerance of each compound is legal.

REVIEW QUESTIONS

(answers on page 119)

1. **Which of the following would *not* generally produce pesticide residues on a treated crop?**
   - ☐ a. direct application of a pesticide to the crop
   - ☐ b. spray drift from an adjacent area
   - ☐ c. uptake of pesticides by plant roots from contaminated soil
   - ☐ d. storage of undiluted pesticides in a locked storage shed

2. **A pesticide residue tolerance is the**
   - ☐ a. minimum amount of pesticide that is allowable on a particular commodity at the time of application
   - ☐ b. maximum amount of pesticide that is allowable on a particular commodity at the time of application
   - ☐ c. maximum amount of pesticide that is allowable on a particular commodity at the time of harvest
   - ☐ d. maximum amount of pesticide that is allowable on a particular commodity at market distribution centers, wholesale markets, and points-of-entry

3. **Which agencies are responsible for monitoring pesticide residues on commodities?**
   - ☐ a. the U.S. Environmental Protection Agency and the California Department of Health Services
   - ☐ b. the U.S. Department of Agriculture and the California Department of Food and Agriculture
   - ☐ c. county health departments and the California Department of Health Services
   - ☐ d. the U.S. Food and Drug Administration, the Department of Pesticide Regulation, and county agricultural commissioners

4. **What is the best way to avoid exceeding the legal pesticide tolerance on a commodity to which you are making a pesticide application?**
   - ☐ a. make the application as close as possible to harvest
   - ☐ b. use adjuvants that retard the breakdown of the pesticide
   - ☐ c. carefully follow label instructions and any laws or regulations that may govern the use of the specific pesticide
   - ☐ d. make applications at night or early mornings

5. **If an agricultural commodity is found to carry pesticide residues in excess of the legal tolerance it will be**
   - ☐ a. banned from sale in certain states
   - ☐ b. allowed to be sold only in certified farmers' markets
   - ☐ c. allowed to be sold only outside of the United States
   - ☐ d. quarantined and removed from sale and distribution

6. **If an agricultural commodity is found to have residues of a pesticide that is not registered for that commodity, it will be**
   - ☐ a. sold for livestock feed only
   - ☐ b. considered a public nuisance
   - ☐ c. held in storage until the residues dissipate
   - ☐ d. allowed to be sold only outside of the United States

7. **Laboratories that provide pesticide residue analysis must be accredited by the**
   - ☐ a. California Department of Health Services
   - ☐ b. California Department of Pesticide Regulation
   - ☐ c. California Department of Food and Agriculture
   - ☐ d. U. S. Food and Drug Administration

9 Ground Water Protection and the Endangered Species Act

Ground Water Protection 108

The Endangered Species Act 111

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THIS CHAPTER DISCUSSES THE laws and regulations that have been established to prevent pesticide contamination of the ground water aquifers in California that may be used for drinking water supplies. It also covers the federal Endangered Species Act, enacted in 1973 to protect endangered and threatened plant and animal species and to conserve the ecosystems they depend upon for survival.

Ground Water Protection

Ground water contamination, resulting from normal, registered use of pesticides (Figure 9-1), can cause unreasonable risks to human health and the environment. Preventing contamination of ground water resources is a shared goal of DPR, the California EPA, and the U.S. EPA, who work together to design programs to stop further ground water contamination before it happens and to keep existing problems from worsening.

Chemicals on the Ground Water Protection List

The Ground Water Protection List identifies pesticides labeled for agricultural, outdoor institutional, or outdoor industrial use that have the potential to pollute ground water. This list is found in the California Code of Regulations, Title 3, Section 6800(a) and (b), and it includes some pesticides that have been detected in ground water or soil in California. You must obtain a restricted materials permit to possess and use pesticides containing the active ingredients in CCR 6800(a). A list of these active ingredients is available on the DPR web site at www.cdpr.ca.gov.

Pesticide Management Zone (PMZ)

A Pesticide Management Zone (PMZ) is a geographical area of approximately one square mile that is sensitive to ground water pollution. PMZs have been established in Butte, Colusa, Contra Costa, Fresno, Glenn, Kern, Los Angeles, Madera, Mendocino, Merced, Orange, Placer, Riverside, San Bernardino, San Joaquin, Solano, Stanislaus, Tehama, Tulare, Ventura, and Yolo Counties. A list of the established PMZs in California is available through the local county agricultural commissioner or DPR. Contact them for the latest information on PMZs.

Ground Water Protection Restrictions

You must obtain a restricted materials permit to possess or use pesticides containing atrazine, simazine, bromacil, diuron, prometon, or norflurazon when you intend to use them for allowed agricultural, outdoor institutional, or outdoor industrial uses within a PMZ. However, to obtain a restricted materials permit for allowed uses of pesticides containing any of these chemicals in a PMZ, you must submit a ground water protection advisory with your restricted materials permit application. These advisories must be written by a licensed Agricultural Pest Control Adviser who has completed the Ground Water Protec-

FIGURE 9-1.

Ground water contamination, resulting from normal, registered use of pesticides, can cause unreasonable risks to human health and the environment.

tion Training Program. When you use pesticides containing these chemicals in a DPR-approved pest eradication program, you do not need to obtain a restricted materials permit unless the pesticides you are using are also restricted for purposes other than ground water protection.

Specific Use Requirements

All agricultural, outdoor institutional, and outdoor industrial use of pesticides containing atrazine and prometon are prohibited in their PMZs. All noncrop uses of pesticides containing simazine, bromacil, and diuron are prohibited in their PMZs. Use of pesticides containing bentazon has all of the following restrictions. They cannot be used

- in Del Norte and Humboldt Counties
- on rice
- before April 1 or after July 31
- on an irrigated crop unless the irrigation is applied by sprinklers

Although aldicarb is not listed in California Code of Regulations, Title 3, Section 6800(a), the use of pesticides containing aldicarb is regulated to protect ground water as follows:

- Maximum rates are specified in the regulations.
- No use is allowed between September 1 and March 1.

