



**California Pesticide Worker Safety Regulations:  
A Manual for Trainers of Fieldworkers and  
Pesticide Handlers  
2021**



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**California Pesticide Worker Safety Regulations:  
A Manual for Trainers of Fieldworkers and Pesticide Handlers.  
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**The National Worker Protection Standard: A Manual for Trainers of Agricultural Workers and Pesticide Handlers.**

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## Purpose of the Manual

The purpose of this manual is to serve as a guide for the training of fieldworkers and pesticide handlers, who work in outdoor and enclosed space production areas, such as farms, forests, nurseries, greenhouses, and for pesticide handlers who work in non-agricultural sites, such as but not limited to, rights-of-way and landscape maintenance.

This edition clarifies where the California regulations meet or exceed the federal Worker Protection Standard (WPS) requirements. Any mention of the **California Pesticide Worker Safety Regulations** throughout this manual is in reference to the California Code of Regulations, Title 3 (3CCR), Division 6. Pesticides and Pest Control Operations, Chapter 3. Pest Control Operations. Subchapter 3. Pesticide Worker Safety.

These [regulations](#) are available in their entirety on the California Department of Pesticide Regulation webpage:

<https://www.cdpr.ca.gov/docs/legbills/calcode/subchpte.htm#a0303>.

This manual is designed to help trainers conduct effective training sessions for fieldworkers and pesticide handlers in compliance with revisions to the California Pesticide Worker Safety Program training requirements, implemented on March 1, 2018.

## Overview

This manual focuses on practical ways to communicate pesticide safety information and begins with an introduction to the state and federal regulations for pesticide safety. Chapter 2 discusses employer responsibilities, and Chapter 3 outlines each of the specific points to include in training sessions. Chapters 4 and 5 discuss in-depth each of the training topics for fieldworkers and handlers. The remaining chapters in the manual provide techniques for adapting different training programs, including fifteen sample activities for trainers. The final chapter addresses situations that may arise during training and suggestions for how to resolve them.

Throughout the manual, words in **bold** reference terms in the glossary portion of the appendix where a complete legal definition is provided. Trainers must read these definitions to ensure a full understanding of California's pesticide safety laws. The appendix also lists the 3CCR regulatory code sections for further reference.

## **CHAPTER 1**

### CHAPTER 1 – OVERVIEW OF PESTICIDE REGULATIONS

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## FIFRA - the Federal Statute

The **Federal Insecticide, Fungicide, and Rodenticide Act** (FIFRA) governs the registration, sale, and use of **pesticide** products in the United States. The federal agency that regulates pesticides in the United States is the Environmental Protection Agency (EPA).



A pesticide product must be registered by EPA before legally marketed in the United States. The pesticide manufacturer must submit to EPA an application for registration, then EPA reviews the information and determines whether the proposed use of the product meets federal safety standards. If the application is sufficient to make the safety finding, EPA registers the product with the conditions for use provided on the label and assigns a registration number that appears on the label for most commercial pesticide products.

Some of FIFRA's provisions require the EPA to

- make registration decisions about pesticides and their uses, and to approve product labeling for registered products.
- establish acceptable **tolerance** levels for **residues** that may remain in or on raw agricultural products.
- make it illegal to use any pesticide except as directed by the label requirements and assess civil and criminal penalties for misuse of pesticides.

FIFRA also gives EPA the authority to write regulations, such as the Worker Protection Standard (WPS) to achieve the protections outlined in the statute.

## The Agricultural Worker Protection Standard (WPS)

The Worker Protection Standard (WPS) was established by EPA to reduce risks associated with the occupational exposure of pesticides to fieldworkers and pesticide **handlers**. It was also designed to protect the public from the risks of pesticide use in agricultural production and is the minimum federal requirement for **fieldworker** safety protections.

The WPS regulations include agricultural fieldworkers and pesticide handlers who are employed on farms, forestry operations, or in nurseries and enclosed space production areas, where pesticide products are used, and which contain an “Agricultural Use Requirements” section on the product label.

Pesticide laws developed at the federal level are the minimum national requirements that employers and pesticide handlers must follow to protect people and the environment when using pesticides. EPA delegates individual states the authority to enforce pesticide safety regulations that are equivalent or greater in protection to the federal WPS requirements.

## California Pesticide Worker Safety Regulations

California state laws for pesticide safety are more stringent than the minimum federal WPS requirements and are incorporated into the California Pesticide Worker Safety Regulations.

Because EPA granted the state authority to enforce the California Pesticide Worker Safety Regulations in place of the federal WPS, all **operators** and **employers** of fieldworkers, agricultural and non-agricultural pesticide handlers in California, must adhere to the California Pesticide Worker Safety Regulations (California Code of Regulations, Title 3, or 3CCR, for short) to remain in compliance with all federal and state pesticide safety regulations.

The California Department of Pesticide Regulation (DPR) is the governmental entity of the state that is granted the authority to enforce pesticide safety regulations. The goal of California's pesticide regulatory program is to protect people and the environment from harm by preventing unsafe pesticide use.

In doing so, DPR oversees the state pesticide programs division and partners with county agricultural commissioners who enforce pesticide laws in their respective counties. The pesticide program division's oversight includes pesticide evaluation and registration, in addition to statewide licensing of commercial and private pesticide applicators.

Because California's pesticide laws and regulations are more rigorous than the federal WPS, pesticide safety trainers need to be aware of ongoing changes to state regulatory requirements for training fieldworkers and pesticide handlers in pesticide safety.

This manual is an adaptation of the federal WPS manual. It was revised to include the California Pesticide Worker Safety Regulations for fieldworkers and agricultural and non-agricultural pesticide handlers to explain all pesticide safety requirements.

For details regarding state training requirements, trainers can visit the DPR website at [www.cdpr.ca.gov](http://www.cdpr.ca.gov) and review the California Code of Regulations Title 3 (3CCR), Division 6. Sections 6724 Handler Training and 6764 Fieldworker Training.

## California Pesticide Registration

After a pesticide is approved for registration by the EPA, in California, before distribution can occur, a pesticide must be registered or licensed within the state for legal sale, possession, or use.

The Pesticide Registration Branch in the Department of Pesticide Regulation (DPR) is responsible for product registration and coordinates the required evaluation process among DPR branches and other state agencies to ensure that the pesticide can be safely used within the state.

Visit the DPR website for the [product label database](https://apps.cdpr.ca.gov/docs/label/labelque.cfm) (<https://apps.cdpr.ca.gov/docs/label/labelque.cfm>) to look up pesticides by product name or registration number to ensure allowance for use in the state of California.

## What is a Pesticide?

A **pesticide** is any substance used to prevent, destroy, repel, or reduce the effects of pests. Pests may include insects, rodents, **nematodes** (microscopic worms), **fungi** (fungus), and weeds.

There are many types of pesticides. Some are common, such as insecticides while others such as **defoliants** and **desiccants** that facilitate harvest by removing leaves or drying out plants are lesser known.

**Adjuvants** are additives that improve the effectiveness of an application. For example, additives can help to neutralize the pH of water before mixing or a pesticide adhere to a plant for better retention and pest control. In California, adjuvants are registered as pesticides



and must follow the same regulations in their use.

Fertilizers are substances that serve as nutrients to help plants grow. Since they do not control pests, they are not pesticides. Therefore, hazards associated with the use of fertilizers are not covered within the California Pesticide Safety Worker Regulations, or in this training manual.

### **SIDEBAR:**

By law, a pesticide is any substance “intended for preventing, destroying,repelling, or mitigating any pest.”

## Why are Pesticides Used?

Pesticides are used to manage weeds, insects, diseases, and other pests to improve aesthetics of urban landscapes and increase crop yield and quality in agriculture. The use of agricultural pesticides helps growers to provide consumers with abundant and affordable supplies of food and fiber. Because pesticides are toxic to their target pests, pesticide use may present risks to people, wildlife, and the environment. These risks and ways to reduce them are presented throughout this manual.

## Who is an Employer?

**Employer** means any person who exercises primary direction and control over the work, services, or activities of an **employee**. A crew leader, foreman or supervisor who exercises primary direction or control represents the employer but is not in themselves the employer.

## Who is an Employee?

An employee is a person who for any kind of compensation performs work, services or activities related to pesticides or pest control operations for the employer.

## Who is a Pesticide Handler?

A pesticide handler, or handler, is a person who is employed (including self-employed) on an establishment where pesticides are applied, and

- mixes, loads, transfers, or applies pesticides including **chemigation**
- assists with the pesticide application or works as a flagger



- maintains, adjusts, cleans, handles or repairs equipment used for pesticides that may contain residues
- works with (including emptied but not rinsed) opened containers of pesticides
- adjusts, repairs, or removes treatment sites coverings
- incorporates pesticides into the soil
- enters into a treated area during an application or before the **inhalation exposure** level listed on pesticide product labeling has been reached, or enclosed space ventilation criteria have been met, or
- performs the duties of a **pest crop adviser**, including field checking or scouting, making observations of the well-being of plants, or taking samples during an application or during any **restricted entry interval (REI)** listed on the pesticide product labeling.

## Who is a Fieldworker?

A **fieldworker** performs work-related cultural activities on an **agricultural establishment** such as harvesting, weeding, pruning, or irrigating for the production of commodities on farms, forests, and in nurseries or **enclosed space production** areas, such as greenhouses. See the glossary for the complete definition of who is a fieldworker.



## Who is an Early-Entry Employee?

An **early-entry employee** is a worker who enters an area after the pesticide application is complete but before the REI has expired. **Early-entry** is only allowed under a narrow range of circumstances. Early-entry employees must receive **personal protective equipment (PPE)**, decontamination supplies, and additional information about the pesticide product and the early-entry restrictions to protect themselves before entering the treated field.



## Are There Age Restrictions for Certain Activities?

The California Pesticide Worker Safety Regulations require that agricultural and non-agricultural pesticide handlers and early-entry employees are at least 18 years old.



## What are the Goals of the Pesticide Safety Regulations?

Pesticide safety regulations have three major goals and are described in detail throughout this manual:

1. Inform – to provide fieldworkers and pesticide handlers information to minimize occupational pesticide exposure for themselves and their families.
2. Protect – to protect fieldworkers and pesticide handlers from pesticide exposure while they are working.
3. Mitigate – to mitigate or reduce the effects of any pesticide exposure that might occur.

## Goal 1 – Inform

Employers must provide fieldworkers and handlers with the pesticide safety and product use information needed to protect themselves, other people, and the environment from exposure to pesticides.



This is accomplished by providing:

- annual pesticide safety training,
- pesticide safety information at the **central location**,
- **application-specific information** and hazard information at the central location, and
- access to pesticide product labeling.

## Goal 2 – Protect

The California Pesticide Worker Safety Regulations require employers to provide protections for fieldworkers and handlers to limit their risk of exposure to pesticides at work. These protections include:

- notifying employees when pesticide applications will take place,
- informing employees verbally or by the posting of warning signs in pesticide-treated fields under an REI in which they should not enter,

- maintaining and providing PPE for handlers and early-entry employees, and
- keeping employees who are not involved in the application of a pesticide out of **application exclusion zones**, or the AEZ (explained in Chapter 4).

### Goal 3 – Mitigate

Pesticide safety regulations are intended to minimize the effect of potential pesticide exposure by requiring employers to provide:

- routine and emergency decontamination supplies,
- transportation to a nearby **medical facility** for a suspected pesticide illness or injury,
- application-specific information for treating medical personnel in response to a case of pesticide exposure,
- copies of the applicable **Safety Data Sheet(s)**,
- the product name(s),
- U.S. Environmental Protection Agency registration number(s),
- **active ingredient(s)**, and
- the circumstances of application or use that could have resulted in exposure to the pesticide.



## CHAPTER 2

### CHAPTER 2 – RESPONSIBILITIES FOR EMPLOYERS

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#### What is Pesticide Safety Training?

Employers must ensure that pesticide safety training is provided to fieldworkers before they enter a **treated field** or **area** where a pesticide has been applied or an REI has been in effect within the last 30 days. Handlers must be trained on the hazard and safety precautions before handling any pesticide product and retrained for any new pesticide products.

As stated in the California Pesticide Worker Safety Regulations, the employer is not required to present the training but must ensure that each fieldworker or handler working on the establishment has received pesticide safety training by a qualified trainer in the previous 12 months.

#### Why is Pesticide Safety Training Important?

Pesticides are substances used to target and kill pests and can be toxic to non-target organisms, such as people or wildlife. Fieldworkers who – unlike handlers – do not apply pesticide products may be unaware there are residues from pesticides on treated plants or equipment.

For their safety, employees who work in or near treated fields, including areas where pesticides are stored or handled, need information on how to take precautions to prevent exposure to pesticides in their working environment.



## What are the Benefits of Pesticide Safety Training for Employees?

Fieldworkers and handlers benefit from pesticide safety training by receiving information on the potential risks of working in areas where pesticides have been used and **pesticide residues** may be found. During training, they learn how to protect themselves and their families from the possibility of exposure to pesticides and their residues.

## What are the Benefits of Pesticide Safety Training for Employers?

Employers benefit when employees take precautions to protect themselves from pesticide exposure and act to minimize the effects. A fieldworker or handler who has received effective pesticide safety training is less likely to have a pesticide-related workplace accident that could result in lost work time, increased workers compensation insurance rates, and possible legal action.

## When to Provide Pesticide Safety Training

Due to the nature of their jobs, fieldworkers, early-entry employees, and handlers

work in or near areas treated with pesticides. The California Pesticide Worker Safety Regulations require that these individuals receive pesticide safety training every year and before working with pesticides or in treated areas.

**Table 2.1: Pesticide Safety Training Requirements and Frequency.**

	<b>Pesticide Handlers</b>	<b>Early-entry employees</b>	<b>Fieldworkers</b>
<b>Requirement</b>	Training must be provided before any handling activity.	General fieldworker training and additional training on early-entry tasks must be provided before entering an area or field under a REI.	Training must be provided before working in a treated field. A treated field is any site where a pesticide has been applied with or without an REI in effect in the past 30 days.
<b>Frequency</b>	Provide training every 12 months, including product-specific information before handling that pesticide.	Provide training every 12 months, including product and activity-specific information before every early-entry task.	Provide training every 12 months.

### Qualified Trainers

The California Pesticide Worker Safety Regulations require that instructors who conduct pesticide safety training for handlers, early-entry employees, and fieldworkers must possess at least one of the following

- a California certificate for a commercial or private applicator,
- a California license for a pest control adviser,
- a valid County Biologist License in one of the two approved categories,
- the title of University of California Cooperative Extension Advisor,

- the title of a California Registered Professional Forester,
- completed a DPR-approved pesticide safety "instructor training" (Train-the-Trainer) program; or,
- another qualification approved by the Director of the Department of Pesticide Regulation.

## Presentation

Pesticide safety training must be provided in a manner understood by the training attendees. The information must be presented verbally from written materials or through audiovisual media. The person performing the training must be a qualified trainer, but a translator can assist.

The qualified trainer is required to answer questions, and therefore must be present during the entire pesticide safety training, even when showing a pesticide safety video. Finally, trainers must select a site that is conducive for hosting a training and reasonably free from distractions.

## Training Records

The California Pesticide Worker Safety Regulations require employers to maintain **training records** for two years following the date of the training. Employers must provide a copy of these records to employees and their local county agricultural commissioner upon request at any time within this two-year timeframe.

Trainers should provide employers with a document that serves as a record of the pesticide safety training. The training record details must include the following:

- the date of training,
- the employer's name,
- printed name and signature of the

Pesticide Training  
**Handler Safety Training Record**  
Pursuant to 5 CCR section 6724

**Training is in accordance with Employer's Written Handler Training Program**

Print EMPLOYER's name: \_\_\_\_\_ Initial/Annual Training Date: \_\_\_\_\_  
 Print EMPLOYEE's name\*: \_\_\_\_\_ Print TRAINER's name: \_\_\_\_\_  
 EMPLOYEE's signature: \_\_\_\_\_ Trainer Qualification\*: \_\_\_\_\_  
 \_\_\_\_\_ Trainer Lic/Cert #\*\*: \_\_\_\_\_

ASSIGNED JOB DUTIES  
 Mixer/Loader    Service/Repair  
 Applicator    Flagger    Other: \_\_\_\_\_

Title(s) and source(s) of the training materials used\*:  
 \_\_\_\_\_  
 \_\_\_\_\_

\* Required for employee pesticide training for the production of agricultural commodities.

Pesticide (Attach additional pages if necessary)	READ THE LABEL: Signal word, precautionary statements, PPE, EPA aid, etc. Other values	SAFETY REQUIRE- MENTS and PROCEDURES, including engineering controls (such as closed mixing systems and enclosed cabs)	HAZARDS OF THE PESTICIDE including acute, chronic, and delayed effects, and non-target effects from drift, etc. (SOS, or other notes)	SIGNS AND SYMPTOMS of overexposure	Trainer Initials	Employee Initials	Date Employee Trained on Pesticide

The employer must keep this record for two years at a central location at the workplace accessible to employees.

(Rev. 6/2018)

trained worker or handler,

- the trainer's name,
- documentation proving the trainer is qualified to provide the pesticide safety fieldworker or handler training,
- the job description of the employee and the type of training offered, such as fieldworker or handler; and,
- title and source of materials used during the pesticide safety training.

## Previously Trained Employees

If a fieldworker or handler has already received training while working for a previous employer within the past 12 months, and it is verifiable through training records, the new employer does not need to retrain that fieldworker or handler until that training expires. A copy of the training record must be retained as proof that the training occurred.



However, the new employer must provide the new employee with establishment-specific information, such as the location of the nearest medical facility, including the location of the pesticide safety information, pesticide application-specific information, safety data sheets (SDSs), decontamination supplies, and storage and product-specific information for any new pesticides to be handled.



## CHAPTER 3

### Chapter 3 – Pesticide Safety Training Topics

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#### Pesticide Worker Safety Regulation Training Topics

Trainers who will provide pesticide safety training may find it challenging to know which topics to cover during training for fieldworkers and how those topics differ from the information provided to handlers.

Much of the general pesticide safety information is relevant to both fieldworkers and handlers. However, since handlers work in direct contact with pesticides, such as mixing, loading, applying pesticides, or cleaning and repairing equipment, additional information is needed on how to safely work with pesticide products.

Table 3.1 identifies the necessary topics to include during pesticide safety training for fieldworkers and handlers. The first portion of the table displays information that must be provided to both fieldworkers and handlers. The second portion of the table lists additional training points for handler-specific training. Use Chapter 4 of this manual for detailed information on the training topics that are apt to both fieldworkers and handlers, followed by Chapter 5, which elaborates on the training topics applicable only to handlers.

**Table 3.1: Pesticide Safety Training Topics ~ Effective March 1, 2018.**

<b>EMPLOYEE TASKS AND RESTRICTIONS</b>	<b>FIELDWORKERS</b>	<b>HANDLERS</b>	<b>WHERE TO FIND MORE INFORMATION</b>
1. This rule prohibits employers from allowing or directing any fieldworker to mix, load, or apply pesticides, or assist in the application of pesticides unless the employee has been trained as a handler. Employees must at least be 18 years old to perform the tasks of a handler.	✓	✓	Chapter 1, p. 7-9 Chapter 4, p. 23-24
2. Employers must provide specific information to employees before directing them to perform early-entry tasks. Employees must be at least 18 years old to perform early-entry tasks.	✓	✓	Chapter 1, p. 7-9 Chapter 4, p. 36-39
<b>WHERE YOU MAY ENCOUNTER PESTICIDES AT WORK AND HOW THEY CAN ENTER YOUR BODY</b>	<b>FIELDWORKERS</b>	<b>HANDLERS</b>	<b>WHERE TO FIND MORE INFORMATION</b>
3. Where and in what form pesticides are encountered during work tasks and the potential sources of pesticide exposure on the establishment. Pesticides may <b>drift</b> through the air from nearby applications or present in irrigation water leading to possible exposure.	✓	✓	Chapter 4, p. 26-29, 48
4. Routes through which pesticides can enter the body.	✓	✓	Chapter 4, p. 26
<b>PESTICIDE-RELATED HEALTH EFFECTS</b>	<b>FIELDWORKERS</b>	<b>HANDLERS</b>	<b>WHERE TO FIND MORE INFORMATION</b>
5. Signs and <b>symptoms</b> of common types of pesticide poisoning.	✓	✓	Chapter 4, p. 30
6. Potential hazards to children and pregnant women from pesticide exposure.	✓	✓	Chapter 4, p. 58

<b>PESTICIDE-RELATED HEALTH</b>	<b>FIELDWORKERS</b>	<b>HANDLERS</b>	<b>WHERE TO FIND MORE INFORMATION</b>
7. Potential hazard exposure that pesticides and their toxicity present to employees and their families, including delayed, acute, and chronic health effects.	✓	✓	<b>Chapter 4, p. 29, 32-34</b>
8. Potential hazards from pesticide residue on clothing.	✓	✓	<b>Chapter 4, p. 57</b>
<b>WAYS TO REDUCE THE RISK OF PESTICIDE EXPOSURE</b>	<b>FIELDWORKERS</b>	<b>HANDLERS</b>	<b>WHERE TO FIND MORE INFORMATION</b>
9. How to recognize, follow, and understand the meaning of the posted warning signs used for notifying employees of restrictions to not enter <b>treated fields</b> or areas subject to a restricted entry interval (REI). The difference between the California and the federal warning posting sign.	✓	✓	<b>Chapter 4, p. 43</b>
10. Keep out of application exclusion zones (AEZ).	✓	✓	<b>Chapter 4, p. 49-51</b>
11. When working in a pesticide-treated field or area, wear the appropriate work clothing that protects the body from pesticide residues. Wash hands before eating, drinking, smoking, chewing gum or tobacco, or using the toilet.	✓	✓	<b>Chapter 4, p. 57</b>
12. Wash or shower with soap and water, shampoo hair, and change into clean clothes as soon as possible after working in pesticide-treated areas.	✓	✓	<b>Chapter 4, p. 57</b>
13. Remove work boots or shoes before entering your home. Remove work clothes and wash or shower before physical contact with children or family members.	✓	✓	<b>Chapter 4, p. 57, 58</b>

<b>WAYS TO REDUCE THE RISK OF PESTICIDE EXPOSURE</b>	<b>FIELDWORKERS</b>	<b>HANDLERS</b>	<b>WHERE TO FIND MORE INFORMATION</b>
14. Procedures for washing work clothes before reuse and for keeping work clothes separate from family laundry.	✓	✓	<b>Chapter 4, p. 57</b>
15. Do not take pesticides or pesticide containers used at work home.	✓	✓	<b>Chapter 4, p. 58</b>
16. Keep children and non-working family members away from pesticide-treated fields or areas.	✓	✓	<b>Chapter 4, p. 58</b>
17. Routine and emergency decontamination procedures, including emergency eye flushing techniques. If pesticides are spilled on the body, use decontamination supplies or the nearest clean water source to flush immediately.	✓	✓	<b>Chapter 4, p. 51-57</b> <b>Chapter 5, p. 74</b>
18. How and when to obtain emergency medical care.	✓	✓	<b>Chapter 4, p. 59-60</b>
19. Emergency first aid for pesticide injuries or poisonings.	✓	✓	<b>Chapter 4, p. 60-62</b>
<p>20. Safety data sheets (SDSs) provide emergency medical treatment, hazard, and other information about the pesticides used on the establishment that fieldworkers and handlers may come into contact with.</p> <p>It is the employer's responsibility to:</p> <ul style="list-style-type: none"> <li>• Display SDSs for all pesticides used on the establishment.</li> <li>• Provide fieldworkers and handlers information about the location of the SDSs on the establishment.</li> <li>• Provide fieldworkers and handlers unimpeded access to SDSs during normal working hours.</li> </ul>	✓	✓	<b>Chapter 4, p. 40</b>

ADDITIONAL EMPLOYER RESPONSIBILITIES	Fieldworkers	Handlers	WHERE TO FIND MORE INFORMATION
<p>21. Employers are prohibited from retaliating against an employee for complying or attempting to comply with pesticide safety regulations, such as reporting a violation. Employees have the right to anonymously report unsafe work conditions without punishment or termination. Report suspected pesticide use violations to the County Agricultural Commissioner's Office.</p>	✓	✓	Chapter 4, p. 63
<p>22. The responsibility of employers to provide fieldworkers and handlers with the information to prevent and reduce work-related pesticide exposure and illnesses. This includes ensuring fieldworkers and handlers are trained on pesticide safety, application-specific and hazard information, decontamination supplies, emergency medical assistance, and notifying employees of entry restrictions during applications and of pesticide-treated areas.</p>	✓	✓	Chapter 4, p. 40-48
<p>23. The responsibility of employers to display the completed Pesticide Safety Information Series A-8 (for agricultural pesticide handlers) and A-9 (for fieldworkers), and N-8 for non-agricultural pesticide handlers at a central location on the establishment, including SDSs for all pesticides used, application-specific pesticide use records and any other required forms to comply with the hazard communication program requirements for pesticide handlers.</p>	✓	✓	Chapter 4, p. 42

<b>ADDITIONAL EMPLOYER RESPONSIBILITIES</b>	<b>Fieldworkers</b>	<b>Handlers</b>	<b>WHERE TO FIND MORE INFORMATION</b>
24. How to recognize, prevent and provide first aid treatment for heat-related illness, in accordance with Cal/OSHA standards (8 CCR Section 3395).	✓	✓	Chapter 4, p. 63 Chapter 5, p. 96
<b>PESTICIDE LABEL INFORMATION</b>	<b>Fieldworkers</b>	<b>Handlers</b>	<b>WHERE TO FIND MORE INFORMATION</b>
25. Format and meaning of information contained on pesticide labels and in labeling applicable to the safe use of pesticides.		✓	Chapter 5, p. 66
26. Handlers must follow the portions of the label related to the safe use of pesticides.		✓	Chapter 5, p. 73-77
<b>PROTECTING PEOPLE AND THE ENVIRONMENT WHEN USING PESTICIDES</b>	<b>Fieldworkers</b>	<b>Handlers</b>	<b>WHERE TO FIND MORE INFORMATION</b>
27. Information on proper application and use of pesticides.		✓	Chapter 5, p. 76, 115
28. The responsibility of employers to post for treated areas as required by the California Pesticide Worker Safety Regulations (3CCR).		✓	Chapter 5, p. 113-115
29. It is the applicator's responsibility to protect persons, animals, and property from harm while applying pesticides. Stop or delay pesticide applications that could result in contact with persons not involved in the application process.		✓	Chapter 5, p. 107
30. Environmental concerns when handling pesticides, such as drift, runoff, and wildlife hazards.		✓	Chapter 5, p. 107
31. Safety requirements for handling, transporting, storing, and disposing of pesticides, including general procedures for spill cleanup.		✓	Chapter 5, p. 98-106 p. 122-124

PROTECTING PEOPLE AND THE ENVIRONMENT WHEN USING PESTICIDES	Fieldworkers	Handlers	WHERE TO FIND MORE INFORMATION
32. Need for appropriate use and removal of all PPE.		✓	Chapter 5, p. 78, 99, 120
33. The responsibility of employers to provide handlers with information on cleaning, maintenance, storage, and proper use of all required PPE; provide handlers with decontamination supplies and specific information about pesticide use and labeling.		✓	Chapter 4, p. 54-56 Chapter 5, p. 78, 92, 120
34. The responsibility of employers to ensure handlers have received required information on safe respirator use, such as respirator <b>fit-testing</b> , training, and medical evaluation if the handler is required to wear a respirator by the product labeling, employer policy, or regulation.		✓	Chapter 5, p. 86-91
35. The purposes and requirements for medical supervision if organophosphate or carbamate pesticides with the <b>signal word</b> "DANGER" or "WARNING" on the labeling are mixed, loaded, or applied for the commercial or research production of an <b>agricultural commodity</b> .		✓	Chapter 5, p. 97

## CHAPTER 4

# CHAPTER 4 – TRAINING TOPICS FOR FIELDWORKERS AND HANDLERS

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The California Pesticide Worker Safety Regulations require employers to take steps before, during, and after pesticide applications to protect fieldworkers and handlers in limiting their exposure to pesticides while working in outdoor or enclosed space production areas.

## Employee Tasks and Limitations

Providing employees with a clear definition of the type of tasks that are appropriate for a fieldworker versus those for a pesticide handler, helps the employee to understand the type of work that is expected, the areas allowed for employee entry, and the training necessary to perform that type of work.

The following definitions are also provided in Chapter 1 and in the glossary.

**Fieldworkers** perform **hand labor** tasks, such as harvesting, pruning, thinning, weeding, and watering. Fieldworkers do not work with pesticides but come into contact with pesticide residues when working in areas where pesticides were applied within the last 30-day period. For this reason, fieldworkers must receive the appropriate field safety training to reduce their risk for exposure to pesticides and their residues.

On rare occasions, an employer may instruct a fieldworker to enter an area during the restricted entry interval or REI. In this case, the fieldworker is considered an “**early-entry employee**,” and must receive additional training and product-specific information, before entering the area. Early-entry employees must be at least 18 years old.