Within norflurazon PMZs, all agricultural, outdoor institutional, and outdoor industrial uses of pesticides containing norflurazon are prohibited inside canal and ditch banks and in recharge areas.

Research Authorization for Ground Water Protection Chemicals

The Director of DPR may authorize specific applications of pesticides containing atrazine, simazine, bromacil, diuron, prometon, and norflurazon within a PMZ for the purpose of research or experimentation. If you wish to conduct this sort of research or experimentation you must apply for approval of your project by submitting a completed "Research Authorization Pesticide Form" to the Director of DPR.

Pest Control Dealer Requirements for Ground Water Protection Chemicals

Whenever a restricted materials permit is required for the possession or use of pesticides containing atrazine, simazine, bromacil, diuron, prometon, bentazon, or norflurazon, pest control dealers must obtain a copy of the purchaser's permit before they transact a sale. The dealer must retain these records for two years.

Before dealers sell pesticides containing atrazine, simazine, bromacil, diuron, prometon, bentazon, or norflurazon, they must obtain a signed statement from the purchaser with the same (or substantially similar) wording as the sample statement in Sidebar 12. Dealers must retain these signed statements for two years.

Sales Reporting. Licensed pest control dealers must prepare and maintain records of the pesticides they sell or deliver, except those labeled

SIDEBAR 12

Pesticide Sales—Ground Water Protection

_____ The material I am purchasing will not be used in a Pesticide Management Zone (as described in Section 6802, Title 3, California Code of Regulations) for agricultural, outdoor institutional, or outdoor industrial use.

_____ The material I am purchasing will be used in a Pesticide Management Zone (as described in Section 6802, Title 3, California Code of Regulations) for agricultural, outdoor institutional, or outdoor industrial use, and a copy of my restricted materials permit is attached.

Material(s) purchased: _____

_____

I certify under penalty of perjury that the foregoing statement is true, and that I will not apply any material listed in Section 6800 (a), Title 3, California Code of Regulations in any Pesticide Management Zone for agricultural, outdoor institutional, or outdoor industrial uses except in accordance with a permit issued by the county agricultural commissioner, or by the Director of DPR in a county in which there is no county agricultural commissioner.

_____ Purchaser

_____ Date

only for home use. Pesticide products that may be sold without a Pest Control Dealer's License are exempt from this reporting requirement.

Requirements for Agricultural Pest Control Advisers

Ground water protection advisories may be written only by licensed Agricultural Pest Control Advisers who have completed DPR's Ground Water Protection Training Program. In each county in which they intend to write ground water protection advisories, advisers must file written proof that they have completed the DPR training, and they must have completed the training within the past two calendar years. DPR schedules the Ground Water Protection Training Program at least once a year.

Records. Advisers must retain a copy of each ground water protection advisory they write for agricultural, outdoor institutional, or outdoor industrial use for one year following the date of the advisory. Advisers must furnish copies of advisories to the property owners or operators so they can obtain restricted materials permits for allowed uses of atrazine, simazine, bromacil, diuron, prometon, and norflurazon in their PMZs. Advisories must be kept available for review by the Director of DPR or the county agricultural commissioner upon request.

Required Content for Ground Water Protection Advisories. Ground water protection advisories must be in writing and must be specific to one of the following chemicals: atrazine, simazine, bromacil, diuron, prometon, or norflurazon. Each advisory must include

- the name and address of the owner or operator of the property to be treated
- the location of each property to be treated, including the designation by base meridian, township, range, and section
- the basic soil textural class (such as sandy loam, silty clay loam, or clay) for each site on the property to be treated
- a map of the property to be treated, identifying all known areas that could impact the movement of the chemical to ground water including, but not limited to, abandoned and surface drainage (dry) wells, and irrigation and domestic wells
- details about the property to be treated, including basic soil textural class, irrigation practices, and the location of wells—including, but not limited to, abandoned and surface drainage (dry) wells and irrigation and domestic wells—to minimize the movement of the chemical to ground water
- the signature and address of the Agricultural Pest Control Adviser writing the advisory, their license number, and the date

The information listed above is separate from the requirements Agricultural Pest Control Advisers must follow when they write Pest Control Recommendations.

The Endangered Species Act

The objective of the federal Endangered Species Act of 1973 is to protect endangered and threatened plant and animal species and to conserve the ecosystems upon which they depend. Under this act, all federal agencies must ensure that any actions they authorize or carry out will not further jeopardize the continued existence of species listed as endangered or threatened by the U.S. Fish and Wildlife Service. Habitat critical to these species' survival also must not be harmed.

Under the Endangered Species Act, U.S. EPA is responsible for making sure that the pesticides it registers will not harm endangered species or their habitats. In 1986, U.S. EPA created the Endangered Species Protection Program (ESPP) to protect endangered species from any potential adverse effects of pesticide use. To implement the ESPP, some pesticide labels direct users to read special bulletins. ESPP has two goals:

- to provide the best protection for endangered species from the use of pesticides
- to minimize the impact of the ESPP program on pesticide users

U.S. EPA follows a species approach to protection (as opposed to crop clusters), prioritized according to the vulnerability of each endangered or threatened plant or animal. U.S. EPA also determines the lowest level of pesticide use that may affect each species. On March 14, 1991, U.S. EPA published a notice in the Federal Register listing pesticides that "may affect" endangered species.

In California, DPR has been studying endangered species protection issues since 1988. DPR's activities include

- mapping sites occupied by federally listed threatened or endangered species
- evaluating the risks from pesticides to inhabited sites
- classifying risks from pesticides
- developing protection strategies to minimize risks from pesticides as needed

As of October 1997, there were 359 federally listed threatened or endan-

gered species in California. Of all the federally listed species in California, the San Joaquin kit fox has the greatest overlap with agricultural areas, accounting for about 10 million acres in 14 counties, mostly in the San Joaquin Valley. Other species interspersed with agricultural areas in California include birds, mammals, reptiles, amphibians, crustaceans, and many plants.

DPR coordinates its endangered species protection strategies with the California Department of Fish and Game, the California Department of Food and Agriculture, and the county agricultural commissioners. For additional information on implementation of the Endangered Species Act that may affect your area, contact your local county agricultural commissioner or check the following web sites:

- U.S. EPA: http://www.epagov/espp/aboutespp.htm#esa
- DPR: http://www.edpr.ca.gov/docs/estindex.htm

REVIEW QUESTIONS

(answers on page 119)

1. Ground water contamination, resulting from normal, registered uses of pesticides
- ☐ a. does not occur
- ☐ b. accounts for only a minor amount of the pesticide ground water contamination problem
- ☐ c. can cause unreasonable risks to human health and the environment
- ☐ d. occurs but causes no risks to humans or the environment

2. A Pesticide Management Zone is
- ☐ a. a geographical area of approximately one square mile that is sensitive to ground water pollution
- ☐ b. any field or agricultural area where pesticides are used
- ☐ c. a geographical area where no pesticides can be used
- ☐ d. an area where ground water occurs no less than 25 feet below the soil surface

3. Which of the following pesticides requires a restricted materials permit to posses or use outdoors in a Pesticide Management Zone?
- ☐ a. carbaryl
- ☐ b. glyphosate
- ☐ c. simazine
- ☐ d. malathion

4. A ground water protection advisory must be written by
- ☐ a. the county agricultural commissioner
- ☐ b. the operator of the property where a Pesticide Management Zone occurs
- ☐ c. the Department of Pesticide Regulation
- ☐ d. a licensed Agricultural Pest Control Adviser who has completed the Ground Water Protection Training Program

5. Before pest control dealers can sell pesticides containing atrazine or simazine, they must
- ☐ a. obtain a statement authorizing the sale from the county agricultural commissioner
- ☐ b. obtain a signed statement from the purchaser that describes its use
- ☐ c. have authorization for the sale from the Department of Pesticide Regulation
- ☐ d. obtain a copy of the ground water protection advisory

6. Agricultural Pest Control Advisers must have completed Ground Water Protection Training within the _____ in order to be authorized to write ground water protection advisories.
- ☐ a. past six months
- ☐ b. current year
- ☐ c. past two calendar years
- ☐ d. past five years

7. A ground water protection advisory must include a map of the property to be treated that identifies
- ☐ a. locations of trees and structures
- ☐ b. all known areas that could impact the movement of the chemical to ground water
- ☐ c. surrounding roadways
- ☐ d. pesticide storage facilities

8. Under the Endangered Species Act, the _____ is responsible for ensuring that registered pesticides will not harm endangered species or their habitats.
- ☐ a. California Department of Pesticide Regulation
- ☐ b. U.S. Department of Agriculture
- ☐ c. California Environmental Protection Agency
- ☐ d. U.S. Environmental Protection Agency

9. Protection of endangered or threatened plants or animals is prioritized by the U.S. Environmental Protection Agency according to

- ☐ a. location in relation to agricultural sites
- ☐ b. type of organism
- ☐ c. vulnerability of each endangered or threatened organism
- ☐ d. distribution of each endangered or threatened organism throughout the U.S.

10. The California Department of Pesticide Regulation coordinates endangered species protection strategies within California with the

- ☐ a. U.S. Environmental Protection Agency and the National Wildlife Federation
- ☐ b. U.S. Department of Agriculture and the U.S. Environmental Protection Agency
- ☐ c. California Department of Fish and Game, the California Department of Food and Agriculture, and county agricultural commissioners
- ☐ d. U.S. Fish and Wildlife Service and the U.S. Environmental Protection Agency

10 Minimal Exposure Pesticides

Minimal Exposure Pesticide Safety Requirements 116

REVIEW QUESTIONS 118

BECAUSE OF SPECIFIC HAZards that are not mitigated by instructions on their labels, pesticides with certain active ingredients are classified as *minimal exposure pesticides.* By regulation, people who handle these pesticides must follow special use requirements, in addition to those on the labels, developed to reduce handler exposure and mitigate hazards associated with using these pesticides. A list of the minimal exposure pesticides, as well as use conditions and requirements can be found on the DPR web site, www.cdpr.ca.gov.

Conditions of Use

The following conditions apply to certain minimal exposure pesticides:

- Applications of oxydemeton-methyl to ornamental landscape trees and shrubs must be made by trunk injection or soil injection methods only.
- Applications of oxydemeton-methyl and propargite are not allowed within a greenhouse.

Minimal Exposure Pesticide Safety Requirements

These additional safety requirements take effect regardless of the toxicity category of the pesticide products used. Employers are responsible for providing change and decontamination facilities, proper protective clothing, and proper mixing equipment and respirator protection for employees who handle minimal exposure pesticides.

Change Area

For all employees who handle minimal exposure pesticides for any period of time, regardless of the toxicity category of the product being used, employers must provide an area where they can change clothes and wash themselves at the location where they complete their workday. Employers must provide clean towels, soap, and adequate water for thorough washing, and they must instruct their employees to shower thoroughly with warm water and soap as soon as possible after the end of each work shift. Employers must also provide a clean, pesticide-free place for employees to store any of their personal clothing that is not in use while they are at work handling minimal exposure pesticides.

Decontamination Facilities

Employers must provide decontamination facilities at locations where minimal exposure pesticides are mixed or loaded, regardless of the toxicity category of the product being used. Employers must ensure that employees have sufficient water, soap, and single-use towels for routine washing of their hands and face and for emergency eye flushing and washing of the entire body. The quality and temperature of the water must not cause illness or injury when it comes into contact with employees' skin or eyes, or if they swallow it. This water must be stored separately from water used for mixing with pesticides, unless the tank holding the water for mixing with pesticides is

equipped with appropriate valves to prevent backflow of pesticides into the tank.

Work Coveralls

Employers must ensure that employees who handle minimal exposure pesticides are provided with—and wear—coveralls. This is true regardless of the toxicity category of the product. Employers must ensure that

- employees start each workday wearing clean coveralls
- they keep at least one change of clean coveralls available at the mixing and loading site
- employees change out of their coveralls and wash themselves at the end of their workday
- employees do *not* take home potentially contaminated coveralls they remove at the work site or at headquarters
- employees whose workday does not require them to return to their employer's headquarters must remove and store their contaminated coveralls in a sealable container outside of their own living quarters and return them later to their employer

Employers must provide for the laundering of coveralls. They must inform the person or firm doing the laundry that they will receive pesticide-contaminated clothing and that it should be laundered separately.