**Handlers** are employees who have received training on how to mix, load, and apply pesticides in a safe manner. They might also work as flaggers or spotters during aerial applications, or clean and repair pesticide application equipment. Irrigators who apply pesticides through chemigation systems are also considered handlers and must receive the appropriate pesticide safety training. Handlers must be at least 18 years old.

Employers must ensure that all employees who handle pesticides, perform early-entry tasks, or work in a **treated field** or **area**, receive the appropriate safety training prior to conducting tasks.

## Pesticide Types and Formulations

In the following section, the types of pesticides and their **formulations** are explained. It is important to note before discussing the different pesticide formulations available that fieldworkers often cannot see pesticide residues on plants and other surfaces despite their possible presence.

Several types of pesticides and formulations are used on agricultural and non-agricultural establishments. As such, these pesticides are applied to a variety of environments, which may include food and fiber crops, wildlands, urban parks, and residential landscapes.

Some common pesticides are

**Insecticides** – to control insect pests,

**Herbicides** – to control weeds,

**Rodenticides** – to control rats, mice, and other rodents,

**Fungicides** – to control fungi (fungus) and disease-causing organisms,

**Miticides** – to control mite pests, and

**Nematicides** – to control nematode pests.

As discussed in Chapter 1, adjuvants are additives that help to enhance the performance of a pesticide for improved pest control, like helping a pesticide adhere to the surface of a leaf. Because additives are registered in California, they require the same adherence to safety regulations as pesticides. Some common pesticide formulations are

- liquids
- dusts
- powders
- granules
- pellets
- gases
- gels
- aerosols

## Pesticide Residues

Pesticide residues may be found in or on

- **treated surfaces**, such as plants and soil,
- tractors, sprayers, and other application equipment,
- work clothing, shoes, and PPE (personal protective equipment), especially gloves,
- pesticide mixing and loading areas,
- air that drifts from a nearby pesticide application,
- irrigation water as a result of pesticide runoff or chemigation, and



- the air inside pesticide storage areas, pesticide containers, and shelves.

## Pesticides and Their Potential for Health Effects

Once fieldworkers and handlers understand where pesticides and their residues occur, it is easier to discuss the health hazards, routes for pesticide entry into the body, and symptoms that may result from exposure to pesticides.

## Routes of Pesticide Exposure

Pesticides can enter the body through the following four routes of entry

- skin (**dermal**),
- eyes (**ocular**),
- nose (**inhalation**), and
- mouth (**ingestion**).

One in three reports of pesticide exposure is due to a failure to wear the proper PPE by the handler, according to data from DPR's Pesticide Illness Surveillance Program (2007 to 2016): On average, three out of four cases involved eye injury and nearly one in three were due to skin injury (these reports of injury occurred alone or in combination with another injury).

Certain situations can increase the risk for pesticide exposure through the eyes, nose, mouth, or skin: trainers need to explain the four routes of entry during training and how to prevent pesticide exposure.

During a pesticide safety training, fieldworkers who work in enclosed space production areas, for example, may express concerns about inhaling pesticides; pesticide handlers may share concern about the potential for pesticides to splash in their eyes during mixing and loading tasks.

## Situations That May Lead to Pesticide Exposure Through the Skin

Many scenarios can increase the risk of exposure to pesticides through the skin, such as

- Employees who choose to wear a short-sleeve shirt on a warm day, risk exposure to their forearms from pesticide residues in treated fields. Warm weather may cause people to sweat. This sweat can help pesticides enter into a person's body through pores, cuts, and sores on a person's exposed skin.



- Fieldworkers or handlers who carry and use their cell phones while working with pesticides or near areas where pesticides were applied can transfer residues from their phones to their face or hands when responding to a call or text.
- Skin exposure can occur by re-wearing work clothes that could have pesticide residues on them. For this reason, employees need to change out of work clothes before leaving work and have access to a fresh change of work clothes every day.
- Pesticide residues can transfer from contaminated hands to other parts of the body if employees do not wash their hands thoroughly before eating, drinking, smoking, or using the restroom.
- Skin exposure can occur when a pesticide drifts onto people who are working near an application.
- Handlers or early-entry employees may absorb pesticides through their skin if they fail to wear the required gloves, or if they don't wash their gloves with soap and water before removing them.
- Handlers may take off their gloves to adjust, clean, or repair pesticide application equipment, which may contain pesticide residues.
- Handlers may accidentally splash a pesticide onto their skin when mixing a pesticide or loading a spray tank.

## Situations That May Lead to Pesticide Exposure Through the Eyes

The following scenarios can increase the risk of exposure to pesticides through the eyes:

- Fieldworkers may transfer pesticide residues to their eyes by touching their eyes after contact with treated surfaces.
- Sweat running down an employee or handler's forehead may carry pesticide residues into their eyes.
- A handler or early-entry employee may rub their eye or adjust their protective eyewear with a contaminated glove.
- A handler may splash or spray pesticides in their eyes when mixing and loading pesticides, **triple-rinsing** pesticide containers, adjusting application equipment or applying a product overhead without wearing proper eye protection.
- If a handler is wearing the required protective eyewear and it doesn't fit, or it is removed upon fogging, this can allow for pesticides to enter into the handler's eyes.



## Situations That May Lead to Inhalation of Pesticides

The following scenarios could result in the exposure of pesticides through inhalation:

- Fieldworkers may be at risk of inhaling pesticides if they continue to work while in an AEZ or application exclusion zone (explained later) or in an enclosed space, such as a greenhouse, before the REI expires.
- If a fieldworker or handler smokes a cigarette near an area where pesticides are stored or applied.
- If a pesticide container leaks in a storage area, people who enter the area may inhale the vapors from the spilled product.

- If a handler mixes two **incompatible** pesticides, this combination may create toxic fumes that could be dangerous if inhaled.
- Pesticide exposure can occur if a handler fails to wear the required respirator or chooses the wrong respirator, fails to change out a used cartridge or filter, or uses a respirator that does not fit correctly.

## Situations That May Lead to Ingesting or Swallowing a Pesticide

The following scenarios illustrate examples of how a pesticide could be ingested:

- Employees who fail to wash their hands before eating, drinking, or smoking may get pesticide residues in their mouths.
- If an employee takes a snack or lunch break too close to an area where pesticides are stored or used, the food or drink could become contaminated.
- A fieldworker or handler who takes produce home directly from the field may get exposed to pesticide residues that are still on the produce.
- Fieldworkers and handlers can swallow pesticides if they drink water from irrigation canals, pipes, or sprinklers as irrigation water may contain pesticide residues.
- A person may accidentally swallow a pesticide if they take a sip from a beverage container that someone has illegally used to store or measure pesticides.



## Hazards of Pesticides Vary With Their Toxicity

**Toxicity** is the potential of any pesticide to cause harm. Pesticides are toxic to

target pests and non-target organisms, such as people and wildlife, and vary in their toxicity.

People differ in their susceptibility to injury from pesticides depending on different circumstances that are discussed in this chapter, including the toxicity of a pesticide.

Because the health effects caused by pesticides are unpredictable and varied, employees, including handlers, should always take steps to minimize their exposure to pesticides as even the least toxic pesticides may cause illness.

## Common Signs and Symptoms of Pesticide Poisonings

**Symptoms** are any change in health function that a person sees or senses, or that can be detected by a medical examination or laboratory tests. These symptoms may indicate the presence of a disease, illness, or injury.

Poisoning symptoms can vary among different pesticides. The severity of symptoms is relative to a few considerations, such as the toxicity of the pesticide, the **route of exposure**, the amount of pesticide entering the person's body, and the individual's sensitivity to certain chemical ingredients.

If an employee feels sick while working in a pesticide-treated area or handling a pesticide, common pesticide symptoms can mimic those of a cold, the flu, heat stress, food poisoning, or other ailments; this may present challenges when determining if the symptoms are related to pesticide exposure. For this reason, it is important to assist the employee in seeking medical attention immediately for proper treatment.

The following is a list of symptoms that may occur alone or in combination as a result from pesticide exposure:

- eye irritation,
- nose and throat pain difficulties,
- skin rash,
- dizziness,
- headache,



- muscle aches or cramps,
- exhaustion,
- nausea,
- diarrhea,
- chest pain,
- breathing difficulties,
- blurred vision,
- excessive salivation or drooling,
- small, pinpoint pupils,
- lack of muscle control,
- convulsions or seizures,
- unconsciousness, or
- sudden collapse or cardiac arrest that could result in death.

In addition to the above symptoms, people exposed to certain **fumigants** may experience

- irrational behavior, and
- elevated body temperatures.

The type and severity of exposure symptoms to pesticides can be influenced by several factors, such as the

- pesticide itself,
- toxicity of the product,
- amount and concentration of the pesticide at the time of exposure,
- length of exposure,
- amount absorbed into the body,
- route of entry, or
- rate the body absorbs and excretes it.

Less toxic pesticides may cause only mild eye irritation if splashed in a person's eye, while exposure to another product may result in blurred vision or blindness.

Certain pesticides are extremely toxic if swallowed but less harmful when spilled on the skin.

It is important to **use pesticides** correctly by following the **precautionary statements** and PPE information on the label to prevent adverse health effects from pesticide exposure.

Circumstances that can significantly influence the type and severity of the reaction to pesticide exposure are the overall health, age, and genetic makeup of the individual: Each person is different.

Because children's bodies and internal organs are still developing, they are more susceptible to impacts from exposure. For this reason, all handlers and early-entry employees must be **at least 18 years old**.

Older adults, young children, and those who have compromised immune systems or suffer from **chronic illness** may have less tolerance for some types of pesticides.

People who have medical conditions like asthma, may experience breathing difficulties when working in an area where pesticides were applied even after the REI has expired.

Fieldworkers and handlers must understand that pesticide exposure can be hazardous for pregnant women and may result in miscarriage or harm to an unborn child.

## Immediate and Delayed Health Effects from Pesticide Exposure

It is common for symptoms of pesticide exposure to occur immediately following an incident. Less often, other symptoms from pesticide exposure may occur hours, days, or years after the exposure incident(s). Some people may develop an allergic sensitivity or reaction after working for many years in areas close in proximity to a particular pesticide. Below, these types of health effects from pesticide exposure are briefly explained.

## Immediate or Acute Health Effects from a Single Pesticide Exposure Incident

**Acute health effects** are ailments or injuries that occur immediately following exposure, such as a chemical burn, difficulty breathing, or eye irritation. These injuries can be serious and may result in lost work time and medical treatment.

Acute, or immediate, injuries following an exposure incident to a pesticide may last temporarily, such as eye irritation, or persist for the long-term, such as blindness. In the most severe cases of exposure to a pesticide, acute health effects could result in death.

**Delayed acute health effects** are symptoms that do not occur immediately after an incident of pesticide exposure and instead develop hours or days after the incident has taken place, such as lung irritation or muscle weakness.

Delayed acute health effects are similar to acute health effects in that these ailments are related to a single incident and not long-term exposure to a pesticide. Certain delayed acute health effects are temporary while others may persist long-term.

Some examples of acute and delayed acute health effects that are short-lived include

- nausea,
- headache or dizziness,
- red or watery eyes,
- rash, irritated, or burning skin,
- muscle weakness,
- throat or lung irritation, and
- difficulty breathing.

To recap, acute injuries are immediate and the result of a single exposure incident to a pesticide, their symptoms or health effects may be temporary or long-lasting (chronic). Delayed acute health effects are not as immediate, appearing hours or days later, and are the result of a single exposure incident, their symptoms may also be temporary or chronic (such as blindness) in

duration.

## Persistent or Chronic Health Effects from a Single or Multiple Pesticide Exposure Incident(s)

**Chronic health effects** are simply put, illnesses or injuries that persist for a long period of time (months to years). These chronic illnesses or injuries may result from a single exposure incident and occur immediately, such as blindness from a chemical spill to the eyes—or, they may appear later in life—days, weeks, or years, after repeat, low levels of overlooked exposure to a pesticide, such as lung disease, nerve damage, or cancer. These long-lasting symptoms that do not appear until days, weeks, or years later are **delayed chronic health effects**.

For chronic health effects that result in a delay in symptoms, these illnesses or injuries may be difficult to associate with a single cause, such as pesticide exposure to a particular pesticide, because of the lapse of time until the health effect(s) is observed.

Fieldworkers and handlers must take precautions and follow all the necessary steps to prevent pesticide exposure from accidental spills or from residues on plants and other treated surfaces. Always follow the label and state regulations for PPE to ensure proper safety measures when working with or near pesticides and their residues.

Some persistent chronic health effects from exposure to certain pesticides may include

- cancer,
- fertility problems,
- respiratory illness,
- allergic sensitization,
- blindness,
- nervous system disorders,
- congenital disabilities (birth defects),
- damage to the organs or immune system, or
- skin disorders.

**Sensitization** is the gradual development of an allergic reaction to a type of pesticide or chemical. It is a chronic health effect since once the sensitization to the chemical develops, it typically persists for many years. Some people with sensitization to a pesticide may experience headaches, rashes, difficulty breathing, or dizziness, each time they work near the pesticide or enter an area with recent use.

Fieldworkers and pesticide handlers may better understand sensitization when compared with an allergic reaction to poison oak. Not everyone will have an adverse skin reaction the first few times they come in contact with poison oak. However, after repeat encounters with poison oak plants, some people will become sensitized, that is, they may develop a rash, and other allergy-related symptoms that worsen with each additional encounter.

Similar to poison oak, some people may experience sensitization after working near a product for several years. Not everyone will develop sensitivity to a pesticide, but those who do should avoid exposure to prevent an adverse reaction.

## Reducing the Risk of Pesticide Exposure

Since pesticide residues are often not visible, it is difficult for employees to avoid contact, and therefore must take steps to protect themselves from exposure to residues. One important step for preventing exposure is to understand the restrictions of who is allowed entry into an area during the application and REI period, and after the REI expires, explained in the coming sections.

### Restricted Entry Interval (REI)

The REI is the amount of time that must pass after a pesticide application is made before it is safe for employees, such as fieldworkers, or the general public, to enter an area without the required protective equipment. During the REI, only trained and equipped handlers and early-entry employees are allowed in the application site.

## Working in Treated Fields Following the End of the REI

Once the REI expires, all employees trained in pesticide safety are permitted to re-enter the treated field. A “treated field” refers to an area that was treated with a pesticide in the last 30 days. This 30-day period begins at the time from which the REI expires. Or, for those pesticides that do not have an REI, the 30-day period begins at the time which an application ends.

## Work Clothing and Personal Protective Equipment (PPE)

Fieldworkers and handlers should wear clothing that protects them from contact with pesticides. Work clothing should be laundered before reuse to prevent exposure from field pesticide residues to skin.

Appropriate work clothing includes

- long-sleeved shirts,
- long pants,
- closed-toe shoes, and
- socks.

Employers of early-entry employees and handlers must always refer to the pesticide product label and California regulations, to provide the PPE required for handling and early-entry tasks.

Employees must wear protective eyewear and chemical-resistant gloves for almost all handling tasks as required by the California Pesticide Worker Safety Regulations. Additional information about the proper use, care, and storage of PPE can be found in **Chapter 5-2: Selecting and Inspecting Personal Protective Equipment (PPE)**.

## Entry Restrictions During Pesticide Applications

During pesticide applications, agricultural employers must ensure fieldworkers do not enter or remain in the treated field. In general, agricultural employers can accomplish this through the scheduling of applications and fieldworkers' tasks appropriately.

Some of these requirements include

- posting application-specific information about the pesticides used at the central location (explained in the coming sections), and
- notifying employees about applications or posting warning signs.

There are unforeseen occasions when a trained fieldworker must enter an area that is under an REI. In these instances, the employee becomes an “early-entry employee.”

## Early-Entry Restrictions for Employees

Early-entry employees may enter a treated area that is under an REI, if specified on the pesticide product label and provided that the employer assures the following

- That if employees are entering to perform pesticide handling activities, they are following the label by wearing the correct PPE.
- That employees have **no contact with treated surfaces**, such as plants, soil, air, irrigation water, or water standing in drainage ditches, or puddles.
- If unforeseen short-term, **limited-contact activities with treated surfaces** are necessary that do not involve hand labor, such as irrigation, and as long as
  - the REI for the product does not require double notification,
  - at least four hours have elapsed since the application was made,
  - inhalation exposure does not exceed any pesticide product labeling standard, and for enclosed spaces, the ventilation criteria have been met,
  - no hand labor is performed,
  - exposure is limited to feet, the lower limbs of legs (below the knees), hands and forearms (below the elbows),
  - early-entry employees are wearing the correct PPE as directed by the label, and

- the time in the treated field under an REI does not exceed eight hours within a 24-hour period.

If employees must respond to a situation to perform unforeseen, high-contact, *short-term* tasks, they must follow the same requirements as described above with the expectation that high-contact duties do not exceed one hour.

**BEFORE** the “early-entry employee” is allowed to enter the area under the REI, the employer must verbally inform the early-entry employee of the following in a manner that can be understood:

- location of the area where the early-entry task will be performed,
- name of the pesticide(s) applied to the area,
- date and time the REI begins and ends,
- the specific restrictions and conditions for the early-entry task are met (see the early-entry employee restrictions that are bulleted above and remember to also comply with the early-entry requirements stated in the precautionary statements on the product label),
- the potential for human hazard is communicated to the employee, as it is written in the precautionary statement of the pesticide product label,
- symptoms of overexposure to the pesticide products(s) applied,
- emergency first aid and decontamination procedures for pesticide injuries or poisonings including emergency eye flushing techniques,
- how to obtain emergency medical care,
- the prevention, recognition, and first aid for heat-related illness if PPE is used in compliance with Title 8 Cal/OSHA standards for Heat Illness Prevention (see appendix for where to access this regulatory information),
- location of the pesticide safety information (Pesticide Safety Information Series A-8 and A-9 leaflets),
- the need for, use, and care of PPE required for early-entry into treated fields,
- that clothing and PPE may be contaminated with pesticide residues,



- instructions for removing, storing, and laundering such clothing and equipment, and
- the importance of washing thoroughly at the end of the exposure period.

**Table 4.1: Entry Restrictions During Pesticide Applications.**

<b>During the Application</b>	<b>Following the Application During the REI</b>	<b>After the REI has Expired</b>
<b>ONLY</b> trained handlers, equipped with the PPE listed on the label for the handling task.	Trained handlers equipped with the PPE listed on the label for handling task.  Trained early-entry employees who have received product-specific training and protections for the particular early-entry situation, and who are equipped with the PPE listed on the label for the early-entry task.	<b>All</b> trained employees, including fieldworkers and handlers.

### Ventilation Criteria for Re-entry into Enclosed Space Production Areas

After a pesticide application is made in an enclosed space production area, including any unsealed adjacent area, employers must not allow fieldworker entry into an enclosed space structure until the air concentration level specified on the label is met.

If no air concentration level is specified on the label, and the product labeling requires respiratory protection, employees must wait until the proper ventilation criteria are met. This ventilation criteria applies to fumigants or pesticides that produce a fine mist or fog that may not require respiratory protection.

One of the following must occur if there is no product labeling standard

- 1) Ten air exchanges are complete.
- 2) Two hours of mechanical ventilation, such as with fans.

- 3) Four hours of passive ventilation, such as opening vents, windows, or doors.
- 4) Twenty-four hours with no ventilation.
- 5) Any combination of percentage portions of 1, 2, 3, and 4, the sum of which equals 100%.

## Notifying Employees of Pesticide Applications

It can be challenging for employees to remember every detail about the pesticide applications made at the worksite. This is why the California Pesticide Worker Safety Regulations require that an employer provide this information in writing at a central location on the establishment.

The central location is any area the employees are likely to pass by or congregate where information specific to employees can be easily seen and read. Many employers choose to display the application-specific information on the wall of a lunchroom, on a display board outside of a central office, or in a binder inside the farm shop.

## Pesticide Application and Hazard Information at the Central Location

Once an application is complete, specific information about the pesticides that were used must be displayed at the central location within 24-hours, for any treated field(s) that falls within a quarter-mile of where employees will be working, to prevent early-entry.

The displayed application-specific information must have unimpeded access to employees for 30 days after the end of the last REI, or until fieldworkers or handlers are no longer on the establishment, whichever comes first.



The application-specific information must contain:

- the product name, **EPA registration number**, and active ingredient(s) of

- the pesticide,
- if applicable, the spray adjuvant product name and its accompanying California registration number,
- the crop or site treated and the location and description of the treated field(s),
- the date and start time of the pesticide application,
- the date and time the application was completed,
- the duration of the REI for that application, and
- a copy of the Safety Data Sheets (SDSs) for the applied pesticide(s).

SDSs provide hazards, emergency medical treatment, and other information about pesticides and their residues. Employers must tell employees where they can find pesticide application and hazard information and make it accessible during their normal work hours.

In addition to application-specific information, the following is required at the central posting area:

- the Pesticide Safety Information Series A-8 for agricultural handlers, the N-8 for non-agricultural handlers, and the A-9 for fieldworkers,
- emergency information, including the name, telephone number, and address of a nearby medical facility displayed on the A or N series, and
- contact information for the county agricultural commissioner.

## Application Records

The employer must retain the pesticide application records and SDSs on the establishment for two years after the expiration of the REI. The employer must provide the pesticide application records and SDSs to fieldworkers, handlers, treating medical personnel, **designated representatives**, and their county agricultural commissioner upon request. A fieldworker or handler may designate, in writing, a representative to request access to pesticide application and hazard information.

## Pesticide Safety Information Series

The “Pesticide Safety Information Series” (PSIS) leaflets describe how fieldworkers and handlers can reduce their exposure to pesticides at work.

Employers are not only responsible for familiarizing themselves with the PSIS series, but also for ensuring that the appropriate series is available at a central location on the establishment in a manner that all employees can understand. Spanish, English, Hmong, and Punjabi translations of the [PSIS leaflets](#) are available on the DPR website:

<https://www.cdpr.ca.gov/docs/whs/psisenglish.htm>.

The “A (agricultural) PSIS Series” covers pesticide safety topics for those working in an agricultural setting. In particular, the A-8 leaflet provides safety information specific to handlers, while the A-9 leaflet informs fieldworkers of their rights and how to reduce their exposure to pesticides.

The “N (non-agricultural) PSIS Series” provides pesticide safety information similar to the A-series but for a non-agricultural setting. The N-8 leaflet provides pesticide safety information that is specific to non-agricultural handlers. Each leaflet contains contact information for reporting pesticide use violations and for nearby medical facilities in the case of an emergency.

The appropriate A or N-8 PSIS series leaflet must also be displayed at all permanent decontamination supply sites or other decontamination supply locations (explained later in this chapter), serving 11 or more employees, in addition to the central location.

## Employer Responsibilities for Notifying Employees of Treated Areas

In addition to displaying the completed PSIS A-8 and A-9 leaflet(s), pesticide application-specific information, and SDSs at a central location, operators must notify employees about pesticide-treated fields on the establishment within a quarter mile of where they will be working. This notification must be provided verbally or by



posting the warning sign at the entrances of pesticide-treated fields. Posting requirements are dependent on the label instructions, California regulations, and the length of the REI.

### ***Employers (or the operator of the property) are responsible for***

- Checking the label for the REI and posting requirements for a pesticide application.
- Assuring that no employees other than the handlers involved in the application will enter, work in, or walk within a quarter-mile of an outdoor site or enclosed space during the application and the REI period, except for those performing early-entry tasks permitted on the label.
- Assuring that **warning sign postings** meet California-specific requirements (as described in “Warning Sign Posting Requirements” in this chapter).
- Assuring that posting occurs before the application but no more than 24 hours prior and the warning sign remains posted during the application and REI period.
- Assuring that posted warning signs are removed at the end of the REI or no later than three days after the REI expires.

An operator (or employer who is working on their behalf) may request that handlers assist with posting before an application, or with the removal of warning signs after an application is complete.

## Warning Sign Posting

It is the operator's responsibility to inform all employees, including fieldworkers and handlers, of applied pesticides that have an REI. Informing employees of applied pesticides with an REI is often done through the posting of a warning sign.

Employees must understand that the posted sign is a warning that it is not safe to enter a treated area.

Employees can enter the area only if the operator or employer verifies that the REI is over, *and* the sign is removed.



Fieldworkers trained as early-entry employees may enter a treated area before the REI is over to perform limited-contact, early-entry tasks if requested by their employer and while wearing the label required PPE.

## Warning Sign Posting Requirements

In California, a warning sign depicting an image of the “skull and crossbones” is posted at the site of application. The sign must state “Danger” and “Pesticides” in English and “Peligro” and “Pesticidas” in Spanish toward the top of the sign, and “Keep out” in English and “No entre” in Spanish in the lower portion of the sign. Or, the sign may be written in another non-English language that the majority of employees can understand.

The federal warning sign is not allowed for posting in California, but it is important to become familiar with regardless of the fact. The federal warning sign contains a “stern man” face encircled in red toward the center of the sign. “Danger

Pesticides” are in the left corner; “Peligro Pesticidas” are in the right upper corner, and “Keep Out No Entre” in the lower center of the sign below the stern face.

## Warning Sign Posting in Enclosed Space Production Areas

When posting in an enclosed space production area, whether the entire space is being treated or a specific area, posted warning signs must be visible from all points of anticipated entry.

The posted warning sign is required when:

- the label specifies an REI greater than four hours for indoor production that is a partially enclosed space, such as a greenhouse with sidewalls that are down, hoophouses, and mushroom houses,
- any pesticide application in an indoor area that is entirely enclosed, such as a glasshouse, or
- the label has **double notification** requirements.



Unless, access is controlled in a manner that assures no employee (other than the handlers making the application) will enter, work in, remain in, or pass through the enclosed space during the application, the restricted entry interval, *and* the label does not require double notification.

Only when a pesticide does not meet the above criteria for mandatory warning sign posting can the operator (or employer working on their behalf) choose to verbally notify employees about the application, provide a **written notice**, or post a sign to the area regarding the details of the application and the length of the REI.

For the option of providing a written notice to warn employees of an application when posting is not required, this may appear as a paper notice, an email, a

text message, or in some other written or verbal form, and include:

- the location of the treated field,
- the time for which entry is restricted, the REI,
- and instructions for when it safe to re-enter once the REI expires.

## Warning Sign Posting Locations for Outdoor Production

For applications that take place in **outdoor production**, if the label specifies an REI greater than 48 hours or if the label has double notification requirements, then the operator must post a warning sign.

When posting warning signs for a treated field that has paths or ways of entry leading into the site, these signs must be posted and visible at all apparent points. Ways of entry are footpaths and access roads that lead into the treated site and each border of any **employee housing area** situated within 100 feet of the treated site.

If there are no ways of entry leading into the treated site, then warning signs notifying of a pesticide application must be posted at each corner of the treated field to allow for maximum visibility. For fields that border public, unfenced rights-of-way, such as a trail, path, or road, warning signs must be posted at an interval that should not exceed 600 feet (intervals of less than 600 feet is desirable) to ensure the signs are visible to passing members of the public.



If the REI is 48 hours or less for outdoor applications *and* the label does not require double notification, employers may choose to verbally notify employees, provide a written notice, or post a warning sign regarding the details of the application and the length of the REI.



## Double Notification

Some product labels require that the employer provides oral (verbal) notification and post warning signs. This dual approach is called “double notification.” If double notification is required in the “Agricultural Use Requirements” section of the label, the employer must follow both notification requirements.

### Requirements for Oral Notification of Upcoming Pesticide Applications

If the operator or employer chooses to notify employees verbally of a scheduled application rather than post, the operator must inform of the pesticide-treated areas in a manner the employee can understand **before the application is made** and include the following:

- the date of the scheduled application,
- the location and description of the field to be treated, and
- instructions not to enter the field to be treated and its application exclusion zone until authorized by the operator of the property.

The employer is responsible for ensuring that anyone on the property, in addition to employees, are given ample notification before an application and the REI, to prevent bystander-entry. Handlers must notify the operator of any delays or changes made to the application.

The above notification information for upcoming applications must be provided:

- before the application begins if a fieldworker will be at the establishment at the start of the application, and
- at the beginning of the work period if the fieldworker arrives at the establishment when a pesticide application is taking place, or when the REI is in effect.

As mentioned above, an employer can choose to provide verbal notification rather than post but ONLY for the following scenarios

- the pesticide label of the product does not require double notification in

“Agricultural Use Requirements” section,

- for outdoor agricultural production, the REI of the pesticide is less than 48 hours, or
- for partially enclosed space production, such as a hoophouse, the REI of the pesticide that was applied to the area is less than 4 hours.

## Requirements for Oral Notification of Completed Pesticide Applications

For **completed** applications that have an REI of less than 48 hours for outdoor production or less than four hours for enclosed space production, and do not require double notification, the operator can choose to verbally notify employees rather than post. This verbal notification must take place within 24 hours after the application is made and in a manner the person can understand that includes:

- the location and description of the treated field,
- the time during which entry is restricted; and
- instructions not to enter the treated field until the restricted entry interval has expired.