Full-Body Chemical-Resistant Protective Clothing. Employers must provide—and ensure that employees wear—full-body chemical-resistant protective clothing when employees handle minimal exposure pesticides. This clothing must cover the torso, head, arms, hands, legs, and feet of the employee. Employees working in the following situations are not required to wear full-body chemical-resistant protective clothing, but this clothing must be immediately available for use in an emergency:

- employees using a closed system or sealed water-soluble packets while mixing, loading, or transferring minimal exposure pesticides. These employees must instead wear a chemical-resistant apron, chemical-resistant gloves, and chemical-resistant boots.
- employees working as applicators or flaggers in enclosed vehicles
- applicators using vehicle-mounted or towed equipment to inject or incorporate minimal exposure pesticides into the soil
- applicators using equipment with vehicle-mounted spray nozzles that are directed downward and located below the level of the employee

Closed Systems

Employers must provide and ensure the use of a closed system for all employees who mix, load, or transfer liquid formulations of minimal exposure pesticides, or who load diluted liquid mixtures derived from dry formulations of minimal exposure pesticides, regardless of their toxicity category. Closed systems are not required for employees who handle a total of one gallon or less of minimal exposure pesticides per day exclusively in original containers of one gallon or less.

Respiratory Protection

Employers must provide—and require employees to wear—respiratory protection when they engage in

- hand application or ground application of minimal exposure pesticides
- flagging during an application of a minimal exposure pesticide, except flaggers in enclosed vehicles
- mixing and loading dry formulations of minimal exposure pesticides, except when mixers or loaders use sealed water-soluble packets

The following employees are exempt from this respiratory protection requirement:

- applicators using vehicle-mounted or towed equipment to inject or incorporate minimal exposure pesticides into the soil
- applicators using equipment with vehicle-mounted spray nozzles that are directed downward and located below the level of the employee

The respiratory equipment employers provide to their employees must meet the requirements described in Chapter 5 of this study guide. Employers must ensure that all protective clothing and equipment is cleaned inside and out or discarded at the end of each day's use.

REVIEW QUESTIONS

(answers on page 119)

1. A minimal exposure pesticide is a pesticide

☐ a. that can be handled by anyone with the potential for little or no exposure
☐ b. whose labeling instructions do not mitigate specific hazards
☐ c. whose labeling instructions very thoroughly mitigate specific hazards
☐ d. that will not cause significant human health or environmental injury

2. All employees who handle minimal exposure pesticides must have available to them

☐ a. a full face cartridge respirator
☐ b. a designated location in the pesticide storage area to keep their personal clothing
☐ c. specially designed application equipment that includes a pesticide-approved enclosed cab
☐ d. an area where they can change clothes and wash themselves at the end of their work day

3. For minimal exposure pesticides bearing the signal word *Caution*, employers

☐ a. do not need to provide decontamination facilities at the mixing and loading area
☐ b. must provide decontamination facilities at the mixing and loading area
☐ c. must provide decontamination facilities within 1/4 mile of the mixing and loading area
☐ d. must provide decontamination facilities within 1 mile of the mixing and loading area

4. Coveralls, rather than work clothing, are required to be worn by employees handling _____ minimal exposure pesticides.

☐ a. *Danger*
☐ b. *Warning*
☐ c. *Caution*
☐ d. all

5. Full-body chemical-resistant protective clothing must be worn by employees who handle minimal exposure pesticides, except those who

☐ a. mix or load materials whose labels bear the signal word *Caution*
☐ b. work as flaggers during an application
☐ c. have obtained an exemption from their physician
☐ d. are injecting the pesticides into the soil when using vehicle-mounted or towed equipment

6. Respiratory protection *is not* required if an employee is

☐ a. flagging during an application of a minimal exposure pesticide
☐ b. applying minimal exposure pesticides with a hand-held spray wand
☐ c. mixing and loading dry formulations of a minimal exposure pesticide
☐ d. using equipment with vehicle-mounted spray nozzles that are directed downward and located below the level of the employee

ANSWER SHEET FOR REVIEW QUESTIONS

Introduction
1. b
2. c
3. d
4. a

Chapter 1
1. c
2. b
3. b
4. c
5. c
6. d
7. a
8. d
9. d
10. a
11. b
12. b

Chapter 2
1. b
2. d
3. a
4. d
5. c
6. a
7. b
8. b
9. d
10. b
11. d
12. a

Chapter 3
1. c
2. b
3. b
4. d
5. d
6. a
7. d
8. b
9. c
10. c
11. b
12. a
13. d
14. a
15. c
16. b
17. c
18. c
19. d
20. b
21. c

Chapter 4
1. a
2. c
3. b
4. c
5. d
6. c
7. a
8. d
9. c
10. a

Chapter 5
1. b
2. b
3. c
4. a
5. b
6. d
7. b
8. a
9. d
10. c
11. c
12. a
13. b
14. b
15. d
16. d
17. b
18. b
19. b
20. d

Chapter 6
1. c
2. c
3. d
4. a
5. b
6. c
7. d
8. b
9. c
10. c
11. d
12. c
13. d
14. c
15. b
16. a
17. c
18. b
19. d
20. b
21. a

Chapter 7
1. d
2. c
3. c
4. a
5. c
6. c

Chapter 8
1. d
2. d
3. d
4. c
5. d
6. b
7. a

Chapter 9
1. c
2. a
3. c
4. d
5. b
6. c
7. b
8. d
9. c
10. c

Chapter 10
1. b
2. d
3. b
4. d
5. d
6. d

Glossary

agricultural commodity. an unprocessed product of farms, ranches, nurseries, and forests (except livestock, poultry, and fish). Agricultural commodities include fruits and vegetables; grains, i.e., wheat, barley, oats, rye, triticale, rice, corn and sorghum; legumes, i.e., field beans and peas; animal feed and forage crops; rangeland and pasture; seed crops; fiber crops, i.e., cotton; oil crops, i.e., safflower, sunflower, corn, and cottonseed; trees grown for lumber and wood products; nursery stock grown commercially; Christmas trees; ornamentals and cut flowers; and turf grown commercially for sod.