The operator or employer may choose the option to provide a written notice of a completed application instead of providing a verbal notice to notify employees.

## Reducing Hazards from Pesticide Drift

Drift is the movement of pesticide dust, spray, or vapor away from the site of an application created under particular conditions. The off-site movement of a pesticide during an application can occur while employees are working on or nearby an establishment.

Fieldworkers and handlers have the potential to come into contact with pesticides through drift if their home is located near the field or site where a pesticide application is taking place and should take precautions to prevent bystander exposure. For example, all family members should stay inside the home with the windows closed while the application is taking place near their

residence.

An explanation of the conditions that contribute to drift is in Chapter 5, sections 4 and 5: Handlers need to understand what contributes to drift to prevent its occurrence for public safety and compliance with the California Pesticide Worker Safety Regulations.

## Application Exclusion Zones (AEZ)

To protect people from bystander drift, employers are responsible for ensuring that no one will enter the area surrounding an active application other than those making the application.

Fieldworkers and those who are not equipped to handle pesticides must remain a certain distance away from the pesticide application and its equipment as it is made.

This distance is called the pesticide “application exclusion zone,” or AEZ, for short, and this requirement is dependent upon the height of the application and the size of the spray droplets produced by the equipment.

Handlers are **not** permitted to make an application unless the area is free from people who are not involved in the application. If fieldworkers discover they are working in an AEZ while a handler is making an application, or if a pesticide from a nearby application drifts, they should immediately vacate the area and seek medical attention.

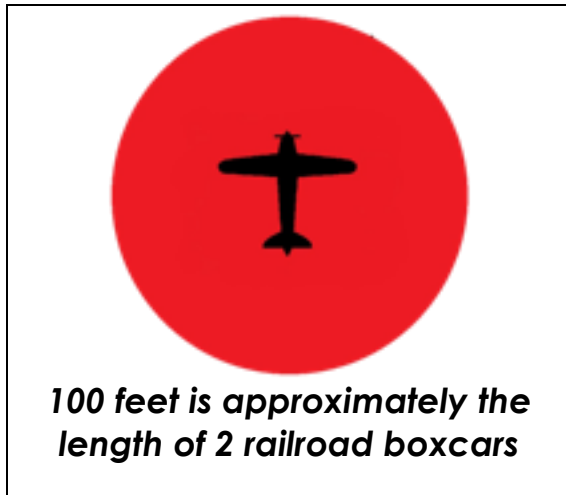
To reduce the possibility for drift from an application to occur, the AEZ distance requirements have been developed considering the equipment type, nozzle size, and distance from the nozzle to the ground.

## AEZ Requirements for Outdoor Production

### **100-Foot AEZ**

When the pesticide is sprayed through a nozzle producing **fine or small spray droplets**, the AEZ is the area that extends 100 feet horizontally from the application equipment in all directions.

No matter the distance or droplet size, when the pesticide is applied aerially, by air blast, or as a fumigant, smoke, mist or fog, the AEZ is ALWAYS 100 feet.

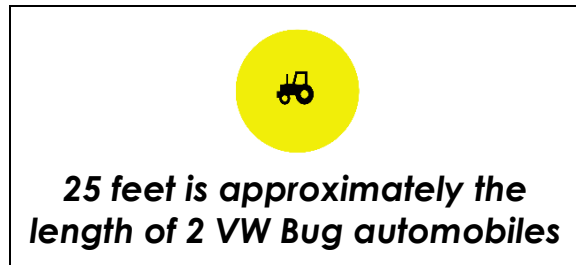


**The AEZ is 100 feet (30 meters) for:**

- Aerial applications
- Air blast sprayers
- Fumigant applications
- Smoke applications
- Mist applications
- Fog applications
- Other applications using fine or very fine droplets (<294 microns)

**25-Foot AEZ**

When the pesticide is sprayed from a **height greater than 12 inches**, through a nozzle producing **medium to coarse spray droplets**, the AEZ is the area that extends 25 feet horizontally from the application equipment in all directions.



**The AEZ is 25 feet (8 meters) when:**

Pesticide is sprayed using droplet sizes of medium or larger and from more than 12 inches above the plant medium

**No AEZ**

There is no application exclusion zone when the pesticide is applied in a manner other than those listed above.

**AEZ Requirements for Indoor Production**

For enclosed space production, when an application is made as a fumigant, smoke, fog, aerosol, or mist, then the entire enclosed space, plus any unsealed area that is adjacent to the greenhouse or hoop house, is part of the AEZ.

When a fine spray droplet application is made, no employees are allowed in the entire enclosed space, unless the ventilation criteria for enclosed space production is met (see previous section on page 39 for criteria in this chapter).

For applications made at a height greater than 12 inches from the soil or planting medium surface, or if the size of the spray droplet is medium or larger, then the application site plus a 25-foot buffer surrounding it is required.

Table 4.2: AEZ Distances Based on Height and Droplet Size for Outdoor Production.

AEZ Distance	Application Height	Droplet Size
100'	>12"	fine or small
25'	>12"	medium or coarse
0'	≤12"	medium or coarse

### Decontamination Facilities and Supplies for Fieldworkers

All employers must provide fieldworkers engaged in activities involving contact with treated surfaces the supplies for routine and emergency decontamination and notify employees of its location before commencing work in a treated field.

#### Supplies

The employer must provide the following items for routine decontamination and emergency eyewash:

- at least one gallon of water per worker at the beginning of each fieldworker's shift,
- soap, and
- single-use towels.

Table 4.3a describes the decontamination supplies the employer must provide for each type of task and area.

## **SIDEBAR**

Hand sanitizing liquids or gels do not meet the soap requirement. Wet wipes or towelettes cannot be used as soap or single-use towels.

### Location

Decontamination supplies must be located no more than a  $\frac{1}{4}$  of a mile from the fieldworker's current work location and must not be located in an area that is under an REI.

### Duration

Decontamination supplies must be provided from the time fieldworkers first enter a treated field.

## **Decontamination Facilities and Supplies for Early-Entry Employees**

The employer must provide early-entry employees with supplies for routine and emergency decontamination and eyewash. Because early-entry employees may be exposed to higher residue levels than a fieldworker who enters an area after the REI has expired, early-entry employees must have access to decontamination supplies and know of the location where the supplies are stored before commencing with the application.

### Supplies

The employer will make sure that:

- At least one pint of eye flush water is available for immediate access and carried by each early-entry employee or on the vehicle used by the employee(s) in the event of an emergency.
- At the location where the early-entry employee(s) store personal clothing and remove their PPE, it is no more than a quarter of a mile away from where employees will be working.
- At least three gallons of potable water per employee, soap, and clean or single-use towels to wash thoroughly after the exposure period. The water must be stored separately from water that is used for the mixing of

pesticides; and,

- one clean change of coveralls.

Table 4.3a below describes the decontamination supplies the employer must provide for each type of task and area.

### Location

Decontamination supplies must be located within a quarter of a mile of where employees will be working and at the site where PPE is removed after the early-entry task period.

The pint of eyewash must be immediately available where the early-entry employee is working, either on their person for those making applications with a backpack sprayer, or close by for ground and other application methods. The facilities cannot be in an area under treatment or an REI unless the site provided is where early entry activities are taking place.

### Duration

From the start of entry and for as long as the employee is in the treated area under an REI.

**Table 4.3a: Decontamination Supplies for Fieldworkers and Early-Entry Employees**

Employee or Tasks	Decontamination Supplies	Additional Eyewash
<b>Fieldworkers</b>	<ul style="list-style-type: none"><li>• at least one gallon of water per fieldworker at the beginning of each employees shift,</li><li>• soap, and</li><li>• single use towels.</li></ul>	Not applicable.

<b>Early-entry employees during early-entry tasks</b>	<ul style="list-style-type: none"> <li>• at least three gallons of water per early-entry employee,</li> <li>• soap, and</li> <li>• single-use towels stored separately from pesticides.</li> </ul>	If the label requires eye protection, the employer must provide at least one pint of water per early-entry employee in a portable container that is immediately available for access.
<b>Early-entry employees at PPE changing facilities</b>	<ul style="list-style-type: none"> <li>• water,</li> <li>• soap, and</li> <li>• single-use towels.</li> </ul>	Not applicable.

## Decontamination Facilities and Supplies for Handlers

The employer must provide handlers with supplies for routine and emergency decontamination of the entire body. Because handlers are in close contact with pesticides through their handling activities, they are at greater risk for exposure.

For their safety, handlers must have access to decontamination supplies and know of the location where the supplies are stored before mixing, loading, or handling pesticides.

### Non-Agricultural Handler Supplies

The employer will make sure that

- potable and sufficient water, soap, and single-use towels for routine washing of hand and face, including for emergency eye flushing, and washing of the entire body are made available, and
- one clean change of coveralls at each decontamination site.

### Agricultural Handler Supplies

The employer will make sure that

- If the pesticide product labeling requires protective eyewear, at least 1 pint of eye flush water must be available for immediate access and carried by each handler or on the vehicle used by the employee(s) for use in the event of an emergency.



- At the mixing and loading site, there is employee access to tepid, gentle-running water for at least 15 minutes, or at least 6 gallons of water in containers suitable for providing a gentle eye flush for at least 15 minutes of emergency eye flushing, if the product labeling requires protective eyewear or when using a closed-mixing system;
- Sufficient potable water for washing of the entire body (at least 3 measurable gallons available from the beginning of the workday) that is stored separately from water that is used for mixing pesticides;
- Sufficient soap and single-use towels for routine washing of hands and face (wet towelettes and hand sanitizing gels are not a substitute), and
- One clean change of coveralls is at each decontamination site.

### Location of Handler Decontamination Supplies

The decontamination site for **non-agricultural handlers** is located:

- No more than 100 feet away from the mixing and loading site, when handling pesticides with "Danger" or "Warning" signal on the label.

The decontamination site for **agricultural handlers** is located:

- Outside of a pesticide-treated field and its buffer zone that is under an REI within the last 30 days.
- No more than 100 feet away from the mixing and loading site, when handling pesticides with "Danger" or "Warning" signal on the label.
- With no overlap more than a quarter-mile between each handler and their designated access site to decontamination supplies.

For agricultural pilots, the pint of emergency eye flush is in the aircraft, and the remaining decontamination supplies are located at the aircraft loading site.

The decontamination site must not be in an area under treatment or an REI, unless

- The handlers for whom the decontamination site is provided are working in the area that is being treated or under an REI,

- The soap, towels, and extra change of coveralls are in an enclosed container.
- The water for decontamination is running tap water or enclosed in a container.

## Duration

Decontamination supplies should be available well in advance of handling any pesticides, and until the pesticide application, cleaning, or repair of pesticide equipment is complete.

**Table 4.3b: Decontamination Supplies for Handlers.**

Employee or Tasks	Decontamination Supplies	Additional Eyewash
<b>Handler during mixing and loading tasks</b>	<ul style="list-style-type: none"> <li>• at the mixing and loading site, there is employee access to tepid, gentle-running water for at least 15 minutes, or at least 6 gallons of water in containers suitable for providing a gentle eye flush for at least 15 minutes of emergency eye flushing, for products that require protective eyewear or closed mixing systems.</li> </ul>	Not applicable.
<b>Handler during tasks other than mixing and loading</b>	<ul style="list-style-type: none"> <li>• at least three gallons of water per handler,</li> <li>• soap and single-use towels for routine washing of hands and face, and</li> <li>• a change of coveralls to use in case of an emergency at the decontamination site.</li> </ul>	If the label requires eye protection, the employer must provide at least one pint of water per handler in a portable container that is immediately available to the handler.
<b>Handlers at PPE changing facilities</b>	<ul style="list-style-type: none"> <li>• water,</li> <li>• soap, and</li> <li>• single-use towels.</li> </ul>	Not applicable.

## Routine Decontamination Procedures

Routine decontamination procedures can minimize fieldworker and handler exposure to pesticides and their residues. Routine decontamination procedures include the following:

- Employees should not use irrigation water to wash their hands as it may contain pesticides or their residues.
- Employees should use the decontamination supplies to wash their hands before eating, drinking, smoking, chewing gum or tobacco, or using the restroom while at work.
- Before changing into clean clothes, employees should shower or bathe with soap, shampooing their hair immediately after working with pesticides, or in areas where pesticides have been used.

## Reducing Exposure to Pesticide Residue on Clothing

As mentioned earlier in this chapter, fieldworkers and handlers may come into contact with pesticide residues that remain on **work clothing** or PPE. There are some ways for employees to reduce their risk to exposure from pesticide residues and the subsequent risk to family members by taking the following preventative actions:

- wear work clothing that protects their body,
- do not take used or contaminated early-entry employee or handler PPE at the end of the workday into the home (if unavoidable, then the PPE should be stored in a sealed container outside of the home),
- wear work clothes only once before washing them,
- keep work clothes that may contain residues separate from other clothing by placing them in a clean plastic bag, and



- wash work clothes separately from other clothing.

## Protecting Family Members from Pesticide Exposure

The following are additional steps trainers must inform fieldworkers and handlers of to help them reduce the likelihood of exposing their family members to pesticides used at work.

- Keep all children and non-working family members away from pesticide-treated areas. Even if children do not come into direct contact with pesticides, they may still be at risk for exposure to residues if they play in or near treated areas or irrigation ditches, live in labor camps, or play with empty pesticide containers.
- Never take pesticides or pesticide containers home. Even empty and rinsed pesticide containers can contain pesticide residues.
- Never pour pesticides from their original containers into food or beverage containers. **This action is illegal and dangerous.** An unsuspecting person may mistake the pesticide for something edible and swallow it.
- Remove work boots or shoes before entering homes.
- Remove work clothes and shower with soap and water before physical contact with children or family members.



Some best practices for fieldworkers and handlers to consider in protecting family members from exposure to pesticide residues brought from work into the home are:

- Children who live near treated areas should always wear shoes when playing outside.
- If outside pets have become exposed to pesticides and their residues from drift, wash them before allowing children to touch them.

- Inform family members who wash work clothing that the clothes may contain pesticide residues and tell them how to protect themselves.

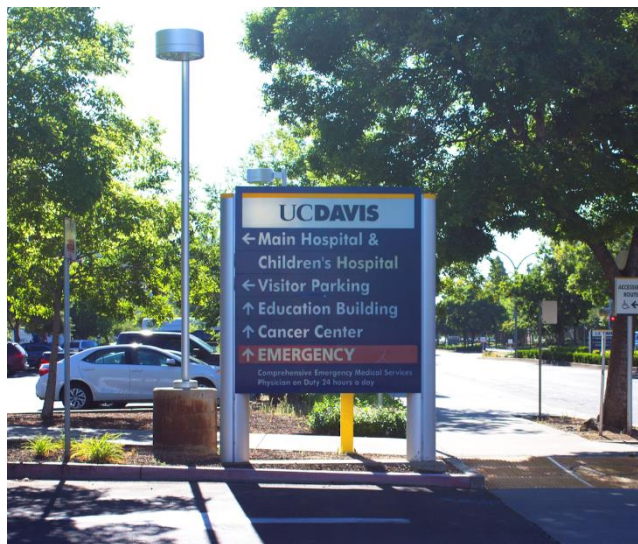
## Responding to Pesticide Illnesses and Injuries

While it is important to take all the necessary steps to prevent pesticide exposure at work, accidents do happen. People who handle pesticides or work in pesticide-treated areas need to know how to respond to pesticide illnesses and injuries correctly. It is imperative that employees know where to find the emergency medical and pesticide application-specific information to respond to these situations properly.

### Emergency Assistance

The employer is responsible for providing emergency assistance, in the event a fieldworker or handler experiences exposure to a pesticide at work, or if they show symptoms that may be caused by a pesticide.

The employer must provide the name, address, and phone number of a nearby medical facility on the Pesticide Safety Information Series A-8 for agricultural handlers (N-8 for non-agricultural handlers) at the worksite or on the work vehicle; for fieldworkers, the A-9 Pesticide Safety Information Series must be at the central location of the worksite and at any decontamination facilities that service 11 or more employees.



If there is a reason to believe that a fieldworker or handler has been exposed to pesticides while working or is experiencing a possible pesticide illness or injury, the employer must provide the following:

- transportation to a nearby medical facility capable of providing emergency care treatment to a person exposed to pesticide,

- copies of the applicable SDSs, product name, and EPA registration number,
- the active ingredient for each pesticide to which the employee may have been exposed; and,
- the circumstances that may have contributed to the exposure incident.

## Emergency First Aid for Pesticide Exposure

When helping someone who has been exposed to pesticides, before the person leaves for the nearby medical facility, there are several immediate steps to take for reducing the effects of an exposure incident.

- Remove yourself immediately from the site of exposure.
- Call 9-1-1 for immediate medical assistance and notify emergency medical personnel that the incident is related to pesticide exposure.
- Before rushing into assist someone who is incapacitated, don the proper PPE to prevent also becoming a victim of pesticide exposure.
- In any first aid situation, the product SDS can provide specific information for how to properly respond to a medical emergency from pesticide exposure.
- Do not allow the victim to drive themselves to the hospital or emergency clinic. Not only is it prohibitive for an employer to allow an employee to drive themselves but this course of action prevents further harm to the victim and possibly others.



The California Poison Control System has adopted the national toll-free hotline that can instantly route calls to a regional poison control expert for product specific first aid information: 1-800-222-1222. There is also a chemical industry-

supported organization that provides assistance and advice on pesticide emergencies: **CHEMTREC** is 800-424-9300.

In the following sections, some additional guidance is provided on how to respond to each type of exposure incident by route of entry – skin, eyes, inhalation or ingestion.

## First Aid for Skin Exposure

If a pesticide gets onto a person's clothing or skin, remove the pesticide-contaminated clothing immediately and wash the affected skin with soap and lots of clean water.

It is important to wash the skin thoroughly to keep the pesticide from absorbing into the person's body before changing into clean clothing. Those assisting in the decontamination process must take steps to prevent exposing themselves to the contaminated items by wearing gloves or other protective equipment.

## First Aid for Eye Exposure

If a pesticide splashes or runs into a person's eye, gently hold the eyelid open and rinse the eye with the solution from an eyewash kit, or any gentle stream of clean, cool water for at least 15 to 20 minutes.

Tilt the person's head sideways so that the affected eye is lower than the eye that is unaffected. This tilt will keep contaminated water from entering and injuring the unaffected eye. If both eyes are affected hold both eyes open and gently flush together at the same time for 15 minutes.



If the person wears contact lenses rinse for five minutes, then remove the lenses

and continue to flush the eye for the remaining 15 to 20 minutes.

Never add any kind of medicine or other substance to the eye-rinse water. Combining rinse water with a medication could interact with the pesticide residue in a harmful way and damage the eyes. Get the injured person to medical help as soon as possible.

## First Aid for Inhalation Exposure

If you find a person who has inhaled a pesticide, assess the situation to make sure you won't get exposed to pesticides before entering the area. If it is safe to do so, get the person to fresh air and loosen any clothing that might make breathing difficult.

If the person is unconscious inside an enclosed area, it is possible the person inhaled pesticides: Don't go into the area unless you have the appropriate respiratory equipment. Call for emergency assistance. Explain the situation to the emergency personnel, so they can arrive with the appropriate equipment to rescue the person.



## First Aid for Exposure Through Ingestion or Swallowing

When helping a person who has swallowed a pesticide, read and follow the product-specific first aid information on the SDS. Get immediate medical attention. Each pesticide is different in the way it acts in the body, and first aid treatment will vary.

The pesticide label will have standard first aid procedures. If the person is awake and alert, follow the first aid instructions on the label. *These instructions will tell you what will be helpful or dangerous.*

**The most important step in cases of swallowing pesticides is for the employer to get the person to a nearby medical facility as quickly as possible.**



## Employee Protection from Employer Retaliation

Employees have the right to report unsafe work conditions without punishment or firing. Complaints are anonymous – this means that the operator or employer will not be informed of who made the complaint.

If you have a complaint about a pesticide safety problem, call the County Agricultural Commissioner's Office. Any report of safety problems must be immediately investigated by the county commissioner for possible use violations.

You can look up the number for a local office by calling DPR's information line, 1-87PestLine (1-877-378-5463). You can view the California Department of Food and Agriculture (CDFA) [list of offices for the agricultural commissioner in each county](https://www.cdpr.ca.gov/county/comenu.htm) throughout the state at <https://www.cdpr.ca.gov/county/comenu.htm>.

[More information about the county agricultural commissioners](https://www.cdpr.ca.gov/docs/county/comenu.htm) throughout the state is available at <https://www.cdpr.ca.gov/docs/county/comenu.htm>.

## Prevention and First Aid for Heat-related Illness

Employers are required to take the following steps to help employees prevent heat-related illness:

- **Plan** – Employers must develop and implement a written heat illness prevention plan, including high-heat procedures for when the temperature equals or exceeds 95 degrees.
- **Training** – All employees and supervisors must be effectively trained on heat illness prevention. Training should include the signs and symptoms of heat illness and procedures for responding to possible heat illness.

And provide

- **Water** – Access to enough fresh water so that each employee can drink at least one quart of water per hour.
- **Rest** – A preventative cool-down rest in the shade is allowed whenever employees feel the need to prevent themselves from overheating.

- **Shade** – Employees can request at any time access to shade, and it must be provided. A shaded area must be present when the temperature exceeds 80 degrees.

Heat stress is a serious health condition and can even lead to death. The early stages of heat stress symptoms include

- fatigue,
- muscle weakness,
- dizziness,
- headache,
- nausea, and
- heavy sweating.

More severe stages of heat-related illness can include

- chills,
- severe thirst and dry mouth,
- fainting,
- lack of sweat as heat stress progresses,
- hot, dry, clammy skin,
- slurred speech, and
- irrational behavior and confusion.

For complaints about health concerns, including heat illness and access to drinking water, contact the California Department of Industrial Relations Cal/OSHA office by calling: 1-844-522-6734.

## CHAPTER 5

### CHAPTER 5 – HANDLER-SPECIFIC TRAINING TOPICS

After handlers receive the general pesticide safety awareness and exposure prevention portion of the training, it is time to provide them with information on how to safely and effectively handle pesticides.

These sections include all of the additional information that must be included in a pesticide safety training for handlers. The key points are presented in seven sections:

**Section 5-1:** Reading and Understanding the Pesticide Label

**Section 5-2:** Selecting and Inspecting the Required Personal Protective Equipment

**Section 5-3:** Measuring, Mixing, and Loading Pesticides

**Section 5-4:** Surveying the Pesticide Application Site

**Section 5-5:** Applying the Pesticide Safely and Effectively

**Section 5-6:** Cleaning up at the End of the Handling Task

**Section 5-7:** Transporting, Storing and Disposing of Pesticides and Containers

## CHAPTER 5-1

### 5-1: Reading and Understanding the Pesticide Label

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## Reading and Understanding the Pesticide Label

It is a violation of federal and state law to use a product in a manner inconsistent with its labeling. The pesticide label is the most important part of the product packaging as it contains information on how to use the product safely and effectively along with the required PPE.



The label also includes information about the crops and areas to which the pesticide can be legally applied, the amount to use, application methods, first aid instructions, and additional precautionary measures.

It may be challenging to understand label instructions due to the unfamiliar terms, label format, font size, and language.

If for any reason the handler is not able to read the label, the employer must ensure there is always someone available to explain the health, safety, and directions for use information to the handler.

It is critical that handlers **read and refer to the label BEFORE:**

- **Buying the pesticide or taking it out of the storage area** to ensure use of

the correct product. Handlers should verify the type of pest the product controls and the crop or site to which it can be applied. This is also an opportunity to review the PPE information to make sure the handler has all of the required PPE or **protective clothing**.

- **Mixing the pesticide** to ensure an understanding of the product labels mixing instructions. Mixing is the most hazardous task because handlers are working with the product in its most concentrated form. If the instructions and precautions are not clear, handlers should ask their employer or supervisor for clarification or assistance.
- **Applying the pesticide** to become familiar with instructions on how to use the product safely (e.g., the environmental hazards, first aid information, and special precautions).
- **Storing the pesticide or disposing of the container** to find specific instructions about temperature limits, potential fire hazards, environmental impacts, and guidelines for container cleaning and disposal.

## The Parts of the Pesticide Label

In an annual pesticide safety training, handlers must be trained on label specific information for every pesticide or class of pesticides they may apply. Labels, in general, are helpful training tools to use for conducting pesticide safety handler training.

"Acaramort" is a mock label training tool that provides handlers with an overview of the information found on many pesticide product labels, it is not an actual product label.

If you would like to use this label in your training, a copy is provided on the following pages.

**ACARAMORT EC**  
**AGRICULTURAL MITICIDE**  
RECOMMENDED FOR AGRICULTURAL USE ONLY

Total ..... 100.0%

\* Contains 6.55 lb. technical PROPARGITE per gallon  
AGRICOQUEM INTERNATIONAL, INC. PETROVILLE, PA 19099 EPA REG. No. 999-909

EPA EST. No. 9999-PA-1

ACARAMORT is a registered product of Agricoquem International, Inc.  
© Copyright 1995, Agricoquem International, Inc.

KEEP OUT OF REACH OF CHILDREN

## **DANGER PELIGRO**

TO THE USER: 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.)

### **FIRST AID**

**If in eyes:** Immediately flush eyes with plenty of water. See a physician.

**If inhaled:** Remove person to fresh air. Apply artificial respiration if symptoms indicate. Call a physician.

**If on skin:** Wash thoroughly with soap and water. Get medical attention.

**If swallowed:** Do not induce vomiting. Drink promptly a large quantity of milk, egg whites or gelatin solution. If these are not available, drink large quantities of water. Avoid alcohol. Call a physician or Poison Control Center immediately.

### **PRECAUTIONARY STATEMENTS**

#### **HAZARDOUS TO HUMANS AND DOMESTIC ANIMALS**

Corrosive, causes eye damage. May be fatal if inhaled. Harmful if swallowed or absorbed through skin. Do not breathe vapors or spray mist. Do not get in eyes, on skin or on clothing. Wash hands and face thoroughly with soap and water after use and before eating, drinking or smoking.

#### **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 C on an EPA chemical resistance category selection chart.

**Applicators and Other Handlers Must Wear:** A long-sleeved shirt and long pants; chemical-resistant gloves such as Nitrile, Butyl, barrier laminate, neoprene rubber, polyvinyl chloride, or viton; shoes plus socks; protective eye wear; chemical-resistant headgear for overhead exposure; chemical-resistant apron when cleaning equipment, mixing or loading dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C). Applicators, if applying more than 2 pints of ACARAMORT per acre in air blast equipment to citrus, must be in an enclosed cab. 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 Standard(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.

### **USER SAFETY RECOMMENDATIONS**

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### **ENVIRONMENTAL HAZARDS**

This pesticide is toxic to fish. Do not apply directly to water or wetlands (swamps, bogs, marshes, and potholes). Drift or runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment wash water.

### **PHYSICAL OR CHEMICAL HAZARDS**

Flammable. Keep away from heat and open flame.

***This mock pesticide product label was developed for training purposes by Melanie Zavala, UC Statewide IPM Project.***

### **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), notification to workers, and restricted- entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

### **USE RESTRICTIONS**

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

Do not mix ACARAMORT with alkaline materials (such as lime, Bordeaux mixture or lime sulfur) or with materials containing a large amount of petroleum type solvents.

Do not use in spray solution above pH 10.

Do not plant any food or feed crop in rotation within 6 month after last application of propargite unless the crop is a registered use for propargite.

Cotton—Apply only before bolls open. Do not feed treated foliage or cotton trash to livestock.

### **Directions for Use**

#### **PPE for Early Entry Tasks**

Exception: After the first 48 hours or the REI, workers may enter the treated area to perform hand labor or other tasks involving contact with anything that has been treated, such as plants, soil, or water, without time limit, if they wear the early-entry personal protective equipment listed below.

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, appears below.

- coveralls
- chemical-resistant headgear
- chemical-resistant gloves, such as nitrile, butyl, barrier laminate, neoprene rubber, polyvinyl chloride or viton
- shoes plus socks
- protective eye wear

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

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.

ACARAMORT is a liquid emulsifiable concentrate for preparing sprays to control banks grass, Pacific spider, strawberry spider and two-spotted spider mites.

ACARAMORT is not systemic in action, therefore complete coverage of both upper and lower leaf surfaces and of fruit is necessary for effective control.

After three-quarters full of water, add recommended dosage (from table) of ACARAMORT to the spray tank. Fill tank, agitate and spray thoroughly to cover foliage and fruit for best results.

Crop	Mites controlled	Timing of application	Amt per acre	Ground application Gallons of solution/ acre	Aerial application Gallons of solution/ acre	Total # of sprays/ year	Earliest harvest days after application
Cotton	Strawberry spider, Pacific spider	Early	1 pint	15-30	Not recommended	3	Before bolls open
	Two-spotted mites	Mid-season to Layby	1.5-2 pints	25-40	—	3	Before bolls open
		Mid-season to Layby	2 pints	—	5-15		
		Layby	2 pints	25-50	5-15		
		Layby to boll opening	2 pints	—	5-15		

**STORAGE AND DISPOSAL**

**Do not contaminate water, food or feed by storage or disposal.**



**PESTICIDE 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, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

###

The following section describes information typically found on pesticide labels. Since labels do not follow a standardized format and are often difficult to read, it is useful to know what information you can expect to find when you read a label.