Agricultural Pest Control Adviser. a person who offers a recommendation on any agricultural use, who holds himself or herself as an authority on any agricultural use, or who solicits services or sales for any agricultural use.

agricultural use. the use of any pesticide or method or device for the control of plant or animal pests, or any other pests, or the use of any pesticide for the regulation of plant growth or defoliation of plants. This term excludes the sale or use of pesticides in properly labeled packages or containers that are intended for any of the following:

- home use
- use by structural pest control operators
- industrial or institutional use
- use under a veterinarian's prescription (animal pests only)
- uses by certain local districts or agencies that operate under a cooperative agreement with the California Department of Health Services, as is the case with many mosquito abatement districts

"Agricultural use" includes, but is not limited to, commercial production of animals or plants (including forest), parks, golf courses, cemeteries, roadsides, power line rights-of-way, and nurseries. School yards are not included within the definition of agricultural use.

apiary. includes bees, comb, hives, appliances, or colonies, wherever they are kept, located, or found.

applied to the soil or applied to the ground. means the label of a pesticide product includes terminology such as

- soil fumigant
- soil applied
- soil treatment product
- can be used as a soil drench
- application to soil
- inject into the soil
- incorporate in top *x* inches of soil; pre-plant incorporation

- use on soil for control of soil-borne diseases
- surface application; band treatment, surface blend
- side dressing both/one side of row and cultivate into soil
- should be mixed uniformly into top *x* inches of soil
- pre-emergent to the weed
- broadcast to the soil
- apply in seed furrow

assure or ensure. to take all reasonable measures so that the behavior, activity, or event in question occurs. When the behavior, activity, or event in question involves or concerns an employee, reasonable measures by an employer include determining that the employee has the knowledge to comply; providing the means to comply; supervising the work activity; and having and enforcing a written workplace disciplinary action policy covering the employer's requirements, as well as other measures required by pesticide law or regulation.

authorized representative. a person designated in writing by the operator of the property to represent the operator of the property in obtaining a restricted materials permit.

backflow. the process that permits pesticide-contaminated water to move from the mix/load, application, or other similar equipment such as a nurse tank into a well or other water source. Backflow is prevented by using on the equipment listed above an air gap, check valve, or other means of preventing movement of pesticide-contaminated water into a well or other water source.

bees. honey-producing insects of the genus *Apis*. The term includes all life stages of these insects.

branch location. any location, other than the principal place of business, operated by a pesticide dealer or agricultural pest control operator to carry out licensed activities in California.

carbamates. esters of N-methyl carbamic acid, which inhibit cholinesterase.

Certified Commercial Applicator. (a) a person holding a valid qualified applicator license issued by the Director of DPR; (b) a pilot holding a valid journeyman pest control aircraft pilot's certificate issued by the Director of DPR; (c) a person holding a certified technician certificate issued by the Vector Biology and Control Section of the Department of Health Services; (d) a person holding a valid structural pest control operator or field representative license issued by the Structural Pest Control Board of the Department of Consumer Affairs; and (e) a person holding a valid qualified applicator certificate issued by the Director of DPR.

Certified Private Applicator. a person holding a valid private applicator certificate issued by the county agricultural commissioner (or by the Director of DPR in any county where there is no agricultural commissioner).

chemical-resistant or waterproof material. a material that allows no measurable movement of the pesticide through it during use. When a particular material is specified on the pesticide product label, personal protective equipment constructed of that material must be used.

chemigation. the application of pesticides through irrigation systems.

cholinesterase. an essential enzyme found in many living organisms, including human beings, that deactivates the chemical *acetylcholine* that is responsible for transmitting nerve impulses between nerves and between nerves and muscles.

Without proper cholinesterase activity, which allows the nerve signals to stop at the appropriate time, nerves and muscles do not function properly.

cholinesterase determination. a blood test that determines the level of active cholinesterase in the body.

chromosomal aberrations. any abnormal development of the chromosomes.

closed system. equipment for removing a pesticide from its original container, rinsing the emptied container, and transferring the pesticide product, mixtures, dilutions, and rinse solutions through connecting hoses, pipes, and couplings that are sufficiently tight to prevent exposure of any person to the pesticide or rinse solution. Rinsing is not required when the pesticide is used without dilution. The system's design and construction must meet the DPR Director's closed system criteria.

commercial applicator. a person who uses, or supervises the use of, a pesticide for any purpose or on any property other than as provided by the definition of private applicator.

commissioner. a county agricultural commissioner.

conflict with the label. any deviation from instructions, requirements, or prohibitions of the registered label concerning storage, handling, or use except

- a decrease in dosage rate per unit treated
- a decrease in the concentration of the mixture applied
- application at a frequency less than specified
- use to control a target pest not listed on the label, provided the application is to a commodity/site listed on the label and the use of the product against an unnamed pest is not expressly prohibited
- employing a method of application not prohibited, provided other label directions are followed
- mixing with another pesticide or with a fertilizer, unless such mixture is prohibited
- an increase in the concentration of the mixture applied, provided it corresponds with the current published recommendations of the University of California

continuous monitoring. the measurement of the air concentration of a specific pesticide on an uninterrupted, real-time basis by instrumental methods.

county. includes the city and county.

coverall. a one- or two-piece garment of closely-woven fabric or equivalent that covers the entire body, except the head, hands, and feet, and must be provided by the employer as personal protective equipment. Coverall differs from, and should not be confused with, work clothing that can be required to be provided by the employee.

display. to make information available to the employee so that he or she may readily see and read the document, during normal business hours, without having to make a specific request of any person. An employee shall not be hindered or impeded from examining documents required to be displayed. This definition does not preclude using a binder or filing cabinet, that otherwise meets these criteria, to contain documents for display.

DNA. deoxyribonucleic acid. DNA is found in the nucleus of all living cells; when bound together, DNA determines an individual's hereditary characteristics.

early entry. entry into a treated field or other area after the pesticide application is complete, but before the restricted-entry interval or other restrictions on entry for that pesticide have expired.

economic poison. the term "economic poison" is no longer used. It has been replaced with "pesticide."

employee. any person who, for any kind of compensation, performs work, services, or activities covered by pesticide laws and regulations.

employer. any person who exercises primary direction and control over the work, services, or activities of an employee. A foreman, crew leader, supervisor, or similarly situated person represents the employer when hiring an employee or when exercising, or having responsibility for exercising, the primary direction and control, but is not considered the employer himself or herself.

enclosed cab. a chemical-resistant barrier completely surrounding the occupant(s) of the cab that prevents contact with pesticides or treated surfaces outside the cab and meets those portions of the requirements in American Society of Agricultural Engineers Standard S-525 (Rev. 11/97) that pertain to dermal protection.

enclosed cab acceptable for respiratory protection. an enclosed cab that incorporates a dust/mist-filtering and/or a vapor- or gas-removing air purification system, as appropriate for the exposure situation. Enclosed cabs certified by the manufacturer as meeting American Society of Agricultural Engineers Standard S-525 (Rev. 11/97) are acceptable under this definition. The DPR Director may, upon request, approve other enclosed cabs as acceptable under this definition.

examination. written examination.

feasible. capable of being accomplished in a successful manner, within a reasonable period of time, taking into account economic, environmental, social, and technological factors.

feasible alternatives. other chemical or non-chemical procedures that can reasonably accomplish the same pest control function with comparable effectiveness and reliability, taking into account economic, environmental, social, and technological factors and timeliness of control.

feasible mitigation measure. a condition attached to the approval of an activity that, if implemented, would substantially reduce any adverse impact, taking into account economic, environmental, social, and technological factors and timeliness of control.

field. any area (including a greenhouse) upon which one or more agricultural plant commodities (including forest and nursery products) are grown for commercial or research production. Field does not include range or pasture grazed by animals.

fieldworker. any person who, for any kind of compensation, performs cultural activities in a field. Fieldworker does not include people performing tasks as a crop advisor, including field checking or scouting, making observations of the well-being of the plants, or taking samples, nor does it include local, state, or federal officials performing inspection, sampling, or other similar official duties.

FIFRA. this is the acronym for the "Federal Insecticide, Fungicide, and Rodenticide Act," the federal law governing the registration, sale, possession, and use of pesticides.

food. any article that is used for food or drink for human or any other animal, or for a component of any such article.

greenhouse. a structure or space, of sufficient size to permit entry, that is enclosed with a nonporous covering and used in the commercial or research production of an

agricultural plant commodity. The term includes polyhouses, mushroom houses, rhubarb houses, and similar structures.

ground-based application equipment. equipment such as

- hand sprayers
- backpack sprayers
- air-blast sprayers
- field soil injection equipment
- dusters
- drills
- granular applicators
- ground-rig sprayers

ground water protection advisory. a written statement that contains advice for the use of a pesticide containing a chemical listed in California Code of Regulations, Title 3, Section 6800(a) in its respective Pesticide Management Zone(s) and includes the information listed in California Code of Regulations, Title 3, Section 6557.

hand labor. any cultural activity, performed by hand or with hand tools, that causes substantial contact with surfaces (such as plants or soil) that may have pesticide residues. These activities include hand harvesting, detasseling, thinning, hand weeding, topping, planting, sucker removal, pruning, disbudding, roguing, and packing produce into containers in the field. Hand labor does not include operating, moving, or repairing irrigation equipment or performing the duties of a crop advisor, field checker, or scout, making observations of the well-being of the plants, or taking samples.

handle. includes mixing, loading, transferring, applying (including chemigation), or assisting with the application (including flagging) of pesticides; maintaining, servicing, repairing, cleaning, or handling equipment used in these activities that may contain residues; working with opened (including emptied but not rinsed) containers of pesticides; adjusting, repairing, or removing treatment site coverings; incorporating (mechanical or watered-in) pesticides into the soil; entering a treated area during any application or before the inhalation exposure level listed on the pesticide product label has been reached or greenhouse ventilation criteria have been met; or performing the duties of a crop advisor, including field checking or scouting, making observations of the well-being of the plants, or taking samples during an application or any restricted-entry interval listed on the pesticide product label. Handle does not include local, state, or federal officials performing inspection, sampling, or other similar official duties.

home use. use in a household or its immediate environment.

industrial use. use for or in a manufacturing, mining, or chemical process; or use in the operation of factories, processing plants, and similar sites.

institutional use. use within the confines of, or on property necessary for the operation of, buildings such as hospitals, schools, libraries, auditoriums, and office complexes.

laws. statutes passed by the California Legislature and signed by the Governor. Pesticide and pest control laws are found in the California Food and Agricultural Code.

LC_{50}. the lethal concentration of active ingredient in air or water that will kill 50% of the test animals. LC_{50} is usually expressed in micrograms (1/1,000,000g) per liter of air or water (µg/1). LC_{50} is used to measure acute inhalation toxicity.

LD_{50}. the lethal concentration of active ingredient that will kill 50% of a large population of test animals. LD_{50} is usually expressed as the milligrams (mg) of pesticide per kilogram (kg) of body weight of test animals. LD_{50} is used to measure oral toxicity and acute dermal toxicity.

limited contact. when performing necessary and unforeseen tasks such as irrigation in a pesticide-treated area, and contacting foliage or other plant parts or other surfaces or objects that contain pesticide residues, exposure is minimal and limited to the feet, legs below the knees, hands, and arms below the elbows.

medical supervision. occupational health guidance and necessary associated health evaluation by a physician licensed to practice medicine.

mill assessment. an assessment, described in the California Food and Agricultural Code, on each dollar's worth of pesticides sold in California. The assessment partially funds the state's pesticide regulatory program.

mitigation measure. a condition attached to the approval of an activity which, if implemented, would substantially reduce any adverse impact, taking into account economic, environmental, social, and technological factors and timeliness of control.