## Brand Name

The brand name is the trade name of the pesticide product. It is usually the largest and most noticeable word on the front of the pesticide label.

**Trainer Tip:** It is important handlers understand that each pesticide product is different, and they must read each label even if they have used a similar product in the past. A handler who has used the product “GetUm 7” in the past may not take the time to read the “GetUm 7 Max” label, missing the fact that a similar formulation of the “GetUm” line of products requires additional PPE and a longer REI.

## Pesticide Manufacturer

Often the manufacturer is the company that produces the pesticide.

**Trainer Tip:** The pesticide manufacturer can be a good resource for handlers to acquire specific product and handling information.

## Pesticide Type

Product labels list the type of pesticide (e.g., insecticide, fungicide, rodenticide, herbicide) and the types of pests they control on the front page.

**Trainer Tip:** You may hear people claim, “We don’t use pesticides. We just use

herbicides.” Explain that the word “pesticide” is an umbrella term that includes insecticides to control insects, herbicides to control weeds, rodenticides to control rodents, and so on.

## Active Ingredient

The active ingredient is the percentage of the ingredient in the formulation that will perform the pest control activity. For example, it is the ingredient that will repel the mosquitoes or kill the weeds.

**Trainer Tip:** It is common for a handler to believe the active ingredient is the ingredient with the highest percentage listed on the product label. This is not always the case. You can clarify by defining “active” as the ingredient that will perform the pest control “action” or “activity.”

## Other Ingredients

**Other ingredients** are additional ingredients in the container, such as water, coloring agents, or adjuvants that help the pesticide stick to the plant to more effectively control the pest.

**Trainer Tip:** At this time, the actual names of the other ingredients are not listed on the labels. These ingredients are often listed as a percentage of the mixture or simply as “other.”

## Pesticide Formulation

The pesticide formulation is a mixture of active and other ingredients.

Table 5.1: Examples of Different Types of Pesticide Formulations.

Examples of liquid formulations	Examples of dry or solid formulations	Examples of additional formulations
<ul style="list-style-type: none"><li>• emulsifiable concentrates (EC),</li><li>• flowables,</li><li>• liquid baits and gels, and</li><li>• solutions.</li></ul>	<ul style="list-style-type: none"><li>• dusts,</li><li>• wettable powders,</li><li>• pellets, and</li><li>• granules.</li></ul>	<ul style="list-style-type: none"><li>• aerosols,</li><li>• foggers,</li><li>• soil fumigants, and</li><li>• fumigants for grain bin pests or burrowing rodents.</li></ul>

**Trainer Tip:** Some labels will list the formulation type somewhere on the front

page of the label. Handlers can often gather information about the formulation by looking at the acronyms in a product's name. For example, the "EC" in the product "One 'N' Done EC" signals to the handler that it is an emulsifiable concentrate or a type of liquid formulation. The "DF" in the pesticide "FlyAway DF" indicates that it is a dry flowable product. If the formulation is not included in the product name, the handler may have to search for more information in the "Directions for Use" section.

## EPA Registration Number

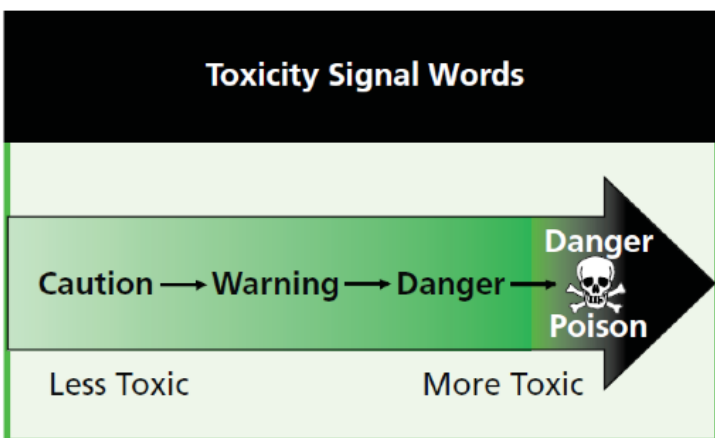
The U.S. Environmental Protection Agency (EPA) assigns a unique registration number to each pesticide product approved for use in the United States.

**Trainer Tip:** The registration number can be essential during a pesticide exposure situation. It gives medical personnel a way of identifying the product to find additional information on the health effects, ingredients, and first aid instructions.

## Toxicity Signal Word

Before a pesticide is approved for use in the U.S., the pesticide manufacturer must do a lot of research on the product, including studies on how toxic it is to humans. The results of these studies determine the signal word that will be placed on the front page of the pesticide label.

These signal words on the pesticide label reflect the relative degree of the product's acute or immediate toxicity to pesticide handlers and include "**Danger** or **Danger-Poison**," "**Warning**," and "**Caution**."



## *Danger or Danger-Poison*

Pesticides that are the most acute in toxicity have the signal word “Danger” on the label and may cause irreversible damage, such as to the skin or eyes. If the pesticide is also acutely toxic by more than one route of exposure, such as when splashed into the eyes, inhaled, swallowed, or absorbed through the skin, the product label will state “Danger-Poison,” and a skull and crossbones symbol to signify this additional hazard.

## *Warning*

Pesticides that are moderate in acute toxicity have the signal word “Warning” on the label.

## *Caution*

Pesticides that are low in acute toxicity have the signal word “Caution” on the label.

## *No Signal Word*

Some pesticides that are very low in acute toxicity may have no signal word.

**Trainer Tip:** Explain to handlers that despite the level of acute toxicity and the signal word on the label, they must be careful when working with all pesticides.

## *First Aid*

The first aid instructions for pesticide exposure are usually on the first or second page of the label. On some occasions, there are additional instructions for medical personnel included in the same section.

**Trainer Tip:** It is important that handlers read the first aid section **before** exposure occurs, so they will be prepared to respond to any pesticide-related illness or injury. First aid instructions can vary, especially for incidences of pesticide ingestion.

## *Personal Protective Equipment (PPE)*

**Personal protective equipment** is often referred to by its acronym — “PPE” — on

the pesticide label. This section will list the protective clothing or equipment that must be worn when mixing, loading, or applying the product when entering an area during the restricted entry interval, and when cleaning, repairing, or maintaining application equipment.

**Trainer Tip:** The required protective clothing and PPE can vary on the same label, depending on the handling task. For example, a handler may need to wear a chemical-resistant apron when mixing the product, but not when applying it. A handler may also notice a respirator is not required when applying the product outdoors but is required when applying the same product inside an enclosed space production area. Therefore, handlers must review the entire PPE section before using the product.

## Precautionary Statements

Precautionary statements are found throughout the pesticide label. This includes recommendations for measures handlers must take to protect themselves, other people, and the environment.

There are four types of precautionary statements:

- the prevention and minimization of exposure,
- how to clean up a pesticide spill,
- first aid response to a medical emergency, and
- proper storage and disposal.

Some examples of these statements include instructing the handler to apply the pesticide in a way that doesn't contact people, livestock, or water sources, avoiding inhalation of the product, and washing hands before eating, drinking, smoking, or using the restroom.

**Trainer Tip:** Some handlers may skim or overlook these important precautionary measures believing that the information is the same for all pesticides. Precautionary statements can vary from one product to the next and are an important part of the label.

## Environmental Hazard Statements

Some pesticides are harmful to birds or beneficial insects, such as bees; others are toxic to fish or move easily through the soil contaminating groundwater. The environmental hazards section informs the handler of potential impacts to the environment from the pesticide's use and warns of how to avoid harming certain species or polluting sensitive areas like wetlands or waterways.

**Trainer Tip:** After reading the environmental hazards statements and before applying the pesticide, handlers must survey the application area for the presence of any beneficial insects, wildlife, or sensitive areas that are listed on the label.

## Restricted Entry Interval (REI)

The restricted entry interval or "REI," for short, is the time workers must wait after an application before it is safe to enter the treated area without specific PPE and additional pesticide safety training. The REI is often included in the "Agricultural Use Requirements" section of the label, but on occasion is found in the "Directions for Use" section when the REI varies by crop or application site.

If combining two or more pesticides to make an application, the product label with the longest REI is used when posting a warning sign.

**Trainer Tip:** Employers and pesticide handlers must be aware that certain active ingredients may have special REIs designated by the California Pesticide Worker Safety Regulations. Check [the regulations](https://www.cdpr.ca.gov/docs/legbills/calcode/030303.htm#a6772) on the DPR website for more information: <https://www.cdpr.ca.gov/docs/legbills/calcode/030303.htm#a6772>.

## Directions for Use

The "Directions for Use" portion of the label provides the handler with the legal uses for a pesticide to prevent harmful effects on the environment. This may include pests the product will control, application rates, mixing instructions, and sites to which the pesticide can be applied, application equipment, and any related restrictions regarding weather conditions, seasonal use, and timing of

applications.

**Trainer Tip:** It is illegal for a handler to exceed the maximum rate and apply a pesticide to a site or crop that is not listed on the label.

While it is not unlawful, it is not advisable to apply the pesticide below the listed application rate because the product might not perform well, and the pest may develop resistance to the pesticide - a waste of the product, time, and money.

Employers and handlers should contact the pesticide manufacturer for clarification about mixing or application instructions, or with questions about available products for a particular pest or site.

## Storage and Disposal Instructions

Storage and disposal instructions are usually found at the end of the label or the "Directions for Use" statement. This statement includes information such as the temperature range for storage, warnings about storing the pesticide near fertilizers or feed, or in a container other than the original container.

**Trainer Tip:** Storage and disposal regulations may vary between states or counties. Employers should check with their local county agricultural commissioner for additional storage and disposal regulations, container recycling services, and unused pesticide collection programs.

## CHAPTER 5-2

### 5-2: Personal Protective Equipment

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#### Selecting and Inspecting Personal Protective Equipment (PPE)

After the handler has read and becomes familiar with the product label, the next step is to select the correct protective clothing and PPE. The type of PPE required depends on several factors, such as the product's toxicity, concentration, and formulation, the amount and type of exposure, and the application equipment, site, and task.



Based on data supplied by the pesticide manufacturer, the EPA develops a risk assessment and identifies protective clothing a handler or early-entry employee must wear to protect themselves from exposure.

Some pesticide labels may require handlers to wear **work clothing**, such as long-sleeved shirts, long pants, shoes, and socks. Work clothing is not considered personal protective equipment; therefore, the employee is responsible for providing and laundering their work clothing.

In California, the minimum required work clothing for handlers is:

- a long-sleeved shirt,
- long pants,
- close-toed shoes, and
- socks.



In California, the minimum required PPE for most\* handling tasks is work clothing, plus the employer is required to provide:

- protective eyewear,
- chemical-resistant gloves, and
- coveralls for products labeled "Danger" or "Warning."

**SIDEBAR:** \*See the 3CCR regulatory code reference section in the appendix for exemptions to Personal Protective Equipment. The regulatory code section outlines the unique scenarios for when the minimum PPE is not required or substituted.

Pesticide labels may list other **PPE** that the employer is required to provide, including:

- chemical-resistant apron,
- chemical-resistant footwear,
- coveralls (regardless of the signal word),

- a chemical-resistant suit,
- chemical-resistant headgear, or
- a respirator.

Handlers must read the label thoroughly to make sure they understand all of the PPE requirements and are aware of the California Pesticide Worker Safety Regulations for additional PPE, even when not required by the label. This includes knowledge of any permit conditions requiring that additional PPE is worn. A handler who merely skims the label for PPE information, or is unaware of the additional state PPE requirements may miss complying with these important details. The state requirements for additional PPE are described in the coming sections.



## PPE Definitions and Descriptions

### Chemical-Resistant PPE

Handlers may encounter the term “chemical-resistant” to describe specific PPE, such as glove, footwear, suit, or apron material. When the word “chemical-resistant” is used in conjunction with an equipment item listed on the label, this means the PPE is made of a material that does not allow a measurable amount of chemical to pass through the equipment.

PPE will break down over time, including chemical-resistant equipment, therefore always check gloves, aprons, footwear, chemical-resistant suits, and any other equipment for tears, cracks, and perforations to prevent exposure to pesticides.

### Coveralls

Even if the label does not require the use of coveralls, in California, handlers are required to wear coveralls for all pesticide products labeled with the signal word “Warning” or “Danger.”

Coveralls are loose-fitting, one- or two-piece garments that cover, at a minimum, the entire body except for the head, hands, and feet.

When the label or regulation specifies coveralls, this requires that the handler wear a cloth garment made of tightly woven fabric, such as cotton or high-density polyethylene fibers (Tyvek® brand from the manufacturer Dupont and others), but **not** work clothing.



### Chemical-Resistant Suits

Some product labels require the handler to wear a chemical-resistant suit. This requirement usually indicates that the product is very toxic.

Chemical-resistant suits made of rubber or plastic are sold as one-piece coveralls or as two-piece outfits consisting of a jacket worn on top of overalls. Chemical-resistant suits made of coated, non-woven fabric are sold as one-piece coveralls.

Note that chemical-resistant PPE does not breathe like cotton or other fabrics, trapping heat, which under certain weather conditions is a danger to the handler. The section titled, "Preventing Heat Stress When Wearing PPE" in this chapter explains the requirements necessary for heat illness prevention.

### Aprons

The label may require a chemical-resistant apron for protection during situations in which a pesticide might splash back onto the handler, such as mixing a pesticide or cleaning application equipment. The apron must be long enough to cover the front of the body from mid-chest to knees.

### Chemical-Resistant Headgear

Some product labels will require overhead protection, other labels may state chemical-resistant headgear must be worn. If chemical-resistant headgear is specified, it must either be a chemical-resistant hood or a chemical-resistant hat

with a wide brim.

If a label requires a hat for overhead protection, handlers must wear a head covering made of a non-absorbent material that is washable with soap and water at the end of a handling task. Handlers should not wear head coverings made from absorbent materials, such as baseball caps when handling pesticides.

## Protective Eyewear

Protective eyewear options include safety glasses with front, brow, and temple protection, chemical splash goggles, face shields, and full-face NIOSH-approved respirators.

To comply with the California Pesticide Worker Safety Regulations, employees must wear protective eyewear during most handling tasks even if the label does not require it.

Protective eyewear rated Z87.1 or higher (e.g., Z87+) indicates that the eyewear meets the 2010 American National Standards Institute for impact resistance and is marked by raised lettering.



People who wear reading glasses may prefer a face shield, prescription safety glasses, clip-on safety glasses, or overglasses which enable the user to clearly see while remaining protected from eye exposure. If protective eyewear tends to fog up, anti-fog lenses and coatings are available to prevent this issue.

## Chemical-Resistant Footwear

While many labels will specify shoes and socks, labels that require handlers to wear chemical-resistant footwear are referring to shoes, boots, or shoe coverings made of chemical-resistant material, such as rubber or vinyl.

## Gloves

To comply with the California Pesticide Worker Safety Regulations, employees must wear chemical-resistant gloves during most handling tasks, including when repairing application equipment and adjusting nozzles, even if not required by the label.



Chemical-resistant gloves must be made from one of the following materials: laminate, butyl, nitrile, neoprene, natural rubber, polyethylene, PVC, or Viton™. These materials must have a thickness of 14 mils except for gloves made from polyethylene and laminate.

Handlers can wear disposable gloves made of chemical-resistant materials that are less than 14 mils when performing tasks that require higher dexterity for a maximum of 15 minutes. For example, a handler making fine adjustments to a spray nozzle, or mixing pesticides from a small bottle may prefer gloves that fit tighter on their hands.

 **Glove Category Selection Key**

Label Code	Materials Required by Law	Material Code
A	1,2,3,4,5,6,7,8	1: Laminate
B	1,2	2: Butyl
C	1,2,3,4,7,8	3: Nitrile
D	1,2	4: Neoprene
E	1,3,4,8	5: Natural
F	1,2,3,8	6: Polyethylene
G	1,8	7: PVC
H	1,8	8: Viton

All but Laminate and Polyethylene must be 14 mils or thicker

**Respirator Restrictions**

N Type	NO OIL IN MIX: Dispose End of Day
R Type	OIL IN MIX: Dispose After 8 Hours Per Day
P Type	OIL IN MIX: Dispose End of Day
Organic Vapor	Dispose End of Day

Always follow label directions and permit conditions.

For more information contact  
your local Agricultural Commissioner or

 **California Department of Pesticide Regulation**  
Worker Health and Safety (916) 445-4222  
<http://www.cdpr.ca.gov>

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Regardless, the gloves that are worn must match the type listed on the label. Many labels will list the type of glove material, such as “nitrile gloves,” or state that the gloves can be any chemical-resistant or waterproof material.

Some labels will list a letter code from A to H to indicate which of the chemical resistant materials can be used for which tasks (see DPR glove category card above for clarification).

**Separable glove liners** made of a thin, lightweight fabric are permissible beneath chemical-resistant gloves as long as they are not exposed to the chemical by extending outside of the chemical-resistant gloves. If used, separable glove liners must be discarded after the workday or after handling use, whichever comes first.



Separable glove liners are not to be confused with chemical-resistant gloves that have a built-in cotton or fleece lining, which are not allowed because they could absorb pesticides and contaminate the handler.



**Handlers must not wear cotton, suede, or leather gloves when they are handling pesticides unless specifically instructed to do so by the label.** These materials absorb pesticides and will not protect handlers from pesticides.

Handlers may wear leather gloves over chemical-resistant gloves to prevent puncturing while making an application to a plant that has thorns. These leather gloves, if re-worn, may only be used over chemical-resistant gloves for this intended purpose to prevent exposure.

## Respirators

A respirator can help protect from exposure to harmful clouds of dust, pesticide droplets, or vapors. A respirator must be worn anytime the pesticide label requires it, when required by state pesticide safety regulations, or if your employers work policy requires one.

If the label indicates to “avoid breathing dust, vapor, or mist,” and this is not possible without the aid of a respirator, then a respirator must be worn. It is the responsibility of the employer to know what type of respirator is required for the specific handling task to be performed.

## Overview of Employer Responsibilities for Respirator Use

It is the employer's responsibility to make sure handlers who will use pesticides requiring respiratory protection participate in a medical evaluation, respirator fit-testing (explained later), proper use, and respirator maintenance training.

It is the respirator program administrator's responsibility (who is designated by the employer) to inform all handlers of these requirements that the employer must fulfill before working with a pesticide that requires respiratory protection.

Each of the elements of the respiratory protection program must be documented in a written respiratory protection program outlined in the following sections.

### Respiratory Protection for Handlers

If the pesticide product label, employer policy, state regulation, or county regulation, such as a **restricted material** permit, requires the handler to use a respirator, the employer must provide respirators, training, and medical evaluations at no cost to the employee which includes

- a medical evaluation, and time for the handler to complete a medical evaluation questionnaire,
- a follow-up visit with a physician, if deemed necessary by the physician after reviewing the medical evaluation questionnaire,
- all of the label- or employer-required respiratory equipment for the product(s) the handler will use,
- training on the proper use, procedure for a **user seal check**, care, and maintenance of the respiratory equipment,
- at a minimum, annual fit-testing with the respiratory equipment that the handler will use, and
- a respiratory program evaluation by the employer to ensure that the program implemented reflects workplace conditions and is effective. (See the following section, "Written Respiratory Protection Program for Handlers," for further clarification on respiratory programs and corresponding evaluations.)



The PSIS A-5 leaflet from DPR provides information on the proper use and maintenance of a respirator that may be useful for employees, including the required records and training topics in developing a respiratory protection program. The PSIS N-5 leaflet provides similar information for non-agricultural settings.

## Written Respiratory Protection Program for Handlers

In addition to providing respirators, training, and medical evaluations at no cost to the employee, the employer must establish a protocol for a written respiratory protection program that includes the following elements:

- a procedure(s) for the proper selection of respirators for use,
- train employees to ensure knowledge in the proper use of respirators, including mounting and removal and any limitations in their use and maintenance,
- the medical evaluations for those employees who are required to use respirators,
- a procedure for performing a fit-test for **tight-fitting respirators**,
- procedures for routine and emergency situations that require the use of a respirator,
- a protocol itemizing the scheduling and standard procedures for the inspection, cleaning, repair, maintenance, storage, and disposal of employee respirators,
- a protocol itemizing the procedures that ensure the proper functioning of atmosphere-supplying respirators (air quality and air quantity),
- train employees on the potential for exposure to respiratory hazards during routine and emergency situations, including immediately dangerous to life or health (IDLH) atmospheres when using certain respirators, if appropriate, and
- procedures for evaluating the effectiveness of the program on an annual basis and documentation of the evaluation.

HS-1513 is a form that DPR provides with guidelines for developing a respiratory

protection program that is available in English and Spanish. This bi-lingual form outlines all of the generic respiratory training requirements, including an example program evaluation form, and is found on the DPR respiratory compliance assistance webpage ([cdpr.ca.gov](http://cdpr.ca.gov)).

While the employer is responsible for providing safe, respiratory protection to employees, the employer must designate an individual as the **respirator program administrator**, to administer training on the fit, safety, and use of respirators, as outlined in the employer's respiratory protection program. See the definition of a respirator program administrator in the glossary for training requirements.

## Medical Evaluation

Breathing through a respirator can be hard for people with health issues, such as high blood pressure, heart disease, or lung disease, and can interfere with the safe use of a respirator. Some employees may also be unaware of an existing health condition.

During a medical evaluation for respirator use, the handler is asked to complete a confidential medical history questionnaire. According to the handler's responses to the questionnaire, a physician or medical professional may require the handler to schedule a follow-up visit or provide additional information to determine if the handler is physically able to use the type of respirator required by the product label.

Once complete, a medical reevaluation is not required every year. However, a reevaluation is required if a time limit provided by the medical professional expires, there is a change in the health status of the handler, or a new type of respirator is needed for handler use.

## Respirator Fit Test

If the physician or medical professional that evaluated the handler's medical evaluation provides clearance, the employer must ensure next that the respirator(s) that will be used fit properly. If the respirator does not fit properly, it

will not protect the user. **Fit-testing** of **tight-fitting respirators** must be performed every year.

**Fit-testing** consists of a type of **quantitative** or **qualitative fit-test**, depending on the respirator type that is performed by an individual familiar with OSHA respiratory testing guidelines. The qualitative or quantitative fit-test ensures that the design of the respirator is such that it properly seals to the user's face.



This test takes about 15 minutes to complete and is performed using the same size, make, and model of respirator that will be used by the handler on a regular basis.

## User Seal Check

A **user seal check** is a quick test that is made by the handler while putting on (or donning) the respirator before use in a pesticide application. The purpose of the user seal check is for the handler to quickly evaluate the working seal of the respirator to ensure proper seating to the face and therefore, no leakage while wearing.

If the respirator is not properly seated, the handler readjusts the fit of the respirator to the face, and performs the user seal check again, until it properly seals, to ensure safe use and wear during an application.

To clarify, a user seal check is different from and should not be confused with annual fit-testing. See the glossary definition for user seal check to learn more about the two different types of user seal checks—a positive and negative fit check.

## Respirator Use and Maintenance Training

Each medically cleared handler must receive annual training on how to properly don and perform a user seal check, how to properly store, and care for

their respirators.

Training must take place more frequently if the handler does not demonstrate proper use or maintenance of their equipment. This training is in addition to the annual handler pesticide safety training and respirator fit-testing and must be done in a language the handler understands.



Trainers who are interested in learning more about the respirator use requirements and instructions for how to administer annual respirator fit-testing can refer to the [resources](https://www.cdpr.ca.gov/docs/whs/ind_hygiene_resp_prot.htm) available on the DPR website:  
[https://www.cdpr.ca.gov/docs/whs/ind\\_hygiene\\_resp\\_prot.htm](https://www.cdpr.ca.gov/docs/whs/ind_hygiene_resp_prot.htm).

## Respirator Training Records

An employer must keep the following records and all related documents for as long as an employee(s) needs to wear a respirator and for at least three years after the employee discontinues the use of such respirator:

- a written respirator program,
- medical evaluations,
- fit-test record, and
- the respirator safety training record.

## Voluntary Respiratory Program

Employees may request of their employer to provide a respirator for voluntary use even if not required by the label, regulations, or employer policy. While not obligated to do so, an employer may provide respirators at the request of the employee, or permit employees to use their own respirators voluntarily, if supported by employer policy and procedures for respirator use, given that such use will not in itself create a hazard to the user.

If voluntary respirator use is determined as permissible, whether the employee chooses to voluntarily bring a respirator, or the employer provides the employee with a respirator, then the employer should provide the respirator users with the publication, “Information for Employees Using Respirators When Not Required By Label or Restricted Material Permit Conditions or Regulation” (see reference section in the appendix), and display this information alongside the PSIS A-8 or N-8 leaflet at a central location in the workplace.

If the employer provides a respirator that is not a **filtering facepiece**, such as an **air-purifying respirator** or **cartridge respirator**, the employer must also provide a medical evaluation, fit-testing, and training on the proper cleaning and maintenance of the respirator, including implementing the conditions of a written respiratory protection program. These measures ensure that any employee using a respirator voluntarily is physically able to use the respirator and that it is properly worn, cleaned, maintained, and stored, so that its use does not present a health hazard to the user.

For those employees whose only use of respirators involves the voluntary use of filtering facepieces (i.e., N, R, or P-95), or if the employee purchases their own respirator, then the employer is not required to provide these additional protections, such as implementing a written respiratory program.

For employees who provide respirators for their personal use, those employees must ensure to read and follow all the instructions provided by the manufacturer for wear, use, cleaning and maintenance, including the respirator’s limitations of use. See accompanying *Table 5.2 – Conditions for a Voluntary Respiratory Program* for a visual summary of the above regulations.

Please note: The employer cannot pass on the costs of the respirator, training, or medical evaluation to the employee, only if the employee prefers so, may they bring in a respirator of their choosing.

### **Table 5.2: Conditions for a Voluntary Respiratory Program.**

**Before commencing, is a respirator permissible by employer policy and will not create a hazard to the user?** If yes, then post at a central location: “Information

for Employees Using Respirators When Not Required by Label or Restricted Material Permit Conditions or Regulation.” See the table for guidance on training and additional requirements for when voluntary respirator use is permissible.

<b>Scenario</b>	<b>Medical Evaluation</b>	<b>Fit-testing</b>	<b>Training on proper maintenance and use</b>
Employer provides a filtering facepiece, such as an N-95.	No.	No.	No. Employees must read manufacturer directions on filtering facepiece required use and limitations.
Employee provides their own filtering facepiece, such as an N-95.	No.	No.	No. Employees must read manufacturer directions on filtering facepiece required use and limitations.
Employer provides employee with a cartridge respirator.	Yes.	Yes.	Yes.

### Selecting PPE to Use when Combining Pesticides

Handlers may be instructed to mix two or more products to control a pest. In this situation, the handler or the employer must compare the PPE sections of both labels and select the PPE listed that provides the most protection.

For example, if one product label requires a long-sleeved shirt and pants and the other requires a chemical-resistant suit, the handler must wear a chemical-resistant suit. If one product requires a respirator and the other does not, the handler must wear the required respirator. If different types of respirators are required, the handler employer must provide the appropriate type of respirator and cartridge to protect for both hazards.

### PPE Inspection

Once the handler has selected the PPE listed on the product label, it is the handler who often inspects the PPE before each use and cleans the items at the

end of the handling activity to make sure it is in good condition and safe to use.

However, it is the employer's responsibility to:

- provide and pay for all of the PPE listed on the label,
- make sure employees are trained on the proper use and care of PPE and follow the provided instructions,
- maintain all PPE and ensure it is inspected for cracks, tears, holes, weak spots, or damage before each day of use,
- properly discard and replace any damaged and disposable PPE,
- provide instructions to handlers on the proper way to clean, dry, and store re-usable PPE, and
- provide a place away from pesticide storage areas for handlers to put on, remove, and store PPE.

If a handler encounters any PPE that is damaged, they should inform the employer that the item is in need of replacement.

### PPE Inspection Checklist

- Inspect boots or chemical-resistant shoe coverings for holes, tears, or weak spots.
- Inspect reusable gloves for damage, such as holes, cracks, tears, areas that have become bubbled or spongy, and for any discoloration.
- Check coveralls and chemical-resistant suits for rips, tears, holes, or separation along seams and zippers.
- Make sure coveralls or chemical-resistant suits are the correct size for optimal protection and do not interfere with movement.
- Check apron material for holes or damage. Make sure apron strings are in good condition and enable you to wear the apron securely.
- Inspect protective eyewear for scratched or cracked lenses and replace if needed.

- Check elastic parts of goggles for fraying, tears, wear, or loss of elasticity and replace if worn.
- Check overhead protective headwear for cracks, holes, and worn adjustable fittings.

Face shields and protective headwear often have adjustable fittings for a secure fit and to prevent them from slipping or falling off. Inspect these fittings to make sure they are working properly.