mutagenic. the property of a substance or mixture of substances to induce changes in the genetic complement of either somatic or germinal tissue in subsequent generations.

neurotoxic. any adverse effect on the nervous system, such as delayed-onset locomotor ataxia, resulting from a single administration of the test substance, repeated once if necessary.

notice of intent. an oral or written notification to the agricultural commissioner, as specified by the agricultural commissioner, prior to the use of a pesticide pursuant to a permit.

nuisance. any lot of produce that is found to carry pesticide residue in excess of any maximum, or in excess of a permissible tolerance, together with its containers, is a public nuisance.

nursery. any operation engaged in the outdoor commercial or research production of cut flowers or ornamental cut greens or any plants that will be used in their entirety in another location.

oncogenic. the property of a substance, or a mixture of substances, to produce or induce benign or malignant tumor formations in living animals.

operator of the property. a person who owns the property or is legally entitled to possession of property, through a lease, rental agreement, trust, or other management arrangement.

organophosphates. organophosphorus esters, which inhibit cholinesterase.

parts per million (ppm). the number of parts of toxicant per million parts of the subject in question. They may include residues in soil, water, air, fruits and vegetables, and whole animals.

permissible exposure limit (PEL). the permitted maximum exposure to an airborne contaminant in an 8-hour workday.

person. an individual, partnership, association, corporation, business entity, or organized group of persons, whether incorporated or not.

personal protective equipment (PPE). apparel and devices worn to minimize human body contact with

pesticides or pesticide residues that must be provided by an employer and are separate from, or in addition to, work clothing. PPE may include chemical-resistant suits, chemical-resistant gloves, chemical-resistant footwear, respiratory protection devices, chemical-resistant aprons, chemical-resistant headgear, protective eyewear, or a coverall (one- or two-piece garment).

pest control business. any person who advertises, solicits, or operates as a pest control business must have a current pest control business license. The activities include, but are not limited to:

- ground and aerial applications
- farm management companies when their services include pest control
- packing houses, shippers, storage facilities, household or industrial sanitation services

There must be at least one person in a supervisory position who holds a QAL at each principal and branch location.

pest control maintenance gardener business. any person who performs pest control for hire incidental to his or her business of maintenance gardening must first qualify for a pest control business license in the maintenance gardener category by passing examinations in both the laws and regulations and the landscape maintenance categories. The incidental pest control is limited to ornamental and turf plantings indoors, in commercial parks, or surrounding structures.

pest control dealer. any person, including any manufacturer, distributor, or retailer, who engages in any of the following business activities:

- selling pesticides to users for an agricultural use
- selling to users any method or device for the control of agricultural pests, such as biological agents, lures, or insect-trapping devices
- soliciting sales of pesticides by making agricultural use recommendations through field representatives, or other agents
- selling to a user a pesticide classified as a restricted material that requires either a permit for possession and use or that may be used only by or under the direct supervision of a certified applicator

pest management guides. these are manuals prepared by DPR or the University of California that include pest management information on specific crops and that have been adopted as a standard by the director.

pesticide. any substance or mixture of substances that is a pesticide as defined in the Food and Agricultural Code and includes mixtures and dilutions of pesticides.

pesticide broker. any person in or outside of California engaged in the sale or distribution of pesticides labeled for agricultural use in California. A pesticide broker license must be issued for each principal and branch location. This license does not apply to people who sell or distribute pesticides that are labeled for nonagricultural use or who sell agricultural use pesticides to the end user. The sale of agricultural use pesticides to the end user requires the seller to obtain a pest control dealer license.

pesticide management zone (PMZ). a geographical area of approximately one square mile that is sensitive to ground water pollution and that corresponds to a section as defined by base, meridian, township, range, and section, or that is defined by

latitude and longitude, or other generally accepted geographical coordinates.

pesticide residue. the remnant of a pesticide or degradation product that can be found on or in a crop or commodity after an application, or from other exposure to the pesticide chemical. Residues are usually expressed in parts per million (ppm) or in parts per billion (ppb) on a weight basis.

Pesticide Safety Information Series (PSIS). a series of leaflets produced by DPR that summarize health and safety aspects of various pesticides and groups of pesticides.

pesticides in toxicity category one. phrase is no longer used. It was formerly defined as "pesticide products that must prominently display the signal word *Danger* on the label."

pesticides in toxicity category two. phrase is no longer used. It was formerly defined as "pesticide products that must prominently display the signal word *Warning* on the label."

phytotoxic. a substance or mixture of substances that is capable of causing injury to plants.

pollution. for the purposes of this study guide, pollution is the introduction into the ground waters of the state of an active ingredient, other specified product, or degradation product of an active ingredient of a pesticide above a level that has the potential to cause adverse health or environmental effects.

preharvest interval. a period of time after an application of a pesticide to a crop, during which harvest is prohibited so the crop will meet the established pesticide residue tolerance.

private applicator. (a) a person who uses or supervises the use of a pesticide for the purpose of producing an agricultural commodity on property owned, leased, or rented by him or her, or his or her employer; or (b) a householder who uses or supervises the use of a pesticide outside the confines of a residential dwelling, for the purpose of controlling ornamental, plant, or turf pests on residential property owned, leased, or rented by that householder.

produce. any food in its raw or natural state that is in such form as to indicate that it is intended for consumer use with or without any further processing.

producing an agricultural commodity. the growing of a crop, including harvesting, up to the point where further pesticide applications would be considered industrial use, such as packing house applications or fumigations at the packer/shipper facility.

protective clothing. clothing that minimizes human body contact with a pesticide and is separate from or in addition to normal wearing apparel. Protective clothing may include work clothing, chemical-resistant boots, gloves, a hat, and a chemical-resistant apron.

Qualified Applicator Certificate holder. a person who has qualified by examination in one or more pest control categories to supervise pesticide applications. However, such qualification shall not entitle the holder to supervise the operations of a pest control business licensed pursuant to Section 11701 of the California Food and Agricultural Code, except as provided in Section 11704.