### **SIDEBAR**

*Note: If you need to replace any items on the respirator, it is important to use only approved replacement parts for that particular brand and model of the respirator. If unapproved parts are used, the respirator will not be in compliance with the law, and the respirator may not provide the necessary protection.*

### Respirator Maintenance Inspection Checklist

- Check the elastic and adjustable straps for fraying, tears, or loss of elasticity, and replace any of these items if worn.
- Remove filters and discard them properly.
- Check filter retainers for scratches and cracks and replace if defective.
- Disassemble and inspect valve flap assemblies for wear, deformities, or punctures. Replace parts if you suspect they might leak.
- Check the threads of all valves and cartridge parts for cracks and scratches.
- Examine the facepiece for cracks, cuts, scratches, and signs of wear. Replace any defective parts.

California Pesticide Worker Safety Regulations require that the employer must clean and disinfect respirators per the manufacturer's recommendations in the following manner:

- 1) Respirators issued for the exclusive use of an employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition.



- 2) Respirators maintained for emergency use shall be cleaned and disinfected after each use.
- 3) Respirators that are collected and reissued for use of any employee shall be cleaned and disinfected before reissued.
- 4) Respirators are stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals. Respirators shall be packed or stored to prevent deformation of the facepiece and exhalation valve.

## Replacing Respirator Filters and Cartridges

Even if the respirator seals and fits well, handlers can still be exposed if the filters, canisters, or cartridges are old or damaged. Handlers must remove and replace respirator filters, cartridges, and gas- or vapor-removing canisters when any of the following situations occur:

- breathing becomes difficult,
- the filter is damaged or torn,
- the handler detects a pesticide taste, smell, or any irritation,
- if provided and when replacement is required, according to the manufacturer's recommendation or the pesticide label instructions, and
- at the end of the workday.



## Adjusting PPE

### Pant Legs and Sleeves

Handlers may ask whether they should tuck their sleeves into their gloves or pull their gloves over their sleeves when applying pesticides. This same question may come up about how to arrange their pant legs and boots.

Present the correct arrangement to mimic a ground application and an overhead pesticide application. Ask the handlers to think about these two scenarios and how they can best prevent the pesticide spray from entering and getting trapped in their boots or running down into their gloves or sleeves.

- Ground Application: Place pant legs over boots to prevent pesticides from entering the boots. Pull sleeves **over the gloves** to prevent pesticides from entering the gloves.
- Overhead Application: Place pant legs over boots to prevent pesticides from entering the boots. Tuck sleeves **into the gloves** to prevent pesticides from entering and contacting the skin.

Coveralls with elastic at the wrist and ankle can help to reduce gaps between the sleeve and glove or between the pant leg and boot.

## Preventing Heat Stress When Wearing PPE

Personal protective equipment, especially items made from non-breathable material, such as cotton or high-density polyethylene fibers (also known as Tyvek®), can increase the risk of heat stress when worn during pesticide applications and early-entry tasks.

## Steps to Reduce the Risk of Heat Stress

Employers must take measures to prevent handlers from experiencing heat stress. If the outside temperature exceeds 80° Fahrenheit during the day, or 85° Fahrenheit between the hours of sunset and sunrise, employees required to wear a chemical-resistant suit cannot handle pesticides, until temperatures have cooled to 80° Fahrenheit during the daylight hours, or 85° between sunset and sunrise.

Cooled chemical-resistant suit or engineering controls that aid in reducing the temperature to safer working conditions is permissible.

Other ways to reduce the risk of heat illness for handlers include providing plenty of cool drinking water and shade, taking rest breaks, and altering their work hours. For example, summer applications can be scheduled in the cooler hours

of the day or night and for shorter periods, especially when working with pesticides that require the most PPE.

## Medical Supervision

Agricultural pesticide handlers that handle organophosphate or carbamate pesticides may require extra medical care. It is the employer's responsibility to track how often handlers use these pesticides and the employer must arrange for extra medical care, if:

- 1) any handler uses these pesticides for more than six days in a 30-day period, and,
- 2) the label of the pesticide(s) has the word "DANGER" or "WARNING."

Handlers that need this extra medical care must get special blood tests that measure cholinesterase – an enzyme in your body that helps your nerves work properly. Organophosphates and carbamates can keep cholinesterase from working and harm your nerves. Blood tests to ensure you are not getting sick while working with these pesticides.

## CHAPTER 5-3

### 5-3: Measuring, Mixing, and Loading Pesticides

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#### The Measuring, Mixing, and Loading Site

When handlers are mixing and loading pesticides, the products are in their most concentrated form. The mixing and loading site should be in a well-ventilated area, preferably outdoors. It must be as far away as possible from areas where people eat, drink, or smoke.

Handlers must not mix pesticides within 100 feet of drains, wells, ditches, canals, ponds, or other waterways to protect water sources. Some pesticide mixing and loading sites have a sealed or portable containment pad, which prevents pesticide leaks and spills from getting into the soil.

#### Checking the Weather

Before mixing and loading a pesticide, the handler must make sure that the weather conditions will be appropriate. Mixing and applying pesticides outdoors on a windy or rainy day can be hazardous for the handler, the public, and the environment.

## Selecting PPE

After the handler has determined the weather will not create a problem, the next step is to select and put on the protective clothing or PPE listed on the pesticide label for mixing and loading the pesticide.

## Opening Pesticide Containers

After the handler has selected and put on the correct protective clothing and personal protective equipment, he or she can safely open the pesticide container.

Before opening pesticide containers, the handler must set the container down on a level surface to prevent it from tipping over and spilling once the cap is removed. The handler should place the cap tightly back onto the container when not in use to further reduce the risk of spilling the product.

When working with bagged dry pesticide products, the handler can use a sharp knife, box-cutting blade, or scissors to open the bag and clean after use with soap and water. Once used for this purpose, the cutting tools need to be labeled "only for pesticide use" to avoid exposure from cross-contamination.

Tearing open the bag can cause the product to spill on the ground or get on the handlers face or hands.



## Measuring Pesticides

Not all pesticides are measured using the same measuring utensils or devices. Liquid pesticide products are measured by volume using common liquid measuring utensils appropriately marked for "pesticide use only."



Dry pesticide products are often measured by weight requiring a scale and a receptacle for the product also marked for 'pesticide use only.' It is good practice to use one set of utensils for measuring herbicides and a separate set for measuring insecticides and fungicides to avoid cross-contamination.

When measuring out pesticides, the handler should set the pesticide measuring utensil or device on a flat and level surface below eye level. This will reduce the risk of the pesticide getting into the handler's eyes. It is important the handler concentrates, works slowly, and measures the product accurately.

If a pesticide container does tip over and the pesticide spills onto the ground, the handler must work to control, contain, and clean up the spill. However, the handler must also keep their own safety in mind before responding to a hazardous spill situation.

A spill kit should be available at the mixing and loading site and include

- chemical-resistant gloves,
- small squirt bottle to moisten dry products,
- boots,
- chemical-resistant apron,
- plastic container with a lid for collecting contaminated material,
- protective eyewear,
- respirator (if required on the label),
- absorbent material,

- shovel,
- broom,
- dustpan,
- cones or caution tape,
- heavy duty detergent,
- any other spill cleanup materials identified on the label of the spilled pesticide, and
- phone numbers for the county agricultural commissioner and emergency response agencies.

## Cleaning Up Pesticide Spills

Many pesticide labels contain instructions on how to clean up a spill. Handlers must never hose down a spill. The water from a hose could spread the pesticide around and contaminate a larger area, including water sources if the liquid runs down a drain.



In all pesticide spill situations, handlers should

- **Protect themselves** by putting on the PPE listed on the label. If the situation is too dangerous, they should call for emergency help.
- **Control the spill** by placing the container upright to prevent more pesticide from spilling or by putting a broken or leaking container into a plastic bag or another secondary container.
- **Contain the spill and the area** by using an absorbent material to keep the product from spreading. Set up cones, a rope, or caution tape, so people don't accidentally walk through the area.
- **Clean up the spill** according to label directions.

The following table contains additional instructions about spill cleanup procedures.

Table 5.3 Spill Cleanup Procedures.

Liquid pesticide spill on concrete	Liquid pesticide spill on soil	Dry pesticide spill on concrete	Pesticide spills on public roadways
<p><b>Step 1</b> Pour dry soil or an absorbent material like cat litter around the spill to prevent it from spreading.</p>	<p><b>Step 1</b> Use a shovel to remove the contaminated soil.</p>	<p><b>Step 1</b> Lightly moisten the dry product with water from a spray bottle and cover it with a plastic tarp to keep it from blowing around.</p>	<p><b>Step 1</b> If safe to do so, put cones or caution tape around the area to prevent people or cars from entering. Otherwise, stay in your vehicle, up-wind from the spill area and use your emergency flashing lights.</p>
<p><b>Step 2</b> Use a broom to sweep the absorbent material from the perimeter of the spill toward the center. Pour more absorbent material on the spill if needed to soak up all of the pesticide.</p>	<p><b>Step 2</b> Make sure to remove all of the contaminated soil, by digging at least six inches below and around the soil that appears to be contaminated.</p>	<p><b>Step 2</b> Once contained, sweep up the moistened pesticide with a broom and dustpan.</p>	<p><b>Step 2</b> Call 9-1-1 or a local hazardous material team to respond to the situation. They may need to close the road and report the spill to additional agencies.</p>
<p><b>Step 3</b> Put the spilled material and any contaminated cleanup supplies into sealable plastic containers.</p>	<p><b>Step 3</b> Place the soil in sealable plastic buckets.</p>	<p><b>Step 3</b> Place in a sealable plastic container.</p>	
<p><b>Step 4</b> Call your local county agricultural commissioner for further instructions on hazardous material disposal. You may be able to apply the material to a labeled site at the label rate.</p>	<p><b>Step 4</b> Label the buckets with information about the pesticide.</p>	<p><b>Step 4</b> Label the bag with information about the pesticide.</p>	



Liquid pesticide spill on concrete	Liquid pesticide spill on soil	Dry pesticide spill on concrete	Pesticide spills on public roadways
	<p><b>Step 5</b> Contact the County Agricultural Commissioner's Office for additional procedures in how to dispose of the hazardous material. You may be able to apply the material to a labeled site at the label rate.</p>	<p><b>Step 5</b> Contact the County Agricultural Commissioner's Office for further instructions for hazardous material disposal.</p>	

## Loading the Tank

Handlers can begin the loading process by partially filling the spray tank with water before adding the pesticide. After the water has settled, the handler can check the hoses and attachments for any tears, leaks, or weak spots.

This equipment check provides the handler with an opportunity to make repairs and adjust equipment before adding the pesticide, preventing the risk of spilling the product and contaminating the environment.

Once the handler has determined the equipment is in good condition, it is time to safely add the pesticide to the tank. The handler should work slowly to prevent the product from splashing.

## Mixing More than One Pesticide (Tank-Mixing)

Handlers may be asked to mix two or more pesticides and apply them at the same time to control a pest also known as **"tank-mixing."** For example, an employer may ask a handler to mix two herbicides that are effective in controlling more than one type of weed.

Tank-mixing can be both convenient and cost-effective, as it reduces the time and labor involved in applying multiple products. Unfortunately, tank-mixing presents a challenging task for handlers if the mixture of products is incompatible or needs constant agitation.

One method a handler can use to check if two or more products are **compatible** is by performing a "jar test." During a jar test, the handler mixes small but equal amounts of each product with the appropriate amount of water in a jar before mixing and applying to an area for treatment. Take precautions to avoid inhaling off-gasses produced by mixing incompatible pesticides while performing a jar test.

After the mixture sits for 10-15 minutes, the handler can check the mix for separation, clumping, flaking, crystallization, gel formation, or extreme heat. These conditions indicate that the products cannot be safely or effectively mixed. Handlers should talk to their employer to consider whether adding a compatibility agent to the tank can improve tank-mixing or to apply the products separately.

## Order of Mixing

First, review the product label to ensure that the mixing of two or more pesticides is not illegal or against any manufacturer recommendations for tank-mixing instructions. Begin by filling the tank halfway with water or the carrying agent. If a buffering or defoaming adjuvant is necessary, add it to the tank next before adding the product with the active ingredient.

Next comes the addition of any dry formulations, and if tank-mixing different pesticide formulations, add solutions or emulsifiable concentrates only after incorporating dry formulations. Oil formulations are always the last addition to the tank to prevent clumping and poor mixing with powder formulations. Maintain agitation while mixing and throughout the application.

Order of tank-mixing for pesticides by formulation:

- 1) water,
- 2) pH balancing (buffering) or defoaming adjuvants,
- 3) dry flowable, wettable powders, and granules come before the addition of emulsifiable concentrates, solutions, or soluble powders when tank-mixing pesticide formulations,
- 4) oils and surfactants (a type of adjuvant) are last.

## Cleaning Containers and Measuring Utensils

For all pesticide containers that are empty once the product is loaded into the tank, the handler must read and follow the manufacturer's product label instructions for proper rinsing and disposal of the container. Some empty pesticide containers must be triple-rinsed.



The following procedure serves as a guide for **triple-rinsing** plastic pesticide containers during mixing and loading:

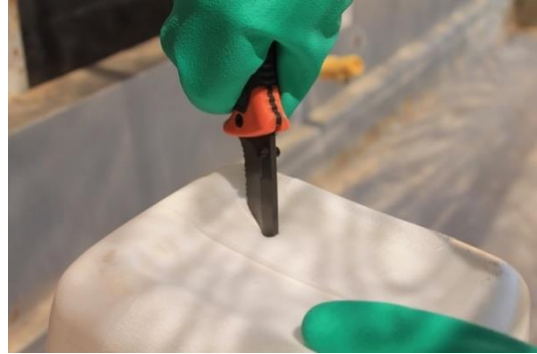
- Once the container is empty, let it drain into the spray tank for about 10 seconds.
- Add water to the empty container as recommended below.

Container Size	Amount of Water for Rinsing
Less than 1 gallon	1/4 of the container volume
1 gallon	1 quart
Less than 5 gallons	1 1/4 gallon
Greater than or equal to 5 gallons	7 1/2 - 14 gallons

- Close the container.
- Shake the container about twice per second for 30 seconds with movement across a distance of 4 to 6 inches. Or, roll the container around if it is a large container or drum.
- Make sure the contaminated rinse water (rinsate) reaches the entire interior surface of the container.
- Drain the rinsate into the spray tank for 30 seconds.
- **Repeat the above steps at least 2 additional times. Once capped, each time the container is shaken, the handler should face the opening of the**

**container left, then downward for the second rinse, and upward for the third rinse to remove all residues.**

- Remove the foil label from the cap and the label booklet.
- Puncture the plastic container to prevent reuse.
- Store emptied and rinsed containers in a locked area until collected for recycling or disposal.
- Some containers, such as pesticide bags, cannot be rinsed. Bags should be emptied as much as possible, closed, and stored together in a secured area prior to proper disposal.
- Pesticide measuring utensils, devices, and scales labeled “for pesticide use only” must also be cleaned after use and locked in the pesticide storage area, so others do not confuse or use them for any other purpose.



## The Final Step in Loading the Tank

The handler can now add more water to the mixture in the spray tank but must take precautions to avoid back siphoning the pesticide into the water source.



Back siphoning, the reversal of direction or flow of water, can occur if a handler allows the water pipe or hose to sit at or below the surface of the liquid pesticide mixture. When the handler turns off the water, it creates a vacuum, which sucks the pesticide back through the pipe or hose and into the groundwater.

A simple way to prevent back siphoning from happening is to hold the hose at least six inches above the surface when filling the tank. Some employers install back siphoning devices or check-valves onto the pumping equipment to make it easier for the handler and safer for the environment.

## CHAPTER 5-4

### 5-4: Surveying the Pesticide Application Site

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#### Surveying the Pesticide Application Site

After mixing and loading the pesticide into the tank, it is important for the handler to survey the area once again to make sure it is safe to apply the pesticide before starting the application.

#### Handlers Responsibility to Not Cause Harm

It is the handler's responsibility to protect people, animals, and property while applying pesticides. Handlers need to assess the weather conditions and surroundings before making an application to determine if the application could cause harm or damage to people or property. If an application cannot be made without the potential for harm, then it must be avoided or stopped. Once an area has been determined to be clear, the weather conditions are right, and the warning sign posting is in place, the handler can begin the pesticide application.

#### Sensitive Areas Near the Application Site

Handlers must look all around the application site for the presence of people, animals, or sensitive areas that are negatively impacted by pesticides. Sensitive areas include where people live, work, public rights of way, and protected water sources and sites where wildlife, livestock, and pets reside.

Handlers need to take extra precautions when applying pesticides near or adjacent to:

- crops or plants other than those being treated,
- surrounding homes and buildings,
- livestock areas including fields used for grazing,
- schools and daycare centers,
- parks,
- hospitals,
- forests,
- gardens and yards,
- rivers, lakes, ponds, and streams,
- wildlife and beneficial insect habitats,
- roads, and
- sidewalks, paths, or trails.

## Weather Conditions

The weather has a significant impact on pesticide applications. As displayed in the following table, extreme heat, cold, rain, and wind can negatively impact the application and the effectiveness of the pesticide on the pest. Applying pesticides during inclement weather conditions may also damage the plants or the environment.

**Table 5.4 Impacts of Applying Pesticides During Inclement Weather Conditions.**

Weather	Impact on Pesticide Application	Impact on Environment
<b>Extreme Heat</b>	When applied during extreme heat, pesticides can break down and evaporate quickly resulting in poor pest control.	Applying a pesticide during extreme heat can lead to damage from phytotoxicity to the plants. Extreme heat can evaporate or volatilize the pesticide droplets, which makes them smaller and lighter, potentially leading to drift onto other plants, people, or sensitive areas.

Weather	Impact on Pesticide Application	Impact on Environment
<b>Extreme Cold</b>	<p>If the pesticide gets too cold it could crystalize, making it difficult to mix and apply.</p> <p>If applied when it is extremely cold, the active ingredients can separate from the solvents, emulsifiers and other ingredients.</p> <p>Extreme cold may reduce the effectiveness of some pesticides.</p>	<p>Applying a pesticide when it is extremely cold may result in injury to the plant from poor performance and/or frost damage.</p> <p>Pesticide applications during extremely cold weather may lead to the pesticide not being well absorbed by the plants or soil. As a result, the pesticide can move from the site and contaminate other areas.</p>
<b>Rain</b>	<p>Rain can dilute or wash the pesticide away resulting in poor pest control.</p>	<p>Applying a pesticide when it is raining or shortly before it rains, can result in runoff or pesticide movement due to flooding. This can contaminate non-target areas, including rivers, lakes, and streams that may be near the application area.</p> <p>Pesticide applications during or shortly before a rain may result in soil and groundwater contamination if the pesticide leaches or filters down through the soil.</p>
<b>Wind and Fog</b>	<p>Wind and fog can carry the pesticide away from the application area, which can lead to uneven distribution of pesticide and poor pest control.</p>	<p>Applying a pesticide when it is windy or foggy may cause pesticides to drift onto other fields, resulting in damage to or illegal residues on crops.</p> <p>A pesticide applied when it is windy or foggy could also drift onto people, animals or sensitive areas.</p>

## Inversion Condition

An inversion condition occurs when the air closest to the ground is cooler than above, stabilizing the air. An inversion can trap the stable air containing the pesticide droplets and carry them horizontally away, for considerable distances, from the application site.

Inversion conditions can occur at any time and at any distance from the ground. However, the condition most frequently occurs at dusk when the ground temperature is cooling, and warm air begins to rise.

Field surroundings or obstructions that block prevailing winds allow inversions to form more quickly. Handlers can check for inversion layers before an application by lighting a smoke bomb and watching the way the smoke rises or settles in the air.

## Wind Speed

Wind plays an important role in the distance that pesticide vapors or dust can travel. As the distance from the sprayer to the ground increases, so does the likelihood that pesticide vapors or dust are carried by any existing wind.

Some handlers may assume that to avoid drift, pesticides can only be applied when there isn't any wind. On the contrary, applying pesticides at a time when the wind speed is between 0-3 miles per hour can also result in drift. In these conditions, the air is stable, making it hard to determine which direction the wind could blow and drift the pesticide droplets if the wind speed picks up.

The optimal wind speed for applying pesticides is between 3-7 miles per hour. This speed allows the handler to monitor the wind direction. After surveying the area for the presence of people or sensitive areas downwind of the application site, the handler can determine if they can safely apply the pesticide without creating harm to others or the environment.

Wind speeds greater than 7 miles per hour could lead to drift, and the handler should not spray in these conditions, even if instructed to do so.

## Application Equipment

Certain types of application equipment designed to create fine droplets, such as those delivered through a high-pressure sprayer, increase the potential for drift. These include

- aircraft,
- helicopters,



- mist blowers or air-blast sprayers,
- aerosols,
- high-pressure sprayers,
- high-pressure, overhead application equipment,
- power dusters, and
- fog generators.

The smaller and lighter the pesticide droplet is, the more prone it is to move away from the application site with air movement.

Pesticides have a greater potential to drift when applied through nozzles designed to deliver small droplets. These droplets are light-weight and can be carried further in the wind than medium- or coarse-sized droplets.

High-pressure sprayers are used to push pesticide droplets out at a faster rate to reach pests in the tree canopies. This pressure combined with the distance between the ground and the target site makes the droplets more susceptible to drift by wind or inversion conditions.

## **Soil Type and Groundwater**

Handlers who apply pesticides to areas where sandy soils are prevalent must take extra precautions to prevent equipment leaks or spills. Sandy soils are porous. Pesticides can filter or leach through sandy soils and contaminate groundwater. This potential for leaching is especially hazardous in areas with shallow water tables because pesticides reach the groundwater quicker.

Although a pesticide will pass through soil that contains a high amount of organic material or clay at a much slower rate than it will pass through sandy soil, it is equally important for handlers to take the same safety precautions to prevent contamination of groundwater. Pesticides have a tendency to bind to clay and organic particles and remain in the soil for a longer period of time.

Handlers can reduce the risk of contaminating the environment from pesticide use by following label instructions. Handlers must also follow California regulations, and take precautions under certain weather conditions, soil type,

pesticide formulations, and application equipment.

The following list of questions is a guide for handlers when surveying an area to determine the course(s) of action necessary to protect people and the environment from pesticides.

**Before applying pesticides, handlers should ask themselves the following questions.**

- What sensitive areas exist in, near, or adjacent to the application site?
- What are the current weather conditions?
- How might the current weather conditions impact the application or the pesticide's ability to drift and contaminate the environment?
- Should I delay the application until conditions improve?
- What type of soil exists in the area that I would like to treat?
- How can I adjust my application equipment to reduce the risk of drift?
- What can I add to the spray tank, such as a surfactant or spray retardant, to reduce the chance that the pesticide drifts offsite?
- What precautionary measures can I take to prevent contaminating people, animals, sensitive areas or the environment before making an application?

Through statewide water quality monitoring, DPR maintains a list of pesticides that are known to contaminate groundwater that are not allowed to be applied in a groundwater protection area (GWPA) without a permit from the County Agricultural Commissioner's Office. See the DPR website for the "Use Restrictions for 6800a Pesticides to Protect Groundwater."

## CHAPTER 5-5

### 5-5: Applying Pesticides Safely and Effectively for Handlers

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#### Warning Sign Posting Requirements

An application area may need posted warning signs before starting. The operator or the employer (such as, a contractor who is working on the operator's behalf) may ask handlers to assist in the posting of an application.

Regardless, it is the operator who is responsible for ensuring compliance with all requirements for warning sign posting. See also, "Employer Responsibilities for Notifying Employees of Treated Areas" in Chapter 4 from p. 43- 48 for a complete understanding of posting requirements.

Warning sign posting is required when indicated on the pesticide product label, California regulations, and for chemigation and fumigant applications. The posting of a warning sign is also necessary when applying a pesticide with an REI that is greater than 48 hours for outdoor applications or greater than 4 hours for enclosed space applications.

The warning sign posting should allow for the following written information:

- the operator name of the property,
- the field identification (if any),
- the product(s) name, including any adjuvants used in the application, and



- the date and time the restricted entry interval ends.

Fieldworkers are not permitted in the treated area while the warning signs are posted except as permitted under the early-entry restrictions.

The appearance of the sign is required to include the following:

- the skull and crossbones at the center of the sign,
- the font is legible from a distance of 25 feet to those with normal vision and contain:
  - the words “DANGER,” “PELIGRO,” “PESTICIDES,” and “PESTICIDAS” in the upper portion of the sign, and
  - the words “KEEP OUT” and “NO ENTRE” in the lower portion of the sign.

Warning signs posted for fumigation have different requirements and must include the following statements:

- the skull and crossbones at the center of the sign,
- “Danger” in English and “Peligro” in Spanish,
- “Area under fumigation,”
- “Fumigant in Use,”
- “Do not enter” in English and “No entre” in Spanish,
- the name of the fumigant,
- the date and the time of the fumigation, and
- the name, address, and telephone number of the applicator who made the fumigation.

Warning signs for chemigation applications made with products labeled with the signal word “Danger” should be octagon in shape and say in large letters “Stop” in English, and “Keep out” and “Pesticides in irrigation water” in English and “No entre” and “Pesticidas en Agua de Riego” in Spanish.

This same warning sign requirement for chemigation also applies to applications of minimal exposure pesticides, which include:

- Bromoxynil (Buctril, Bronate),
- Folpet,
- Oxydemeton-methyl (Metasystox-R), and
- Propargite (Omite, Omite CR, Comite).

These warning signs must be

- posted in outdoor or enclosed space production areas before the start of an application and remain posted, but no more than 24 hours before the application is initiated, and
- removed within at least 3 days from the end of the REI period.

The operator is responsible along with all of the other requirements for assuring

- to check the label for the REI and the posting requirements for a pesticide application, and
- that no employees other than handlers will enter, work in, or walk within a quarter-mile of an outdoor production site or enclosed production space during the application and the REI period, except for those performing early-entry tasks if permitted on the label.

## Exceptions to Posted Warning Sign Notification

Employers do not need to post a warning sign if no employee other than handlers making the application will enter or walk within a quarter-mile of the treated area from the start of the application through the end of the REI.

## Application Procedures

To ensure the product is being applied safely and accurately, handlers must stay alert during the entire application task and frequently check the area and application equipment to ensure that

- the pesticide is reaching the target site,
- the equipment is providing good coverage and even distribution,

- tank mixes are properly agitated, appear uniform, and are not separating or clumping, and
- hoses, valves, nozzles, hoppers, and other equipment parts are functioning properly.

If a handler notices a problem, such as uneven distribution of the pesticide, the handler should shut off the equipment or take off the backpack sprayer and inspect the equipment hoses, valves, nozzles, and other parts. If the problem is due to a clogged nozzle, the handler should replace or clean the clogged nozzle at the application site.

**Clogged nozzles must be cleaned with a small brush, compressed air, or soap and water.** Some handlers may try to clean nozzles with a small wire, toothpick, or by blowing through the nozzle with their mouth. None of these methods are recommended. Wires can damage nozzles made of softer materials, such as plastic or ceramic and toothpicks can break off inside the nozzle while cleaning. Finally, handlers can expose themselves to the pesticide if they attempt to blow out the clog with their mouth.

### Additional Safety Measures for Handheld or Backpack Sprayers

Handlers who apply small amounts of pesticides through a handheld or backpack sprayer may find the handling task easy to perform. However, handlers must be aware of the potential hazards when using these types of equipment and the ways that they can prevent exposure.

**Table 5.5: Ways to Prevent Pesticide Exposure when Using Backpack and Handheld Sprayers.**

Potential Exposure Hazard	Ways to Prevent Exposure
Pesticide leaks or drips out of the equipment.	Check nozzles, hoses, gaskets, and connections prior to application. Repair, replace or adjust if necessary.

Potential Exposure Hazard	Ways to Prevent Exposure
Contaminating hands, skin, or eyes when trying to adjust nozzles, hoses or other equipment parts.	Always wear gloves and protective eyewear when adjusting application equipment to avoid touching equipment with bare skin. Use the pressure release valve before attempting to repair, replace or adjust equipment to prevent pesticide from spraying into your face or eyes.
Contaminating footwear by walking through the area during the application.	Wear shin- or knee-high chemical-resistant boots or shoe coverings during the application.

**Application Exclusion Zone (AEZ)**

Besides preventing drift from an application, handlers and employers are also responsible for ensuring that no one will enter the area surrounding application equipment. Fieldworkers and those who are not trained and equipped to handle pesticides must remain a certain distance away from a pesticide application as it is made and its equipment.

This distance is dependent upon the height of the application, the size of the droplets, and is called the pesticide “application exclusion zone” or AEZ, for short. The AEZ should remain free of all persons who are not involved in making the application.

During an outdoor pesticide application, only trained and equipped handlers are allowed in the treatment area and AEZ. For an enclosed space, the AEZ is the entirety of the enclosure including any adjacent area that can receive drift from the application.

Handlers are **not** permitted to make an application while people are present. Employers are prohibited from directing their employees to enter the AEZ and must be aware of the conditions that determine the AEZ distance from the application site.