Qualified Applicator Licensee. a person who has qualified by examination in one or more pest control categories to supervise the pesticide applications made by a pest control business licensed

pursuant to Sections 11701 to 11709, inclusive, of the California Food and Agricultural Code, and who is responsible for safe and legal operations under such license.

recommendation. the giving of any instruction or advice on any agricultural use as to any particular application on any particular piece of property.

registrant. a person who has registered a pesticide by obtaining a certificate of registration from DPR.

regularly handle. is when an employee is handling pesticides during any part of the day for more than six calendar days in any 30 consecutive day qualifying period beginning on the first day of handling. Any day spent mixing or loading pesticides while exclusively using a closed system or mixing only pesticides sealed in water-soluble packets is not included for any employee who has a baseline blood cholinesterase level established pursuant to California Code of Regulations, Title 3, Section 6728(c)(1).

regulations. adopted by the Director of DPR after a public comment period and a hearing, approval by the Office of Administrative Law, and filed with the Secretary of State. Regulations are designed to interpret and carry out the purposes of the law. Regulations are found in Title 3 and Title 26 of the California Code of Regulations. County agricultural commissioners may adopt regulations governing local pest control operations. These county regulations must be approved by the Director of DPR before they become effective.

restricted-entry interval (REI). the period of time after a field is treated with a pesticide during which restrictions on entry are in effect to protect people from potential exposure to hazardous levels of residues. A restricted-entry interval may be found on pesticide product labels or in regulation.

restricted materials hazard chart. a chart developed by DPR that specifies the degree of potential hazard for each restricted material to public and occupational health, and the adverse impact on

- pest management systems
- users of restricted materials
- fieldworkers
- bees
- nontarget plants
- fish, and wildlife
- other parts of the environment

Section 3. a section of the law in FIFRA governing the registration of pesticides.

Section 18. a pesticide used under an emergency exemption and that is automatically considered a restricted material. A restricted materials permit is required for its use. The pesticide must be used in compliance with all Section 18 requirements, including rate, concentration, and target pest. Section 18s are exemptions from the label, and therefore are not allowed the deviations from label requirements granted in California Code of Regulations, Title 3, Section 6000.

site specific. a pesticide permit that identifies the specific area to be treated, the size of that area, and the commodity or commodities or site(s) on that area to be treated.

solicits services or sales. as used in Section 11410 of the California Food and Agricultural Code, means sells, or offers for sale, any pesticide, method, or device outside of a fixed place of business.

spray adjuvant. any wetting agent, spreading agent, deposit builder, adhesive, emulsifying agent, deflocculating agent, water modifier, or similar agent, with or without toxic properties of its own,

that is intended to be added to a pesticide during mixing as an aid to the application or to effect the action of the pesticide.

structural use. a use requiring a license under Chapter 14 (commencing with Section 8500), Division 3 of the Business and Professions Code.

substantial drift. when the quantity of pesticide outside of the area treated is greater than that which would have resulted had the applicator used due care. This definition is applicable to Section 12972 of the California Food and Agricultural Code and Section 6614 of Title 3, California Code of Regulations.

teratogenic. the property of a substance or mixture of substances to produce or induce functional deviations or developmental anomalies, not heritable, in or on an animal embryo or fetus.

time-specific. a pesticide permit that specifies the date the intended application is to commence or a permit with a notice of intent requirement. The pesticide use may commence within four days following such date if delays are caused by uncontrollable conditions such as adverse weather or unavailability of equipment. The commissioner shall require a notice of intent from either the grower, the grower's authorized representative, or the pest control business when necessary to make the permit time- and site-specific.

tolerance. the established amount, in parts per million or parts per billion, of a pesticide that may legally and safely remain in or on any food or crop at the time of sale if they are to be consumed by people or livestock. Tolerances are established by the U.S. Environmental Protection Agency.

treated field. a field that has been treated with a pesticide or had a restricted-entry interval in effect within the last 30 days. A treated field includes associated roads, paths, ditches, borders, and headlands, if the pesticide was also directed to those areas. A treated field does not include areas inadvertently contaminated by drift or over-spray.

use. any pesticide activity or related activity including

(A) pre-application activities, such as
- arranging for the application
- mixing or loading
- making necessary preparations for the application, including responsibilities related to notification, handler training, decontamination facilities, use and care of personal protective equipment, medical monitoring and assistance, and heat stress management

(B) application of the pesticide

(C) post-application activities, such as
- control of the treated area to reduce exposure, including responsibilities for restricted entry intervals, warnings, decontamination facilities, medical assistance, and fieldworker training
- management of the treated area, crop, or crop by-products, including responsibilities for preharvest intervals and plantback restrictions
- transportation, storage, and disposal of excess pesticides, spray mix, equipment wash water, and pesticide containers
- cleaning of application equipment and other pesticide containing materials

(D) use does not include

- activities where involvement is only incidental to other tasks such as emergency responders providing incident management, commercial transportation of pesticide related waste for disposal or recycling, or a waste disposal or recycling facility accepting or handling these wastes
- manufacturing, formulating, or packaging (including bulk repackaging) by a registered pesticide producing establishment

use-dilution. a dilution specified on the label that produces the concentration of the pesticide for a particular purpose or effect.

veterinarian. a person licensed to practice veterinary medicine in California.

weed oil. a pesticide, the label of which states that the product may be used, by itself, to control weeds, and that contains 70 percent or more of the following active ingredients: petroleum hydrocarbons, mineral oil, petroleum oil, petroleum distillates, and/or aromatic petroleum distillates.

work clothing. garments such as long-sleeved shirts, short-sleeved shirts, long pants, short pants, shoes, and socks. Work clothing is not considered personal protective equipment, although pesticide product labels or regulations may require specific work clothing during some activities. Work clothing differs from and should not be confused with a coverall. While coveralls must be provided by the employer, work clothing can be required to be provided by the employee. Short-sleeved shirts and short pants are considered acceptable work clothing only under conditions expressly permitted by pesticide product labels.

workplace. the identity of the work area, e.g., the business operation or employer's headquarters.

work site. the location of the work activity, e.g., the mixing and loading site, the field, etc.