Regardless of the agricultural AEZ requirements, the employer must ensure that handlers (involved in **any** pesticide application) evaluate the equipment, surrounding areas, and weather conditions before and during an application to prevent harm or damage from drift. Handlers must avoid or stop applications if substantial drift could occur and contribute to a health hazard or damage to non-target crops, animals, public or private property.



## CHAPTER 5-6

### 5-6: Cleaning up at the End of the Pesticide Handling Task

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#### Cleaning Application Equipment

Cleaning pesticide application equipment thoroughly after use reduces pesticide residues and prevents the equipment from becoming clogged.

Handlers should do the following:

- Check the pesticide label to see if it has a separate list of PPE for cleaning application equipment. If not, they must wear the required PPE for handling the pesticide product. For protection, they could also wear a chemical resistant apron.
- Check with their employer to ask if they need to use special cleaning agents or high-water pressure.
- Clean the inside and outside of the equipment, including nozzles and hopper openings.



- Prevent all cleaning agents and rinse water (rinsate) from entering water sources.
- Collect rinsate and apply it to the application site at or below the labeled

rate if it will not harm the area or impact the application.

## Cleaning and Removing PPE After Use

Employers must inspect, clean, repair, and replace any worn or damaged protective equipment daily, and ensure that it is stored in a pesticide-free place.

When handlers finish using pesticides, employers must ensure that the handlers follow safety procedures for the proper removal and cleaning of reusable PPE to avoid potential for pesticide exposure.

During the cleaning of PPE is a good time to inspect if any of the items have been damaged during handling tasks. If so, the handlers should notify their employers to request replacement parts or new PPE for the next use.

Visit the UCIPM Youtube webpage for a step-by-step, guided video that illustrates the procedures for the proper removal and cleaning of reusable PPE once handlers finish an application: [Module 5: Removing Personal Protective Equipment Correctly](http://www.youtube.com/UCIPM) (www.youtube.com/UCIPM).

Note: It is the employer's responsibility that no uncleaned PPE leaves the establishment and taken into the employee's home. If handlers cannot return to the workplace at the end of the day, the employer must provide a sealable container for handlers to place PPE until it can be properly cleaned.

### **The following are a few general tips trainers can provide to handlers:**

- Wash gloves (and eventually boots) with soap and warm water while still worn to prevent the transfer of residues to other PPE during their removal for cleaning.
- Remove and wash protective eyewear and re-don to avoid getting pesticide residues in your eyes while cleaning and removing PPE.
- After you have removed all of your PPE, immediately wash your hands, face, and any other skin that might have been exposed to pesticides and change into clean clothes.
- Dry and store your PPE at work: Don't risk contaminating your car or home.

When storing PPE at work, store it in a place other than the pesticide storage area.

- Throw away any “disposable” PPE, such as disposable gloves, suits, or dust masks that cannot be cleaned.
- Separate your work clothes from family laundry when you get home and wash these items separately.



## CHAPTER 5-7

### 5-7: Transporting, Storing and Disposing of Pesticides and Their Containers

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#### Transporting Pesticides

Handlers may need to transport pesticides on an establishment from one location to another or from the storage area to a mixing site. When transporting pesticides, especially containers already open, there are a few things handlers can do to prevent exposure and pesticide spills.

**Table 5.6: Tips for Safely Transporting Pesticide Containers.**

ALWAYS	NEVER
Transport pesticides in the truck bed, cargo area, or on the back of the spray rig.	Carry pesticides in the passenger compartment of any vehicle.
Check the containers for leaks before loading and unloading.	Transport food, animal feed, or clothing in the back of the vehicle or cargo area with the pesticide.
Protect containers from rain and other potential weather damage.	Expose pesticide containers to weather conditions such as extreme heat or rain.
Secure or tie down all pesticide containers in the cargo area.	Place loose or unsecured containers in the back of the vehicle.
Monitor the containers at all times during transportation. Keep them in a locked area, if possible.	Leave pesticide containers unattended.

## Storing Pesticides and Containers

Pesticides should be stored in an area that is not accessible to the general public and away from areas where employees eat, drink, smoke, or take breaks.

Never store pesticides with fertilizers or flammable materials. When storing liquid pesticides in the same area as dry pesticides, store containers in a way that prevents the liquids from spilling onto and damaging the dry products.

Containers must also be clearly labeled and in good condition. California Fire Code and Health Safety Regulations require that certain quantities of stored pesticides are reported to the local fire department or first responders. Check with a local county agricultural commissioner for how to report to CalEPA or visit the [California Environmental Reporting System \(CERS\)](http://cers.calepa.ca.gov/) at <http://cers.calepa.ca.gov/>.



It is also important that the storage area:

- is locked when not in use,
- contains a sign large enough that it is visible from 25 feet away that indicates pesticides are stored inside and states:
  - DANGER
  - POISON STORAGE AREA
  - ALL UNAUTHORIZED PERSONS KEEP OUT
  - KEEP DOOR LOCKED WHEN NOT IN USE
- has good lighting and is well organized, so it is easy for employees to find the pesticides,
- is well ventilated, dry and cool (if possible);
- is checked frequently for containers that are damaged or leaking, and
- is located in an area far away from children, food, animals, and animal feed.

## Damaged Containers

The temperature inside a storage area can directly impact pesticides and their containers. If containers get too hot, they can expand, leak, and create fire hazards.

Humidity can cause dry products to clump and pesticide labels to peel. Extremely cold temperatures may cause the products to crystallize and are challenging to mix.

If a container is torn, damaged, or if the pesticide is leaking, the handler should immediately stop the leak from spreading and transfer the product into a new container and label it. The handler should then refer to and follow the disposal instructions listed on the label. If the label has been damaged, the employer or handler can contact the manufacturer for a copy of the pesticide label. Most manufacturers have digital copies of the label.

## Empty Pesticide Containers and Leftover Pesticides

Employers and handlers often have questions about what to do with leftover or unusable pesticides and empty containers. Check with pesticide dealers or your local county agricultural commissioner to ask about container recycling services and pesticide collection programs in their area.

## Service Container Labeling

A service container is any container other than the original labeled packaging that holds pesticides. Service containers must be labeled before they are transported on a public road. The label must have:

- the name of the pesticide,
- the pesticide's signal word, and
- the name and address of the person responsible for the container.

Pesticide must never be placed or kept in any container that is commonly used for food, drink, or household products.

## CHAPTER 6

# CHAPTER 6 – EFFECTIVE TRAINING TECHNIQUES

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## Presenting Effective Pesticide Safety Training

Developing and presenting pesticide safety training classes can be a challenge, especially since pesticide safety is a serious subject. It is not only important the information provided to fieldworkers and handlers is accurate, but it also must be presented in a manner that is easily understood and maintains their attention. Obtaining accurate information can be easy, but in order to make training effective and interesting, you should understand the difference between passive and interactive training techniques.

## Passive Versus Interactive Training Techniques

Passive training requires little or no active exchange between the trainer and the trainees. Lectures, reading assignments, and audio-visual presentations can all be passive techniques or tools because they don't require active participation by the trainees. It is difficult for trainers to monitor trainees' concerns or knowledge about the topic when only passive techniques are used.





Interactive training includes techniques that encourage trainees to participate in activities or discuss the topic. Training is more effective and enjoyable for the trainees when they are directly involved in the learning process. Examples of interactive training include discussion, hands-on activities, role-playing, and games.

Choose the training technique that is best suited for your training objectives, the training site, number of participants, and the time you will have allotted to conduct the training.

## Examples of Interactive Training Techniques

The following information is a description of several interactive training techniques. Advantages, limitations, and tips are included to help you decide which methods will work best for your training sites and situations. Finally, activities are included as examples of how each technique is used in pesticide safety training.

### Discussion

The easiest way to turn a lecture into an interactive training session is to combine your presentation with a discussion or a question and answer session. This allows trainees to participate in the training, and helps you monitor how well they understand the information.





## *Advantages*

- Discussion sessions allow trainees to be directly involved in the learning process.
- Trainees have the opportunity to share previous experiences and knowledge that may bring new ideas and information to the course.
- When trainees are asked questions or invited to share their ideas, they are more likely to maintain interest and pay attention to details.

## *Limitations*

- Discussion sessions can be time consuming especially if group members stray from the main topic.
- Even if encouraged to participate, some trainees may be hesitant to share their experiences or knowledge while others dominate the discussions.

## *Tips for Discussions During Training*

Some trainees may have prior pesticide safety training or experience with pesticides and will be familiar with the subject. If so, take advantage of this knowledge. Ask these trainees questions and let them provide the answers. You can follow up by asking other group members if they have additional information they would like to add. This will allow knowledgeable trainees to take part in the teaching process and will encourage others to do the same.

Ask questions that will lead trainees to the correct conclusions and encourage everyone in the group to participate. Create questions that encourage discussion instead of a simple “yes” or “no” response. Questions that encourage discussion begin with words such as “who,” “what,” “how,” “which,” or “why.” For example, the question, “What are some of the ways that people can come into contact with pesticides or pesticide residues,” prompts trainees to list different areas around their workplace or home where they might encounter pesticides.

Allow trainees a moment to think and respond to your questions before providing the correct answer. If someone provides an incorrect answer, politely correct the misinformation.

Reinforce key points by repeating some of the concepts that were discussed in the session. Writing these points on flip-chart paper or a dry-erase board might encourage others to add their ideas to the list and helps to keep the discussion on track. This list can also assist with summarizing the training topic at the end of a session.

<b>Topic Ideas for Discussion Sessions</b>
<ol style="list-style-type: none"><li><b>1. Routes of Entry</b></li><li><b>2. Steps to Prevent Pesticide Exposure at the Worksite</b></li><li><b>3. Preventing Pesticide Exposure at Home</b></li><li><b>4. Routine and Emergency Decontamination</b></li><li><b>5. The Role Weather Plays on Pesticide Applications</b></li><li><b>6. Risks to the Environment</b></li><li><b>7. Pesticides Used at Work</b></li><li><b>8. Pesticide Formulations</b></li></ol>

## Sharing Personal Experiences

When focusing on a specific aspect of pesticide safety, you can take advantage of trainee knowledge and experiences. Sometimes sharing a personal experience drives a point home better than simply explaining the steps to take or warning trainees about the consequences of a particular action.

### *Advantages*

- Recounting personal experiences tends to be interesting for everyone.
- Storytelling emphasizes the importance and reality of the issue when



trainees hear stories from their peers.

- One person's experience may cause other people to recall similar experiences, which can stimulate more discussion.

### *Limitations*

- This technique can be time consuming if several people want to share their experiences, one person has an exceptionally long story to tell, or the stories lead to discussion on other issues.
- Trainees may be hesitant to share a story, especially if their employer is present.

### *Tips for Using a Personal Experience During Training*

Present the point you want to cover, and then ask if anyone in the training is familiar with a situation that relates to the topic. If someone has had a similar experience, ask the person if they would like to tell the group about the situation and its outcome. Prepare your own story or a one that you have heard as a backup in case no one has a personal experience to share.

Make sure this activity relates to the points you are trying to cover. If the trainees begin to stray from the point, assure them their stories are interesting, but it is important to keep the discussion focused on the topic.

Don't let too many people tell their stories at the same time. Have the group listen to one story and then lead discussion related to it before going on to the next story. Always thank people for sharing their experiences with the group.

#### **Topic Ideas for Sharing Stories or Personal Experiences**

- 1. Pesticide Exposure Situations**
- 2. First Aid for Pesticide Illnesses and Injuries**
- 3. Environmental Hazards**
- 4. Pesticide Spill Clean-up Procedures**
- 5. Cleaning Clogged Nozzles**
- 6. Pesticide Application Equipment Safety Measures**

## Images

A good way to get trainees to analyze a situation or resolve a problem is by showing images in combination with the discussion technique. You can find photos and drawings that relate to pesticide safety or exposure situations by searching for images on the internet, in agricultural magazines, general safety publications, and DPR-approved training materials.

### *Advantages*

- This technique allows trainees to visualize a situation.
- It is an effective way to introduce a topic before analyzing or discussing it.

### *Limitations*

- Locating appropriate photos or drawings may be difficult and time consuming.
- Poor picture choices may be offensive to the trainees or may cause them to draw the wrong conclusions about the situation.

### *Tips for Using Images During Training*

Select images related to the work of the trainees. For example, if you will be training at a fruit or vegetable farm, choose pictures of people working in row crops or orchards. If you will be training at a golf course, nursery or forest, choose images that more closely depict those areas.

Make sure the images are big enough for everyone to see them, and do not stand between the trainees and the picture. If you will be training a large group, photocopy or tape the images onto card stock and ask volunteers to hold up the images and walk around the room to show each person individually. If you have access to electricity, a laptop, and projector, you can also project larger images onto a screen or light-colored wall.

Finally, allow trainees enough time to think about the situation depicted in the image before asking them to analyze and discuss it.

## Topic Ideas when Using Images

1. Situations that Could Result in Pesticide Exposure
2. First Aid for Pesticide Illnesses and Injuries
3. Routes of Entry
4. Environmental Hazards
5. Parts of the Pesticide Label
6. Pesticide Spill Clean-up Procedures

## Audiovisual Tools - Videos/DVDs, and Digital Presentations

Many instructors like to use videos or DVDs and digital slides (i.e., PowerPoint®) to combine visual and discussion techniques.



### *Advantages*

- Videos/DVDs and digital presentations allow trainees to see and hear the information presented.
- A digital presentation can be designed to serve as your presentation outline, which can make it easier for you to stay on track.
- A video can help instructors cover several important points in a short amount of time.
- Videos/DVDs and digital presentations can be used very effectively as interactive training tools when combined with other training methods and activities.

### *Limitations*

If used in a passive manner, audiovisual presentations limit trainees' chances of taking an active role in the learning process.

When an instructor shows an audiovisual presentation without interruption, trainees are unlikely to retain all of the information.

There may be little opportunity to clarify the information or answer trainees' questions during the presentation. By the time the presentation has ended, and the instructor invites the trainees to comment and ask questions, they may have forgotten questions they had while watching the video.

### *Tips for Using Audiovisual Tools During Training*

Resist the temptation to let the video or digital program do the training. These audiovisual tools can be more effective when combined with interactive teaching methods.

Interrupt the presentation and lead a discussion following each section. This will allow you to gauge the understanding of the information being presented, or to get trainee feedback on the key points. Trainees are more likely to stay alert during an audiovisual presentation if they are called upon to comment or ask questions about the information that they have just viewed. This also allows trainees to discuss issues that are still fresh in their minds, or share their own experiences related to the topic.

There are many reasons to review your video or digital presentation before training. Use that time to decide where you will pause the program to initiate discussion and to make sure the information is accurate. Since laws and regulations can change, make sure the information in the audiovisual presentation is accurate. Also, many pesticide-related videos contain information about federal regulations, but you will also have to provide trainees with information on California or local county requirements.

You may occasionally find something in a video that you believe is misleading, incorrect, or inappropriate for your area. At the end of the section, you can use these inconsistencies to generate discussion. Make sure trainees understand which information is correct and which is incorrect.

### Topic Ideas when Using Audiovisual Tools

1. **Parts of the Pesticide Label**
2. **Selecting PPE**
3. **Triple-Rinsing Pesticide Containers**
4. **Cleaning up Pesticide Spills**
5. **Application Procedures**
6. **Cleaning up at the End of the Work Shift**
7. **How to Protect Family Members from Pesticide Exposure**

### Case Studies

Another interactive training tool is the case study. A case study involves a story and a series of questions to help identify or solve a problem. You can write a fictitious story or base a story on a real experience. Questions follow the story to help trainees think about the situation and lead them to the right conclusions.

### Advantages

- A case study helps trainees identify and solve problems through discussion and participant feedback.
- Case studies can be easy to create and can be used to make several points with one story.

### Limitations

- It may be time consuming to create a case study that addresses all of the points you want to cover.
- It can be challenging to develop appropriate questions that lead trainees to the right conclusions.
- You may need to make sure the trainees do not misinterpret or stray from the main points of the story.

### Tips for Using a Case Study During Training

Begin with a clear idea of what you want to communicate before writing or

selecting a story. Write a story or select a scenario from a newspaper article or regulatory agency case that could actually happen to the people you are training. Give your characters names to help trainees identify with them.

When creating questions to follow the story, make sure they lead trainees toward the right conclusions and discussion rather than a simple “yes” or “no” answer. This will allow trainees to fully analyze and solve the problem.

<b>Topic Ideas for Case Studies</b>
<b>1. Employers' Responsibilities</b>
<b>2. Employee Rights</b>
<b>3. Responding to Pesticide Illnesses and Injuries</b>
<b>4. Heat-Related Illness</b>
<b>5. Restricted Entry Intervals</b>
<b>6. Failing to Follow Pesticide Label Instructions</b>

## Role Play

Role play involves a situation trainee act out to address a particular issue or topic. Role plays can be created to examine several issues or can be used as a hands-on activity for practicing important skills, such as first aid.

### *Advantages*

- Role play encourages interactive involvement in the training process.
- By acting out roles, trainees may become aware of their own attitudes and concerns and may remember more details about the topic than they would if they were listening to a lecture or reading the information in a booklet.

### *Limitations*

- A role play takes time and may require the use of props.
- A role play may be ineffective if trainees are uncomfortable acting in front of a group.



## *Tips for Using a Role Play During Training*

Keep the scenarios simple by limiting the number of characters, props, and messages.

Provide “actors” with thorough descriptions or pictures of the scenes they will present to the group and encourage actors to respond as if they were in a real situation.

Leave time for discussion following each scenario. Make sure you know the points you want to address for each scene so you can clarify or correct any misinformation at the end of the activity.

<b>Topic Ideas for Role Plays</b>
<ol style="list-style-type: none"><li><b>1. Recognizing Pesticide Exposure Symptoms</b></li><li><b>2. First Aid for Pesticide Exposure</b></li><li><b>3. Spill Clean-up</b></li><li><b>4. Employers’ Responsibilities</b></li><li><b>5. Employee Rights</b></li><li><b>6. Heat-Related Illness</b></li><li><b>7. Attitudes about the Importance of Pesticide Safety</b></li></ol>

## *Hands-on Activities*

Hands-on activities provide trainees with the opportunity to develop, practice, or master a skill.

### *Advantages*

- Hands-on training can be designed to enable a group of trainees with diverse educational backgrounds, languages, and literacy skills to participate on the same level.
- When trainees practice skills they are likely to remember the information or



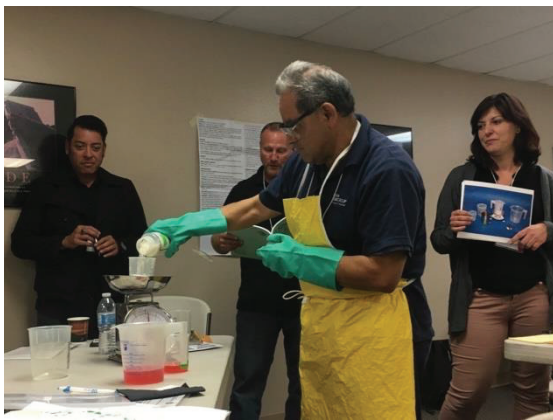
skills involved in the activity.

- You will be able to gauge the trainees' knowledge before training and their comprehension of information during training.
- Hands-on activities keep trainees engaged and awake during training.

### *Limitations*

- Hands-on training activities can be time consuming.
- They may also require additional props and materials.
- You must monitor the activity to make sure it is demonstrated correctly.
- Trainees may be unsure and need guidance.

### *Tips for Using Hands-on Activities During Training*



Practice the techniques you will teach prior to training to make sure that you know how to demonstrate them and that the props work correctly.

Make sure everyone can see and hear what is happening and has an opportunity to participate. Find a place reasonably quiet and free from distractions.

It is also very important trainees learn the correct skill or response. Pause periodically to ask for comments, questions, or critiques.

### Topic Ideas for Hands-on Activities

1. **Selecting PPE Listed on the Label**
2. **Cleaning Up a Pesticide Spill**
3. **Inspecting Equipment Prior to Use**
4. **Mixing and Loading Pesticides into a Tank**
5. **Responding to Pesticide Exposure**
6. **Finding Information on Pesticide Labels and Safety Data Sheets (SDS)**
7. **Triple-Rinsing Pesticide Containers**

### Fluorescent Tracer Powder or Lotion

A popular pesticide safety training tool is the fluorescent tracer, a non-toxic substance available as a powder or lotion. The fluorescent tracer is not visible in normal lighting, but glows brightly under a black light.

#### *Advantages*

- This is a great visual training tool that shows immediate effects.
- It is portable and economical.

#### *Limitations*

- In order for the tool to be effective, you must have access to an area that can get dark enough to see the fluorescent tracer under a black light.
- You will have to provide trainees a place to wash the tracer off after the activity.
- You may also have to clean tables, equipment, or other items used during the activity.

#### *Tips for Using Fluorescent Tracer During Training*

Before including a fluorescent tracer activity, make sure you have access to an area dark enough to show the tracer under a black light.

Explain that the substance is not toxic and is only being used to simulate a pesticide during the training.

### Topic Ideas when Using Fluorescent Tracer

- 1. Importance of Washing Hands Before Eating, Drinking, Smoking or Using the Restroom**
- 2. Pesticide Residue Transfer to Items Such as Cellphones, Keys, and Boots**
- 3. The Importance of Proper Cleaning, Use, and Removal of PPE**
- 4. Pesticide Residues on Produce**
- 5. The Importance of PPE for Mechanics Who Repair or Clean Pesticide Application Equipment**
- 6. Pesticide Residue Transfer from One Person's Hands to Other People or Surfaces**
- 7. Pesticide Drift**

Make sure everyone can either participate or see what is happening during the activity by inviting them to the front of the class when you are shining the black light on the individual, props, or surfaces.

### Games and Quiz Shows

When you are training people who have attended pesticide information courses, or who believe they already know enough about the subject, it may be challenging to keep their attention. Games can turn what seems like a dull session into an interesting and enjoyable training experience. Games and quiz shows can also be used at the end of a training session to see if trainees have retained the information you presented.

### *Advantages*

- Games can be an enjoyable way to cover a topic because they are interactive and can generate enthusiasm.
- Participants may pay attention because they want to “win.”
- A game gives the trainee a chance to show what they've learned while

trainers gauge whether they have achieved their training objectives.

### *Limitations*

- Designing a game may require a lot of preparation time and materials.
- Playing a game during a workshop can be time consuming.
- The enthusiasm a game generates can be disruptive in certain training locations and may require you to keep the situation under control.

### *Tips for Using Games and Quiz Shows as a Training Technique*

Set aside time to prepare and play the game. Games are more effective if you wait until the end of a training session to play them. This will allow you to be a little more flexible with your time and will also help you determine if trainees have learned what you taught them in previous sessions.

When playing a question-and-answer game, make sure your questions help the participants retain or repeat the information you want them to learn. Providing prizes, such as candy, hats, or gift certificates, to trainees who answer questions correctly may provide them an extra incentive to concentrate and participate in the activity.

#### **Ideas for Game and Quiz Show Categories**

- 1. Care and Maintenance of PPE**
- 2. Pesticide Exposure Scenarios**
- 3. Environmental Hazards**
- 4. Parts of the Pesticide Label**
- 5. Responding to Pesticide Emergencies**
- 6. Laws and Regulations**
- 7. First Aid for Pesticide Exposure**
- 8. Transporting, Storing and Disposing of Pesticides and Their Containers**

## CHAPTER 7

### CHAPTER 7 – SAMPLE PESTICIDE SAFETY TRAINING ACTIVITIES

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#### Sample Training Activities

This chapter contains 15 sample training activities trainers can use during a

pesticide safety training class.

Each activity includes the training theme, content objective, type of training techniques, the intended audience (fieldworkers, handlers, or both), a list of materials and props, and the activity instructions. Many of the activities have been adapted to the situations and challenges that fieldworkers and handlers may face when working with pesticides.

## Activity 1: Pesticide and Pesticide Residues at Work



**Content Objective:** Trainees will become familiar with many of the areas and surfaces that might contain pesticides or pesticide residues at work.

**Training Technique:** Workplace tour

**Intended Audience:** Fieldworkers and pesticide handlers

**Time:** 10-20 minutes

**Materials and Props:**

- pre-selected areas or items that might contain pesticides or pesticide residues

**Examples:**

- storage areas, mixing and loading sites, fields, enclosed space production areas,
- protective clothing, personal protective equipment (PPE), or pesticide application equipment.

**Instructions:**

- Pre-select areas you can visit in the amount of time you have available during training. This will be easy if you are training at your own worksite. If not, ask someone to help you find some interesting locations at the training site where pesticides are used or stored.
- At the beginning of this activity, explain to the trainees they will tour several areas at the worksite. During the tour they will talk about where they might find pesticides or pesticide residues on certain items or in different areas of the establishment.

## Activity 2: Pesticides and Pesticide Residues at the Worksite and Home

**Content Objective:** Trainees will gain a better understanding of how they could become exposed to pesticides or pesticide residues at home and in their worksite, which can increase their knowledge of ways to minimize the risk of pesticide exposure.

**Training Technique:** Discussion

**Intended Audience:** Fieldworkers and pesticide handlers

**Time:** 5-10 minutes

**Materials and Props:**

- prepared questions,
- flipchart paper, easel and thick markers, or
- dry erase board and dry erase markers.

**Instructions:**

- Draw two columns on flipchart paper or a dry erase board.
- Title one column, "Worksite," and another column, "Home."



- Ask trainees to think about their worksites and the areas around their homes.
- After they have had a moment to think about the areas, ask them the questions listed below.
- Write trainees' answers on the flipchart or dry erase board.
- Discuss important issues or areas of concern as they are presented.

**Question #1:** How could a person come into contact with pesticides or pesticide residues at work?

**Possible Answers:**

- A fieldworker could be exposed to pesticides if entering an area that is still under a restricted entry interval.
- A pesticide handler could be exposed to pesticides if they fail to wear the proper protective clothing or PPE.
- People could become exposed to pesticides if they are working near an application site and a pesticide drifts onto them.
- Sometimes pesticides are applied through an irrigation system. If a person decides to rinse off their hands in the water from a sprinkler, they could become exposed to pesticides.
- A person who packs produce in the field can get exposed if the chlorine solution used to rinse the produce splashes in their eyes.

**Question #2:** What are some of the ways a person could come into contact with pesticides at home?

**Possible Answers:**

- A child could get into pesticides or pesticide containers that are not stored in a secured location.
- Exposure could occur if pesticide contaminated work clothes, hats, shoes, or boots are left out or mixed in with the family's wash.
- Families that live near or on the edge of a treated area, may be exposed through pesticide spray drift.
- A person could accidentally ingest pesticides that someone has illegally

stored in a food or beverage container or uses an empty pesticide container to store other liquids.

- Children often play with their parents' keys and cellphones. If these items were exposed to pesticides at work, they could come into contact with pesticide residues that might still be on these items.

### Activity 3: Preventing Pesticide Exposure for Fieldworkers and Pesticide Handlers

**Content Objective:** Trainees will learn how to prevent three possible pesticide exposure scenarios and similar situations that might occur at the worksite.

**Training Technique:** Question and answer activity with drawings of potential pesticide exposure scenarios.

**Intended Audience:** Fieldworkers, Pesticide Handlers

**Time:** 5-10 minutes

#### Materials and Props:

- drawings of hazardous situations
- prepared questions for each drawing

#### Instructions:

- Display or present pictures to trainees that illustrate fieldworkers and pesticide handlers in potentially dangerous situations.
- Ask trainees questions about the pictures and discuss how pesticide exposure can occur in each situation.
- Ask trainees to explain what they can do in the workplace and home to prevent similar situations.

#### Illustration A

Present "Illustration A" to the trainees and ask the following questions.

**Question #1:** What are the fieldworkers and/or handlers doing in this picture?



**Possible Answers:**

- They are taking a lunch or coffee break inside a greenhouse.
- The fieldworker is also smoking a cigarette in an area where there might be pesticide residue.

**Question #2** – What are the potential health hazards for the fieldworkers and/or handlers?

**Possible Answers:**

- The person in the drawing could inhale pesticides through the cigarette or contaminate the cigarette with contaminated hands.
- One person has a sandwich in their hand and the other is sharing a beverage. If there are pesticide residues on their hands or if the air is contaminated from a pesticide application, the residues could transfer to the food and drink and ingested.

**Question #3** – What must employees do before they eat, drink, smoke, or use the restroom?

**Possible Answers:**

- They must wash their hands with soap and water.
- They also need to find a pesticide free area to take their meal and cigarette breaks.

**Question #4** - What items must the employer provide to employees so they can wash and dry their hands and where must these items be located?

**Possible Answers:**

- The employer needs to provide soap, towels and sufficient water for each employee at the beginning of their work shift.
- The employer needs to provide these decontamination supplies no more than a quarter of a mile from where employees are working.

**Illustration B**

Show the trainees “Illustration B” and ask the following questions.

**Question #1** - What is happening in this picture?

**Possible Answers:**

- Someone took their work boots into the house.
- The dog is chewing on one work boot and the baby is almost touching the other work boot.

**Question #2** - Could the baby and the dog get exposed to pesticides in this situation? If yes, how?

**Possible Answers:**

- Yes, both the baby and the dog can get exposed to pesticides through their mouth or skin.
- Children are more sensitive to pesticides because they are small, and their bodies are still developing.
- The baby has a lot of bare skin in this picture, plus babies often put their hands in their mouths.

**Question #3** - What must employees do to prevent this type of situation?

**Possible Answers:**

- Employees can prevent this from happening by removing their boots before going inside.
- Employees can put their boots and other work clothing outside or in an area that is not accessible to children.
- They can prevent this situation by removing their work clothes and work boots when they get home, showering immediately, and changing into clean clothes. They should also make sure that their work clothes are stored and washed separately from the other family laundry.
- Children like to play with their parents' cell phones and keys. Employees returning home from work should store these items out of the reach of children just in case the phones or keys have pesticide residues or other contaminants on them.

**Illustration C**

Show the trainees "Illustration C" and ask the following questions.

**Question #1** - What is happening in this picture?

**Possible Answers:**

- The fieldworker is drinking water from an irrigation ditch.
- The fieldworker is filling up their water bottle with canal water.

**Question #2** - Why is this a hazardous situation?

**Possible Answers:**

- Sometimes pesticides are applied through an irrigation system. This process is called chemigation. Pesticides and other chemicals can also drift or run off into a canal or ditch water. The fieldworker in this picture may be drinking and touching contaminated water.
- If pesticides were applied through the irrigation system before that day, residues could still be present in the water.
- Nobody should drink irrigation water. It can contain other contaminants and bacteria.

**Question #3** - How might pesticides or pesticide residues enter this person's body?

**Possible Answers:**

- They could get pesticides on their skin when touching the water.
- They could swallow pesticide residues when drinking the water.
- They could get pesticides in their eyes if touching their eyes with contaminated hands.

**Question #4** - Who is responsible for providing clean water for fieldworkers?

**Possible Answers:**

- The employer is responsible for providing clean water for all fieldworkers.
- The employer needs to provide water, soap, and single-use towels and these must be located no more than a quarter of a mile from the area where fieldworkers are working.

## Activity 4: Recognizing and Preventing Exposure for Pesticide Handlers

**Content Objective:** Trainees will learn to recognize situations that could lead to pesticide exposure and how to prevent these situations from happening at work.

**Training Technique:** Question and answer with photos of potential exposure scenarios.

**Intended Audience:** Pesticide handlers

**Time:** 10-15 minutes

**Materials and Props:**

- 3-4 photos or drawings of situations that could lead to pesticide exposure



**Instructions:**

- Before training, select photos showing situations that might lead to pesticide exposure. Print the photos or put them in a digital slide so the trainees can see them clearly.
- Use the photos to lead a discussion on how to prevent pesticide exposure at work. The following are four staged photos with associated activity ideas. You can also find or stage your own photos for this activity.

### Photo A

**Question:** What is happening in this picture?

**Answer:** The handler took off their respirator to take a break at the application site.

**Question:** How could this person become exposed?

**Answer:** They could inhale pesticides from the contaminated air.

**Question:** How can handlers prevent this exposure situation?

**Answer:** Pesticide handlers must not alter PPE in any way. Handlers taking rest breaks should plan to take them away from areas with pesticides or their residues.

## **Photo B**

**Question:** What is happening in this picture?

**Answer:** The handler is trying to adjust a spray nozzle.

**Question:** How could this person become contaminated?

**Answer:** This person could get pesticides on their hands adjusting a spray nozzle while not wearing gloves. The sprayer could be pressurized and spray pesticides in their eyes or onto their face.

**Question:** How can they prevent exposure?

**Answer:** Handlers should wear gloves whenever adjusting spray nozzles.

## **Photo C**

**Question:** What is happening in this picture?

**Answer:** The pesticide handlers are sitting at a picnic table.

They still have their PPE on, and their spray equipment is next to them. There are drink cups on the table near them, as well.

**Question:** How could pesticides enter the employees' body?

**Answer:** They could inhale pesticide residues from the air since the top of the sprayer is off. They could get pesticides on their skin or clothes from residues on the table or bench. If they don't wash their hands, they could ingest residues from contaminated food when they pick it up to eat it.

**Question:** How can they prevent exposure?

**Answer:** They should wash their hands before they eat, drink, smoke, use a cell phone, or go to the restroom. They shouldn't have PPE or application equipment near areas where people eat or store food.

## **Photo D**

**Question:** What is happening in this picture?

**Answer:** A person is cleaning up a spilled pesticide from a public parking lot.

**Question:** How could he get exposed?

**Answer:** He is not wearing PPE, such as gloves or a respirator, so he could inhale the pesticide or get in on his skin.

**Question:** How can this person prevent exposure?

**Answer:** Wear the label-required PPE for decontamination procedures, and make sure the area is secure, so other people, pets, or wildlife do not come in contact with the spilled pesticide.

## Activity 5: Routes of Pesticide Exposure

**Content Objective:** Trainees will be able to list the four routes through which pesticides can enter the body and understand how exposure can occur.

**Training Technique:** Sharing stories or personal experiences

**Intended Audience:** Fieldworkers and pesticide handlers

**Time:** 10-15 minutes

**Materials and Props:**

- at least one story about a pesticide exposure case as backup.



**Instructions:**

Begin this activity by asking the trainees:

- “What are the four routes of entry?” “How could pesticides get into your body?”
- Give trainees time to think and respond to the question. Most will come up with at least two of the four routes of exposure.
- The correct answer should include the following: Pesticides can enter through your skin, eyes, nose (or inhalation), and through your mouth if you swallow a pesticide.

Ask trainees if they or someone they know has been exposed to pesticides and if they would please share the story with the class. They can share a story about



something that happened at work, at home, or a story they heard in the news.

Have a story ready just in case the trainees are not able to think of a story or are too embarrassed to share a story with the rest of the class.

If you don't have a story of your own, search the internet for a story that was in the newspaper. You can also ask someone from the Department of Pesticide Regulation or your local county agricultural commissioner to give you an example of an actual pesticide illness case and the details of what occurred.

The California Department of Pesticide Regulation has a Pesticide Illness Surveillance Program (PISP), which is a database of the reported number of pesticide illness and injury cases in the state and can be sorted by the pesticide's active ingredient involved in the incident. The [PISP data](https://www.cdpr.ca.gov/docs/whs/pisp.htm) are available online and may be a resource for this activity (<https://www.cdpr.ca.gov/docs/whs/pisp.htm>).

## Activity 6: Routine Decontamination After Working with Pesticides

**Content Objective:** Trainees will understand the importance of washing their hands with soap and water after working with pesticides.

**Training Technique:** Role play and demonstration with fluorescent tracer

**Intended Audience:** Fieldworkers and pesticide handlers

**Time:** 10-15 minutes

### Materials and Props:

- Glo Germ® kit that includes Glo Germ® powder or lotion and a black light, and
- a room that gets dark enough or has a light switch so trainees can see the powder or gel under the black light.

### Instructions:

- Before the activity (and when no one is watching), put Glo Germ® powder on your



hands. Try to put just enough powder on your hands so it can transfer from your hand to other people or objects, but not enough for trainees to notice you have something on your hands.

- This is a good activity to start after a break so that you have time to prepare.
- When trainees return, your hands will be “contaminated” with the powder.
- If you have an opportunity, shake a trainee's hand, hand out paperwork, or ask if you can borrow a person's pen or booklet for a moment.
- Continue training through the next topic. If you ask volunteers to write their ideas on a flipchart or dry erase board, make sure you touch the pen or marker that they will use first before you hand it to them.
- After about 5-10 minutes, tell trainees that during the break “you helped to clean up a pesticide spill and forgot to wash your hands afterwards.”
- Tell trainees you may have accidentally contaminated them with “pesticide residue” and other objects in the room.
- Now turn off the room's light and shine the fluorescent light on your hands. Tell them that what you actually have on your hands is called Glo Germ®. It is not toxic but is used to show people how easily pesticides can transfer from one place or person to another.
- Shine the fluorescent light around the room and show trainees all of the items that you contaminated because you didn't wash your hands after you touched “pesticide.”
- Tell trainees that this activity demonstrates the importance of washing their hands after using pesticides or working in treated fields and before eating, drinking, smoking, chewing gum, or using the restroom.
- If you are training pesticide handlers, tell them it is important to wash their hands with soap and water after they touch pesticide containers, application equipment, tractors, and personal protective equipment.
- This activity was adapted from the “Fluorescent Tracer Manual: An



Educational Tool for Pesticide Safety Training Educators. Pacific Northwest Agricultural Safety and Health Center (PNASH).” Additional training ideas can be found in their [training booklet](#):

[https://deohs.washington.edu/pnash/fluorescent\\_tracer/#manual](https://deohs.washington.edu/pnash/fluorescent_tracer/#manual).

- The Glo Germ® kit can be ordered at [glogerm.com](http://glogerm.com).

## Activity 7: Symptoms of Pesticide Exposures

**Content Objective:** Trainees will be able to list symptoms that might occur immediately after someone is exposed to pesticides and give examples of health effects that could result from long-term exposure to pesticides.

**Training Technique:** Question and answer session

**Intended Audience:** Fieldworkers and pesticide handlers

**Time:** 5-10 minutes

### Materials and Props:

- flipchart paper, pens and an easel, or
- dry erase board, eraser and dry erase pens.

### Instructions:

- Tell trainees you are going to talk about symptoms that might occur if a person is exposed to pesticides.
- Ask everyone to give you an example of symptoms a person might experience immediately after being exposed to pesticides. Most trainees' answers will include headache, upset stomach, dizziness, or a rash.
- If trainees have a hard time thinking of possible symptoms prompt them with some of the following questions:
  - “What might happen if you splash a pesticide in your eye?”
  - “How might you feel if you swallowed a pesticide or entered an area that someone had recently sprayed with pesticides?”
  - “What types of symptoms could you have if you spilled a pesticide on your hand?”
- Now ask them to give you examples of long-term health effects that might

be linked to pesticide exposure. This is a more difficult question, so you may want to wait 10 seconds for a response. If trainees haven't answered, explain that doctors and scientists who study pesticides have discovered that some have been associated with cancer, fertility problems, congenital disorders ("birth defects"), Parkinson's disease, and chemical sensitivity.

- Explain that not everyone will get sick or have symptoms if they are exposed to pesticides. It depends on the pesticide involved, the toxicity and amount of the product, the way a person was exposed to it, and how often. Each person is also different, and some people may be more sensitive to pesticides than others depending on their age and other circumstances. Some people develop an allergic reaction to pesticides over time. Because there are many factors, it is important that people who use pesticides take safety measure seriously to reduce risk of exposure.

## Activity 8: Employees' Rights in Cases of Pesticide Exposure

**Content Objective:** Trainees will have a better understanding of the pesticide application-specific information that is available to them at the worksite, and what they should do if they suspect they have been exposed to pesticides.

**Training Technique:** Case study

**Intended Audience:** Fieldworkers and pesticide handlers

**Time:** 10-15 minutes

### Materials and Props:

- A story about a pesticide exposure situation (a real story or one you created), and
- At least 5 questions following the story so trainees can discuss their rights to receive medical care if they are exposed to pesticides at work.

### Instructions:

Read the following story to the trainees and tell them something similar could

happen at a nursery on a busy day. After reading the story, ask them the questions. If they can't come up with the right answers, tell them the correct response.

### **Rash and a Rush**

A fieldworker was working her normal shift watering and removing dead leaves off of plants at a nursery. It was a very hot and humid day. Her hands were so sweaty that her work gloves kept slipping off. She decided to take off her gloves and continue working. After a few minutes she noticed she was getting a rash on her wrists and forearms. She tried to rinse them in cool water, but they were still bothering her. Her arms seemed to burn more because she was sweating. She told her supervisor she needed to take a break to go home and get some allergy medicine or cream for the rash she got after touching the plants.

Unfortunately, her supervisor just got a call that a truck full of plants was going to arrive in five minutes, and he needed her to stay to help unload the plants. He told her that after she was finished unloading the truck, she could go home and take the rest of the day off.

#### **Question 1:**

What should the worker in this story have done if she thought she was exposed to pesticides at work?

**Answer:** She should notify her supervisor immediately so that he can find out the name of the pesticide that may have caused her symptoms and take her to get medical help.

#### **Question 2:**

How can workers find out about pesticide applications at work?

**Answer:** The employer must keep a list of recent pesticide applications at a central location that is accessible to all employees during their normal work hours.

#### **Question 3:**

How can workers know if plants in an enclosed space, such as a greenhouse, have been sprayed with pesticides?

**Answer:** Before each shift, workers can check the recent pesticide application records for locations of pesticide applications at the worksite.

**Question 4:**

What should the supervisor have done in this situation?

**Answer:** When the fieldworker told her supervisor that she was exposed to pesticides, the supervisor should have helped to decontaminate her skin and had someone transport her to a doctor.

The supervisor must provide a copy of the SDS to the medical provider directly or through the worker.

**Question 5:**

What are the fieldworker's rights if she thought she was exposed to pesticides at work?

**Answer:** Even though this is a difficult situation for the supervisor because of the timeliness of the plant delivery, the worker's health and safety is important. Employees have the right to receive medical attention and transportation to a nearby medical facility for workplace illnesses and injuries. She must never have been instructed to drive herself home for medicine or rest if she was feeling ill.

## Activity 9: First Aid for Pesticide Exposure

**Content Objective:** Trainees will learn the steps to properly respond to pesticide exposure by following first aid instructions listed on pesticide labels.

**Training Technique:** Role play, hands-on activity

**Intended Audience:** Pesticide handlers

**Time:** 20-25 minutes

**Materials and Props:**

- illustrations of pesticide exposure scenes (samples in Activity 4), and



- one pesticide label or safety data sheet (SDS) per exposure scene.

**Instructions:**

- Explain that you are going to review the proper way to respond to a pesticide exposure situation, followed by a role play activity that will allow trainees to practice following pesticide label first aid instructions from the label or SDS.
- Ask trainees the following questions.

**Question:** How can you help a handler who gets pesticide in their eyes?

**Answer:** Hold their eyes open and rinse with a soft, steady stream of clean water. Rinse their eyes for 15 minutes, if possible. **Do not use eye drops.** Get medical attention.

**Question:** How can you help someone who has pesticide on their skin?

**Answer:** Remove contaminated clothing and wash the skin with plenty of water and soap. If symptoms develop, get medical attention.

**Question:** What is the first thing you should do to properly assist someone who has swallowed a pesticide?

**Answer:** Read the label or SDS directions to determine if vomiting should be induced or if drinking water, milk, or another substance is recommended. Some labels or SDSs may recommend administering activated charcoal because the pesticides will bind to the charcoal. Never induce vomiting or give liquids to an unconscious person. Some pesticides are corrosive and may cause internal damage by vomiting. Many others contain petroleum distillates, which may get into the lungs and cause serious damage if the victim vomits. If neither the label nor SDS is available, call 9-1-1 or Poison Control for guidance.

In all cases of swallowed pesticides, get medical help immediately. Do not spend time provoking vomiting or administering treatments unless there is no medical facility close by.

**Question:** What is the first step you should take if you are responding to someone who has inhaled pesticide vapors?

**Answer:** If a person is overcome by pesticide vapors in an enclosed area, open

doors and turn on ventilation to the area, if possible. Put on an appropriate respirator before entering then move the injured person to an open area for fresh air. Next, help to restore breathing if needed and only if you are trained in first aid, CPR, and have no risk of becoming contaminated in the process. Get the victim medical help immediately.

- Set up five or six stations around the room for the role play activity.
- Each station should have a photo or drawing of a pesticide exposure scene and a pesticide label or SDS. Sample photos have been included in Activity 4, but you may take photos of situations that better represent the worksite or your area.
- Ask trainees to form small groups (one group for each station).
- After they have formed their groups, ask each group to go to one of the stations.
- Explain that each station will have a picture of a pesticide exposure scene and a pesticide product label or SDS. One person will play the role of the victim as shown in the picture. The others will respond to the emergency and attempt to help the victim by following the first aid instructions on the pesticide label or SDS.
- Each group will spend about five minutes at each station and will rotate clockwise to the next station. When they reach a new station, they should change roles so that everyone has an opportunity to play the role of a victim and a responder.
- Instruct trainees to look at the pictures and read the first aid information on the pesticide label or SDS to help them decide how to correctly respond to each scenario.
- After they have had an opportunity to rotate through at least three different stations ask the following questions:

**Questions:**

- Were any of these situations difficult to respond to? If so, why?
- Were you able to find the first aid information easily on the pesticide label or the SDS?



- Which pesticide labels or SDSs were most difficult to follow?
- Why is it important that pesticide handlers read and understand the label before they begin to work with a pesticide?
- How might these situations be difficult for people who are not familiar with pesticide labels and SDSs?
- How would these situations be even more difficult for people who have difficulties reading labels and SDSs, which are often only available in English?

## Activity 10: Pesticide Toxicity: LD50

**Content Objective:** Trainees will have a better understanding of the different toxicity levels of the pesticides they use at work and how those levels are determined through **toxicity testing**.

**Training Technique:** Role play

**Intended Audience:** Pesticide handlers

**Time:** 10-15 minutes

### Materials and Props:

- individually wrapped candy
- rodent or animal miniatures

### Instructions:

- Explain to the trainees that pesticides are divided into four toxicity levels. Each level is represented by a signal word: **Danger**, **Warning** and **Caution**.

*The most toxic pesticides will have the word “**Danger**” or “**Danger-Poison**” on the label.*

*The pesticides in the second toxicity category will have the word “**Warning**” on their labels.*

*Pesticides in the third category will have the word “**Caution**” on their labels.*

*The fourth toxicity category may also carry the word “**Caution**” on the label, but a signal word is not required.*

- Tell the trainees that this will be a very simple demonstration to show them how pesticide toxicity levels are determined.
- Demonstrate to the room the seven animal miniatures that will be used in the activity. Either the trainer or one person can play the role of a pesticide manufacturer while the miniatures will pretend to be the laboratory animals in the experiment.
- Explain that the pesticide manufacturer has a great new product they would like to register, but first, they have to run several tests on the pesticide. One test determines the toxicity level of the product.
- The toxicity level is tested using **LD<sub>50</sub>**, which stands for Lethal Dose = 50%. The LD<sub>50</sub> is the amount of pesticide that it would take to kill half (or 50%) of the laboratory animals in the study. This is complicated, but the activity will simplify the concept.
- Give the bag of candy to the trainee who volunteered to be the pesticide manufacturer.
- Tell the manufacturer that each piece of candy is one **dose** of pesticide and that he or she needs to find out how many doses it will take to kill half of the lab animals.
- Ask the manufacturer to give each lab animal miniature a piece of candy.
- The “lab animals” eat their first “dose of pesticide” at the same time.
- Ask, “Did any of the animals die from that first dose?”
- Knock over one animal to signify one death. Ask the audience, “If one of the six lab animals die, is that half of the original population?” It is not, since one is not half of six.
- Tell the manufacturer that it is time to give the second dose. The manufacturer must give each of the remaining five lab animals a piece of candy, which is another dose of pesticide.
- Ask, “Did any die from that first dose?” At this point, knock over two more miniatures to pretend as if they “died” from the second dose.
- Ask the audience, “Now we have three dead lab animals out of the

original six. Is that half of the original population?" The answer is yes. Therefore, that amount is the LD<sub>50</sub>.

- In summary, a pesticide with a low LD<sub>50</sub> is more toxic than one with a high LD<sub>50</sub> because it takes only a small amount to kill half of the test animals. A pesticide with a very low LD<sub>50</sub> would have the signal word "Danger" on the label, followed by "Warning," which is moderately toxic, and then "Caution," a slightly toxic pesticide.

## Activity 11: Selecting Personal Protective Equipment (PPE)

**Content Objective:** Trainees will be able to select the correct personal protective equipment listed on a pesticide label for the task they will perform.

**Training Technique:** Small group, hands-on activity

**Intended Audience:**  
Pesticide handlers

**Time:** 20 minutes

**Materials and Props:**

- Two or three different pesticide labels—you can find copies of labels for training purposes at: <https://home.agrian.com> or [cdms.net/Label-Database](http://cdms.net/Label-Database).
- Various types of PPE listed on the pesticide labels that you have pre-selected for this activity.

**Instructions:**

- Divide the class into three groups and provide each group with a different pesticide label, flipchart paper, and pens.
- Instruct them to each take a role for this activity. Each group will need a



person to read the PPE section of their label aloud, another person will write the PPE items on the flipchart paper, and the third person will select and dress up in the PPE listed on their label. The fourth person will present their findings to the rest of the class while referring to the list they created on the flipchart paper and their model “pesticide handler.”

- Ask trainees to locate the PPE section of their labels and decide what PPE is required to be worn when handling the pesticide.
- If they find that the label contains different PPE for different tasks (e.g., overhead spraying, cleaning equipment, etc.) ask them to select one and specify the task when they present it to the class.
- Place PPE items on a table, so they are easily accessible for the trainees.
- Instruct the groups to look through the PPE and to select those items that are listed on their pesticide label and add any additional PPE that may be required by California regulations.
- One person should put on the PPE or set it aside to hold up during the presentation.
- At the end of this activity, have the trainees present what they selected based on the label instructions for their chosen pesticide handling task and California regulations.
- Have the correct answers in case the trainees do not select the correct PPE.

## Activity 12: Factors that Could Contribute to Surface Water and Groundwater Contamination

**Content Objective:** Trainees will become aware of ways water sources (such as lakes or streams) can become contaminated.

**Training Technique:** Hands-on demonstration

**Intended Audience:** Pesticide handlers

**Time:** 15-20 minutes

**Materials and Props:**

- 6 plastic disposable transparent cups

- a jug or bottle of water
- food coloring (at least 3 colors)
- 5 volunteers

**Instructions:**

- Ask five people to volunteer to participate in the activity.
- Ask the volunteers to stand side-by-side in front of the class so that the other trainees can see them.
- Provide each volunteer with a plastic cup.
- Explain to the volunteers that they will assume a new identity and a job that may require them to use a pesticide. You may give them ideas such as a store owner, a gardener, or someone who works in a laboratory.
- After they have had a moment to choose their “new identity,” ask the first participant to tell the class who they are, and why they use a pesticide.

**For example:**

*“I am a homeowner and I use pesticides on the weeds in my yard.”*

- After the first volunteer has presented their situation, put one drop of food coloring, and about a 1/2 cup of water into their glass to represent the chemical they are using.

- Ask the next volunteer to share a different scenario. **For example:**

*“I own a restaurant and I use pesticides to kill the cockroaches in the kitchen.”*

- Add water and a different color to the second volunteer's cup to represent the pesticide that they use.
- Continue this process until each volunteer has had a chance to present a scenario.
- Now introduce yourself.

*“I am the river.” (You may make it more personal by naming a local river).*

- Add a little water to your plastic cup. Walk up to the first person and ask, *“How could your pesticide get into the river?”*

- The participant might answer,
  - “I poured my leftover pesticide down the drain” or,
  - “I sprayed pesticides outside on a windy day.”
- After each volunteer presents a way they could contaminate the river, ask them to pour a little bit of the liquid from their cup into your cup.
- Continue until each volunteer has poured a bit of the liquid from their cup into your cup.
- At the end of the activity, the water in the cup representing the river should be very brown. Hold the cup of water up so everyone can see it.
- Ask the trainees if they would like to drink the water, fish in it, or swim in it.
- Explain this activity is a bit exaggerated, but it demonstrates how different situations could lead to water contamination.

It is important that everyone (in addition to people who work in agricultural production) thinks about their actions when handling various types of pesticides, chemicals, or hazardous substances. We all have a role in protecting our environment.

Surface water, such as irrigation canals, rivers, streams, lakes, and groundwater are sensitive to pesticide contamination. Drift from nearby pesticide applications and runoff from rain or irrigation can carry pesticides into surface water. Rain and irrigation water can also carry pesticides down to groundwater. This creates a serious problem because of our need for water for irrigation, drinking, and human recreation. Effects on aquatic life and other animals can also impact the entire ecosystem.

### Activity 13: Cleaning up Pesticide Spills

**Content Objective:** Trainees will learn the proper way to clean up small pesticide spills to prevent environmental contamination.

**Training Technique:** Discussion and hands-on practice

**Intended Audience:** Pesticide handlers

**Time:** 20 minutes

**Materials and Props:**

- water to simulate pesticides
- kitty litter or soil
- small hand broom
- dustpan
- concrete surface
- buckets to hold hazardous waste
- caution tape
- volunteers

**Instructions:**

- Begin this activity by assessing trainees' knowledge by asking if they have ever had experience cleaning up a pesticide spill.
- Ask trainees why it would be important to clean up a pesticide spill quickly and correctly. Follow this with a discussion of the importance of cleaning up pesticide spills immediately and effectively as a way to protect the environment, groundwater, soil, people, etc.
- Explain they will now have an opportunity to practice or observe how to properly clean up a liquid pesticide spill on concrete. They will also discuss how to correctly clean up other types of spills such as a powdered pesticide spill on concrete and a liquid spill on soil.
- If weather and location permit, do this activity outdoors on a flat surface, as it might be messy.
- Begin the activity by pouring water on the concrete. This will represent a liquid pesticide spill on a concrete surface.
- Ask for three volunteers. One will isolate the area. Another volunteer will explain the steps to clean up the spill. The third volunteer will follow the clean-up instructions provided by the second volunteer. If no one in the group is comfortable providing instructions, you can provide the instructions as the second volunteer carries out the actions.
- Tell the volunteers they may use the materials that have been provided to clean up the spill. They will have a roll of caution tape, an absorbent

material (such as, non-clumping kitty litter, soil, or sawdust), a small hand broom and dust pan to brush up the spill, and buckets in which to place the material once they have cleaned it up.

- Ask one volunteer to unroll the caution tape around the hazardous area to prevent others from getting too close to the spill.
- Ask another volunteer (or you) to explain the steps to clean up the spill as volunteer #3 follows those instructions. Encourage the other trainees to watch to make sure that the volunteers are properly responding to the situation. The correct steps to take when cleaning up a liquid spill are to put on the PPE listed on the pesticide label. Starting at the edges of the spill and working inward, cover the spill with something absorbent, such as kitty litter or soil. Sweep this into sealable plastic bags or buckets. If the pesticide is highly toxic or if the spill is large, a professional spill team should be called to do the cleanup. The bag or bucket must be labeled with all of the information pertaining to the spill, such as the name of the owner or company, a contact person and their phone number, the name of pesticide, date, etc.
- Continue the activity by leading the following discussion on how to properly respond to other spill situations.

**Question:** What is the proper way to clean up a powdered pesticide that has spilled onto concrete?

**Answer:** First, lightly wet the powdered material, or cover it with a tarp to prevent it from blowing away. Continue with the above steps that were listed for cleaning up a liquid spill on concrete.

**Question:** What is the proper way to clean up a liquid spill on soil?

**Answer:** Dig out the spilled pesticide with a shovel and place the contaminated material in a bucket or bag. Make sure you have removed all of the pesticide in the soil by digging out the area six inches deeper and wider than the area that is wet. The bag or bucket must be labeled with all of the information pertaining to the spill, such as the name of the owner or company, contact person and phone number, name of pesticide, date, etc.

**Question:** How should you respond to any type of pesticide spill on a public roadway or public area?



**Answer:** Isolate the area of the spill and call the appropriate local hazardous material response team—this may be “HazMat” or the local fire department.

**Question:** Once the hazardous material has been placed in a bucket or plastic bag and properly labeled, where should this hazardous waste be disposed?

**Answer:** Call the County Agricultural Commissioner’s Office for instructions and phone numbers. The local regulatory agency may have specific programs to assist with this type of situation. Employers should have emergency procedures and phone numbers in place in case of such an incident.

**Question:** How can pesticide handlers reduce the chance of spilling pesticides?

**Answer:** Follow safe practices and concentrate on their actions when working with pesticides. Employers must provide pesticide handlers with yearly training, so they know how to properly mix, load, and apply pesticides, and how to correctly respond to emergency situations, such as spills.

## Activity 14: Pesticide Drift

**Content Objective:** Trainees will gain an understanding of how pesticides can drift onto non-target areas, and ways to prevent drift when they work with pesticides.

**Training Technique:**

- Question and answer session with discussion
- Hands-on demonstration of how pesticide drift could occur



**Intended Audience:** Pesticide handlers

**Time:** 20 minutes

**Materials and Props:**

- electric fan
- extension cord
- new backpack sprayer (never contained pesticides)
- water (poured into backpack sprayer)

- water-sensitive paper
- plant (a house plant would be sufficient)
- prepared questions and possible answers
- 1 volunteer

**Instructions:**

- Introduce this topic by talking about various factors that contribute to environmental contamination and asking the following questions.

**Question:** What are some of the ways in which pesticides can leave an application site?

**Possible Answers:** Pesticides might leach through the soil, evaporate, or run off if it rains shortly after an application. People might pick fruit that has pesticide residue on it. If someone drives a tractor through a field, pesticide residues might stick to the wheels. A pesticide might drift onto other areas if it is applied on a windy day.

**Question:** What percentage of a pesticide could potentially leave the application site during or following an application?

**Possible Answers:** Trainees will guess various percentages of pesticide that might leave the site if some of the above situations occur.

**Actual Answer:** In good conditions, nearly all of the pesticide stays on the application site. However, in poor conditions or if the application is not managed well, it has been estimated that as much as 55% of the applied pesticide can potentially leave the application site due to several factors, such as those already mentioned.

- Tell the trainees that the example of applying pesticides during a windy day is a very important concern and one that you will focus on next. Continue to build on their knowledge of the topic by asking if anyone wants to share a story about a pesticide drift situation, such as when a pesticide drifted from an application site and contaminated the environment, other crops, homes, or people. Note: Prepare a story that you can share just in case the trainees don't know of a particular drift situation.

- Explain that the next activity will demonstrate how pesticides can drift from an area if applied on a windy day.
- This activity should be performed outdoors in an area where there is no wind or one that is blocked from wind by a wall or barrier.
- Begin by asking the trainees to think about the areas where they will apply pesticides. What are their concerns in those areas? Are there water sources, wildlife, or beneficial insects they want to protect from pesticide spray drift?
- Explain that the activity is designed to help them understand some of the factors that cause pesticides to drift away from the target area, the effects of drift, and how it can be prevented.
- Take the group outside to the area where the demonstration will occur.
- Set up the activity area with an unused backpack sprayer filled with water, an electric fan plugged into an electrical outlet, and a plant.
- Ask for a volunteer to play the role of a negligent or improperly trained pesticide applicator. The volunteer will put the backpack sprayer on and will prepare to apply “pesticides” (water in the sprayer to simulate a pesticide) to the plant.
- Ask other trainees to form a half-circle facing the pesticide applicator. Provide each person with a piece of water-sensitive paper and ask them to hold the yellow side out, so it is facing the pesticide applicator. Explain to the class that the paper is currently yellow but will turn blue if it gets wet.
- Ask the volunteer handler to spray the plant. After a few seconds, ask the other trainees to check to see if their water-sensitive paper has changed color. Ideally, without wind present, the papers should still be yellow, indicating that the pesticide has not drifted from the target site (the plant).
- Now, turn on the fan and tell the trainees that the handler did not pay attention to the weather patterns and decided to apply pesticides on a windy day. Ask the volunteer handler to spray the plant (the fan should be placed behind the participant so that it is blowing the pesticide toward the plant.)

- Ask the trainees to check their water sensitive paper to see if it has changed color. Because of the presence of wind created by the fan, some papers should now have blue spots, indicating that the pesticide has drifted off the target site and has contaminated other areas. Note to trainer: Oils from fingertips can mark the water sensitive paper.
- Ask the trainees to list some ways to prevent pesticide drift.

**Possible Answers:**

- Use the correct nozzle size for the pesticide you are applying. For example, a very small nozzle would create tiny spray droplets that are lighter in weight and would easily be transported by air currents.
- Concentrate on the pressure of your sprayer and follow the manufacturer's instructions. An extremely high-pressure application could cause the spray droplets to drift from the target site.
- Adjuvants can be added to the tank. Some adjuvants help to prevent drift by making the spray droplets larger, weighing the pesticide down, or causing the pesticide to stick to the plant.
- Most importantly, pay attention to weather conditions when you are applying pesticides.

### Activity 15: Anonymous Questions (The Snowball Fight)

**Content Objective:** Trainees will have an opportunity to have their questions or concerns about pesticide exposure and safety heard and answered anonymously.

**Training Technique:** Small group question and answer activity

**Intended Audience:** Fieldworkers and pesticide handlers

**Time:** 15-20 minutes

**Materials and Props:**

- several pieces of blank paper
- pencils or pens

## Instructions:

Fieldworkers and pesticide handlers often have questions they are hesitant to ask during training. They may fear everyone else will know the answer, or perhaps their mind had wandered when the information was covered. There are other instances that may include a workplace situation that needs to be discussed but people would like to remain anonymous when they ask about the situation.

- Divide the group into small groups of 3-4 people.
- Provide each group with a blank piece of paper and a pencil or pen.
- Ask each group to write down one question they have about pesticide safety. It can be something they didn't understand during the presentation or a unique situation that occurred at the worksite they want clarified.
- Instruct them to write one question only. They don't have to write the answer to the question.
- When everyone is ready, ask one person from each group to volunteer to the front with the piece of paper.
- Have the volunteers at the front of the room stand fairly far apart but facing each other.
- Ask the entire group, "What happens in the mountains in the wintertime?"  
*Hopefully someone will eventually say, "It snows."*
- Ask the group, "What do you like to do in the snow?"  
*Eventually someone will say, "Have a snowball fight", which is the answer you will need for this activity.*
- Instruct the volunteers to crumple up the paper to create a "snowball."
- Give them 15 seconds to have snowball fight with their papers.
- When the 15 seconds is up, have each person pick up the snowball closest to them or in their hand, open it up and read the question aloud.
- The entire group can try to answer the question and if they need a little more clarification or correction, you can provide it.

The benefit of this activity is the questions are anonymous. Everyone has a chance to participate in writing and answering a question (sharing their expertise) and each group gets their question answered.

Once you are familiar with the California Pesticide Worker Safety Regulations, training topics, and the different ways that you can present such information, you can prepare for your training class. Training preparation can be time consuming, but the training class is likely to be more effective and successful if you are better prepared.

## Gathering Information

### Current California Regulation

It is important to stay current with the California pesticide regulations as they can change. You can do this by reviewing new or revised training materials, attending industry and association meetings, searching DPR's website for updates to regulations and current pesticide worker safety information: [https://www.cdpr.ca.gov/docs/legbills/calcode/chapter\\_.htm](https://www.cdpr.ca.gov/docs/legbills/calcode/chapter_.htm).

### Local Regulations

Federal pesticide laws are the minimum national guidelines that everyone must follow. California has stricter rules, guidelines, and laws governing pesticide use and safety and has incorporated these minimum requirements into state regulations.

Before training, contact DPR, the County Agricultural Commissioner's Office, or visit their websites to become familiar with additional information you may need to include when training.

## Labor

Groups of employees can vary greatly and may consist of people from diverse ethnic, linguistic, cultural backgrounds, and educational levels. If you would like to gather information on the characteristics of the local workforce, then contact local service agencies that assist agricultural entities, such as county agricultural commissioners, migrant health clinics and education programs, job training

programs and employment agencies, farmworker organizations, and agricultural associations.

## Type of Training Needed

If an employer needs assistance in deciding which employees need to attend pesticide safety training and the type of training (i.e., training for fieldworkers or handlers), you can help them by asking a series of questions about the tasks or activities each person will perform.

**Table 7.1: Type of Pesticide Safety Training Required by Activity.**

See the complete definition for a “**treated field or area**” in the glossary before

Activity	Condition	Type of Training
<b>Harvests, thins, or prunes as part of a labor contracting crew</b>	The employee works in a treated field or area after the REI has expired.	Fieldworker
	The employee works in a treated field or area while the REI is in effect.	Early-entry employee
	The employee does not work in a treated field or area at any time (this scenario is common for commodities that do not require hand labor).	No pesticide worker safety training required
<b>Controls weeds</b>	The employee weeds by hand or with a tool in a treated field or area.	Fieldworker
	The employee uses an herbicide to control weeds in an agricultural production area.	Pesticide handler
	The employee uses an herbicide to control weeds in a non-crop area or right of way, such as on a park or sidewalk.	Pesticide handler
<b>Helps with the harvest as a volunteer or gleaner</b>	The volunteer or gleaner works on an agricultural establishment but receives no financial compensation.	No pesticide worker safety training required. Fieldworker training is encouraged.

Activity	Condition	Type of Training
<b>Packs produce</b>	The employee harvests and packs produce in a treated area such as a field or orchard.	Fieldworker
	The employee packs produce while working inside a packing shed or other type of building.	No pesticide worker safety training required
<b>Controls rodents, such as gophers, voles, and rats</b>	The employee uses pesticides to control rodents in the agricultural production area.	Pesticide handler
	The employee uses pesticides to control rodents in a non-agricultural area.	Pesticide handler
	The employee uses traps or non-chemical means to control rodents in a treated area.	Fieldworker
<b>Works on a project as an agricultural research student</b>	The student receives compensation in the form of a stipend, salary or wage, or credit hour to collect samples, monitor plant health, or harvest plants.	Fieldworker
	The student receives compensation in the form of a stipend, salary or wage, or credit hour to handle pesticides.	Pesticide handler
	The student is a volunteer and does not receive monetary or non-monetary compensation in the form of a stipend, salary or wage, or credit hour to handle pesticides or perform fieldworker tasks.	No pesticide worker safety training required. Fieldworker or handler training, whichever is most appropriate, is encouraged.
<b>Performs hand labor tasks following a fumigation</b>	The employee performs any task following a fumigation, such as turning over soil, removing tarp, or irrigating.	Pesticide handler
<b>Works for a nursery located inside a government/public park or botanical garden</b>	The employee works in a treated area caring for and cultivating plants.	Fieldworker
	The employee is handling pesticides or moving pesticide containers to the storage room.	Pesticide handler



Activity	Condition	Type of Training
<b>Works as a salesperson at a retail nursery or greenhouse where pesticides with the “Agricultural Use Requirements” statement on the label.</b>	<p>The salesperson occasionally touches the leaves or growing compound of a plant or surface that had a pesticide applied directly onto it and where a restricted-entry interval (REI) has been in effect in the previous 30 days.</p> <p>The salesperson will only work the cash register and has no potential of coming into contact with a treated area, plant or surface.</p>	<p>Fieldworker</p> <p>No pesticide worker safety training required</p>
<b>Handles pesticides at a golf course</b>	<p>The handler works for a golf course that applies pesticides to an area, such as the greens and other sites, or where replacement sod is cultivated for the golf course.</p> <p>The handler works for a golf course that purchases replacement sod and other plants from a separate company.</p> <p>The handler is also a certified applicator, as is often the case for golf course superintendents.</p>	<p>Pesticide Handler</p> <p>Pesticide Handler</p> <p>No pesticide worker safety training required</p>
<b>Irrigates</b>	<p>The irrigator does not participate in any of the below activities and won't be in the area during an application or REI.</p> <p>The employee works in a treated field or area before the REI expires.</p> <p>The irrigator works with equipment used for chemigation (the application of pesticides through an irrigation system).</p> <p>The irrigator assists the pesticide handler when it is time to “water-in” the pesticide as part of the application process prescribed by the pesticide label.</p> <p>The irrigator is occasionally asked to use an herbicide to “clean up” the irrigation ditches (non-crop areas).</p>	<p>Fieldworker</p> <p>Early-entry employee</p> <p>Pesticide handler</p> <p>Pesticide handler</p> <p>Pesticide handler</p>

Activity	Condition	Type of Training
<b>Repairs or cleans farm equipment</b>	<p>The mechanic repairs or cleans equipment that are used in pesticide applications, such as tractors or all-terrain vehicles that contain pesticide residues.</p> <p>The mechanic does not come into contact with pesticides or pesticide residues at any time.</p>	<p>Pesticide Handler</p> <p>No pesticide worker safety training required</p>
<b>Works as a truck driver or hauler</b>	<p>The employee drives a tractor and equipment into a treated area that is not currently under an REI to assist with the harvest and transfer of the crop.</p> <p>The employee drives a truck into an agricultural area to pick up harvested crops.</p> <p>The person is a delivery truck driver (i.e., UPS or FedEx) who drives closely past a treated area to arrive at the main office.</p>	<p>Fieldworker</p> <p>No pesticide worker safety training required</p> <p>No pesticide worker safety training required</p>
<b>Receives deliveries of pesticides</b>	<p>The employee handles open containers at any time.</p> <p>The employee puts opened and unopened pesticide containers in the storage area and may come into direct contact with pesticide residues on open containers, shelves, and other surfaces.</p> <p>An employee who delivers pesticides from one field site to another through transport on the back of a truck.</p> <p>The employee works in an office and will only receive the delivery and paperwork.</p>	<p>Pesticide Handler</p> <p>Pesticide Handler</p> <p>Pesticide Handler</p> <p>No pesticide worker safety training required</p>
<b>Works at an organic farm where pesticide products are used.</b>	<p>The employee performs agricultural worker tasks in a "treated area."</p> <p>The employee performs pesticide handling tasks.</p>	<p>Fieldworker</p> <p>Pesticide Handler</p>

## Trainee's Backgrounds

Background information about trainees can help you tailor the training resources and activities to their informational needs. If you are unable to gather information about the trainees before class, you can spend a few minutes at the beginning of class to get to know them by asking a few work- and training-related questions. The following are examples of questions you can ask fieldworkers and handlers:

### Fieldworkers

- How long have you worked here?
- What kind of agricultural work have you done in the past?
- What type of work will you do here?
- Have you attended a pesticide safety training?

### Pesticide Handlers

- How long have you worked here?
- What types of pests do they control at this location?
- Do you know the names of any of the pesticides you will use?
- Have you ever attended a pesticide training for pesticide handlers?
- Have you worked with pesticides in the past?

It is also helpful for trainers to know if the trainees are migrant, seasonal, or permanent employees. Migrant workers move from one area to another to find agricultural work. Seasonal employees live in the area in which they work but are only employed as fieldworkers during the growing or harvest season. Permanent employees live and work in the area and are employed by the same agricultural establishment on a year-round basis.

## Crops and Cropping Cycles

It is helpful to become familiar with crops and cropping cycles, seasonal labor requirements, and typical tasks of agricultural employees in the areas where you

train. This information is available from the Agricultural Commissioner's Office in your county, the Employment Development Department, University of California Cooperative Extension offices, the Farm Bureau, and other local organizations that provide outreach to agricultural employees. Knowing the cycles of the various crops and peak harvest times will help you identify the best time to provide pesticide safety training in a particular geographical area. Information on crops and pesticides used can be found on the University of California Statewide Integrated Pest Management [website](http://ipm.ucanr.edu/) (<http://ipm.ucanr.edu/>).

## Organizing Your Training

Once you have studied the required topics, have updates, and know if you will train fieldworkers or pesticide handlers, it is time to get organized.

Write the topics down in the order that you would like to present them during your course. You may want to start by looking at your list of topics and separating them into themes that blend well together.

In the following example, the trainer is planning to present pesticide safety training to pesticide handlers. The trainer begins by grouping all pesticide-related health topics together, followed by details about the pesticide label, and information on how to use pesticides safely and effectively. The trainer finishes with employer responsibilities and employee rights.

## Sample Training Plan - Topics for Pesticide Handler Training.

**The first section will include general pesticide-related health information for people who will work directly with agricultural pesticides.**

**It will comprise of**

- An overview of agricultural pests at the handler's worksite and the different types and formulations of pesticides they might use to control these pests.
- Where and in what form pesticides and their residues may be found at work.
- Routes through which pesticides can enter the body.

- Signs and symptoms of exposure, plus the health hazards of pesticides resulting from toxicity and exposure, including acute, chronic, and delayed health effects and increased sensitivity.
- Potential hazards to pregnant women and children from pesticide exposure.

**This section of the training will focus on ways to recognize, prevent, and treat pesticide exposure and include**

- minimum age requirements for pesticide handling activities,
- decontamination requirements and supplies at the various worksite locations,
- protective clothing and PPE listed on label,
- recognizing, preventing, and treating heat illness,
- ways to protect family members, such as the importance of keeping family away from pesticides and pesticide treated areas,
- hazards from residue on clothing and how to care for and wash work clothing,
- emergency first aid for pesticide injuries or poisonings and how to obtain emergency medical care and access to information about the pesticides used at work (e.g., the central location), and
- hazards from residue on clothing and how to care for or wash work clothing.

**This section will pertain to the pesticide label. Trainees will review sample product labels to practice locating and following health, safety and pesticide use information from a label.**

**It will comprise of**

- The different sections of a pesticide label.
- How to find health and safety information, such as precautionary statements, PPE, and first aid information.

- How to find and follow use instructions to determine the pests that are controlled by the product, the sites to which the pesticide can be applied, and any application limitations or restrictions.
- Product-specific information listed on the label, such as the type of pesticide, active ingredients, formulation of the product, toxicity level, and environmental impacts.

**This section will focus on working safely when mixing, loading and applying pesticides. Trainees will also learn about environmental concerns, such as water contamination, and how to respond to emergency situations, such as pesticide spills and leaking containers.**

**It will include**

- The need for PPE, including respirators if applicable.
- The proper use, cleaning, and maintenance of PPE.
- Safe practices when mixing, loading, and applying pesticides.
- Ways to protect the environment when working with pesticides.
- Ways to prevent pesticides from drifting onto and contaminating other people.
- Safe transport, storage, and disposal of pesticides and their containers.
- Steps for cleaning up pesticide spills.

**The last section will focus on the employer's responsibilities and employee's rights.**

**It will include**

- The employer's responsibility for providing the handler with a respirator, medical evaluation, fit testing, and respirator training before the handler uses a respirator required by the label.
- The employer's responsibility for providing, maintaining, replacing, and storing PPE.
- The employee's rights to information about pesticides used at work and

the ways that the employer must provide this information.

- The employee's protection against anti-retaliation.
- The employee's right to a copy of the training record and application information.

## Training Length

As you prepare your training, think about how much time you will need to cover all of the required topics. Also take into consideration that the following situations may add extra time to your training:

- using an interpreter,
- presenting the training bilingually,
- including training activities such as role play, games, or demonstrations,
- distributing handouts,
- signing training records,
- trainees arriving late,
- noise or distractions,
- audiovisual equipment set up, and
- glitches with training tools or equipment.



## Training Objectives

After you have organized your topics, you can focus on the information, skills, and attitudes you would like your trainees to gain through the class. One way to do this is to develop a list of training objectives.

Training objectives are simple sentences that describe what you would like the trainees to learn, know, demonstrate, or be able to do as a result of your training.

Your objectives should

- be clear and concise,
- take into consideration the work situations and environment of the people who will attend the training,
- reflect the skills, knowledge, and attitudes that you want the trainees to have at the end of the session, and
- include activities that encourage trainees to participate in the learning process.

The following are three examples of training objectives with different levels of trainee participation.

*“Through this class, trainees will learn several ways they can prevent pesticide exposure at their worksites.”*

*“By the end of this session, trainees will be able to recognize potential pesticide hazards in a series of photos and talk about ways to prevent similar exposure situations when they are working with pesticides.”*

*“During this activity, trainees will demonstrate one way to prevent pesticide exposure by reading a pesticide label and selecting the proper PPE.”*

The first objective states that you, the trainer, will provide the trainees with the information they need to know in order to prevent exposure to pesticides at work.

The second objective covers the same type of information but requires trainees to participate in a hazard identification activity. The activity has been tailored to the work of the trainees by including photos of situations that might occur at their worksites.

The third objective requires trainees to become more involved in the learning process as they demonstrate how to select the PPE that is required on the label.

**You can also list your objectives as a set of skills** that you would like trainees to have at the end of the training.



**Skills:** After participating in the training, trainees will know how to:

- recognize pesticide exposure risks,
- explain how to prevent them at work, and
- read and follow label instructions for selecting PPE to protect themselves from exposure to the product.

## Materials and Handouts

There are many pesticide safety training materials available, including flipcharts, DVDs, online videos, digital presentations, booklets, pamphlets, and games. Pesticide labels are also great training tools, especially when they represent the products the trainees will use at work. You can find resources through DPR, a county agricultural commissioner, the Pesticide Education Resource Collaborative (PERC), EPA, National Pesticide Information Center (NPIC), or pesticide chemical companies.

When selecting training materials and handouts, make sure they

- Cover the required information.
- Can be easily supplemented with additional information, if necessary.
- Are correct and up to date with current laws and regulations.
- Are in a language that trainees can understand.
- Are accurate and clearly worded (especially if they have been translated).
- Reflect the trainees work or worksite as much as possible.
- Include local information.
- Can be presented in a way that enables trainees to participate in the training and ask questions.

Always review your training materials before you present them in class. Even if a booklet or video has been provided, the laws may have been revised since the date the materials were produced. Additionally, the materials may not be appropriate for your particular situation or you may need to incorporate local,

state, or tribal regulations into your training.

If you use training materials in a language that is not your native language, pay close attention to the translation to make sure that the information is correct, and the translation is accurate. You should ask an interpreter to help you with this review if you cannot read the materials yourself.

## Interpreters

If you speak English and the trainees do not, you must also arrange for an interpreter. You may need to rely on other employees who are bilingual, professional interpreters, or bilingual community members who may volunteer to translate training material for your presentation. Other possible sources of translation services are community-based organizations, medical personnel, other employers, the Farm Bureau, University of California Cooperative Extension offices, farmworker associations, and migrant health clinics. If they do not have a staff member who provides these services, they may be able to provide a referral to an individual or group that can help.

If you use an interpreter, it is important that the person has a clear understanding of pesticide terminology before training. Provide the interpreter with a copy of the training materials you plan to use and discuss these with him or her.

## Activities

Activities keep the trainees engaged in the course and allow them to participate in the learning process. Activities can be simple, such as a question-and-answer session about pesticide products, or more complex, such as a mock pesticide spill clean-up activity. Look at your topics and objectives to help you decide which activities would fit in nicely with your training while helping you to meet your training objectives. Sample activities have been included in this chapter. Each activity includes a suggested training theme, objective, activity duration, materials or props, and instructions.

After you have selected your materials, handouts, and activities, you can create

a list of items you will need to take to the training class, as shown in the following example:

**Table 7.2: Sample Training Activities Plan.**

Topic	Activity	Props and Equipment	Materials and Handouts
<b>First Aid</b>	Role play	Soda bottle Picture of scenario Pesticide label	Copy of the first aid recommendations from Chapter 5
<b>Pesticide Labels</b>	Label information search	None	"Acaramort" mock label training tool that displays different parts of the pesticide label.  Copies of labels of two actual pesticide products
<b>Personal Protective Equipment</b>	Hands-on activity with PPE and labels	PPE that must be worn with each of the products you selected for this activity	Glove Category Selection Key from DPR
<b>Pesticide Storage</b>	Photo – Hazard Identification	Laminated photos with examples of good and bad storage	None

## Class Outline

Like objectives and skill sets, an outline is a necessary tool that serves as a guide for trainers. A good outline will provide you with all of the information you need to know how to conduct the training session in an organized way, and can also help you gauge the amount of time you will need for each topic and activity. Organize the outline, so that it is easy to follow, as is shown in the following example. As you gain more training experience, you may discover a simpler way to organize your topics, activities, handouts, and materials.

Table 7.3: Sample Class Outline.

Topic	Activity	Time	Materials
<b>Trainee Introductions</b>	Ice Breaker	5-15 minutes	Dry erase board and pens
<b>Pesticides at work</b>	Small group activity with lists of sites	10 minutes	Lists of sites (one copy per group)
<b>Definitions of pests and pesticides</b>	Question and answer	5 minutes	None
<b>Routes of exposure</b>	Hazard Identification	10 minutes	Photos of potential pesticide exposure situations
<b>First Aid</b>	Label information search	10 minutes	Labels and photos of potential pesticide exposure situations

## Equipment and Supplies

Now you can focus on the training equipment and supplies. Make a list of everything you will need to conduct your training. You can avoid carrying extra equipment by checking to see if items are available at the training site. Once you know what is already available, decide what items you will need to bring. The following is an example of a checklist of equipment and supplies for a more formal pesticide safety training class, during which the trainer will use a digital presentation, case study, and label activities.

Table 7.4: Sample List of Training Equipment and Supplies.

Equipment/Supplies	Need	Provided at Site	Need to Bring
<b>Laptop</b>	✓		✓
<b>Projector</b>	✓		✓
<b>Extension Cord</b>	✓	✓	

Equipment/Supplies	Need	Provided at Site	Need to Bring
Screen	✓	✓	
TV/VCR/DVD Player			
Writing Surface/Pens	✓	✓ (dry erase board)	
PPE	✓	✓ (employer purchased new PPE for training)	
Pesticide Labels	✓		✓
Case Study	✓		✓

## Additional Considerations

### Timing

Training sessions are more effective when trainees are able to concentrate on the information. Therefore, the best time to train may be in the morning when everyone is alert. If the morning is not a convenient time and you need to present the class in the afternoon, provide short breaks and refreshments, if possible.

The employer or supervisor can help determine the best time of day for training.

Many agricultural employees work at least 10 hours per day, 6 days a week. Therefore, you may be asked to present the class in the evening or during a weekend.

The training schedule may vary depending on the season, type of establishment (farm, forest, nursery, or enclosed space production area, golf course), and needs of the trainees.

## Training Site

A good training site will contribute to the success of the training. You may not always have control over training locations, but when you do, choose a place that is quiet, conducive to learning, and where there will be few outside disturbances.



If the class is presented indoors, minimize distractions by closing doors and windows. If the class is held in a farm shop, warehouse, or in a field, it will be more difficult to minimize distractions. You may discover you will need to use more hands-on activities and discussion to keep the group focused when training outdoors.

When you train at a new location, find out as much as you can about the training site. If you know about problems in advance, you may be able to change sites or arrange to minimize or eliminate situations that could be distracting during the class. The type of training location can also influence the training methods you will be able to use.

## Personal Safety

Always make sure the training location does not present any hazards to you or trainees. Dress appropriately for the conditions and site. Consider wearing a hat, sun visor, or putting on sunscreen.

Bring plenty of water if you will present your training outdoors or in the heat.

Likewise, wear warm clothes and a jacket if you will be training outdoors or in cold weather.

Be aware of possible tripping and electrical hazards when using extension cords for training equipment.

Take additional safety precautions if you travel and train alone or after dark. Make sure you have enough light to see where you are going to avoid potential hazards. If you do not feel safe on your own, ask someone to accompany you.

## Class Size

It is much easier to train a small group of 15 people than it is to train a large group of 50 or more. Trainees in smaller groups are better able to hear you and see the information and have more opportunities to participate and ask questions. Furthermore, you will have more control over the course and will find it easier to keep all trainees focused on training. When it is necessary to train a large group, have trainees form smaller subgroups to work on activities such as problem-solving exercises. Move around the room so you can give the groups more individualized attention.

## Room Arrangement

When arranging the room, think about the class size and training activities. The room should be set up so all trainees will be able to see and hear well.

If you use a table, flipchart, dry erase board or props, place these items off to one side. This will provide you with more room to conduct the course and activities and will eliminate a barrier between the trainees and you. Setting a flipchart or dry erase board off to the side of the room will enable you to face the class as much as possible as you write. In this way, you will create a much friendlier training atmosphere.

## CHAPTER 8

### Chapter 8 – SITUATIONS AND SUGGESTIONS

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**Training Scenario:** It is 2020. You recently attended a very informative pesticide safety Train-the-Trainer workshop and leave with a stack of books and a ton of ideas. A month after the class you receive a request to provide pesticide safety training to 10 English- and Spanish- speaking pesticide handlers. You are nervous but excited to teach your very first pesticide safety class.

You purchase a 45-minute pesticide safety video that has all of the information compliant with California pesticide worker safety. You also make 10 photocopies of a pesticide label so everyone will have a copy during a label reading activity.

You have studied the materials and feel well-prepared. The training class is going well and then it happens.

During your very first pesticide safety training:

- two men answer three phone calls,
- one woman falls asleep while watching the video, and
- four people struggle through the pesticide label reading activity.

#### ***Fast forward ten years...***

It is now 2030. You have 10 years of training experience and have taught 230 classes. You are confident, prepared, and still excited about training.



You begin each training session by asking everyone to silence their phones to avoid interruptions. You have reformatted your training, so you don't rely on the video to do all of the teaching. In fact, you only show a 10-minute segment of a pesticide safety video that demonstrates how to safely transport, store, clean, and dispose of pesticide containers. You may use other training methods to cover the additional California Pesticide Worker Safety Regulation information. Since many of the people you train may speak either English or Spanish, you also make it a practice to provide training materials in both languages.

You feel experienced, knowledgeable, and overly prepared. The training class is going well and then it happens.

During your 231st training

- two women send ten text messages,
- one man falls asleep while watching the short video clip, and
- four people struggle through the pesticide label activity.

Unfortunately, this can be a reality for pesticide safety trainers. No matter how many years of experience or hours of preparation, trainers will encounter new situations.

Providing effective training classes can be a challenge, especially when you are working with a group of people from different generations and diverse:

- language skills,
- literacy levels,
- educational backgrounds,
- cultural backgrounds,
- knowledge about pesticides,
- workplace experience,
- personalities,
- learning styles, and
- attitudes about safety.

This chapter describes and addresses several situations pesticide safety educators might encounter during training. Each situation is presented in the form of a question followed by suggestions and solutions from experienced trainers. As you gain more experience as a pesticide safety trainer, you will be able to develop your own strategies for dealing with similar situations.

## Language Skills, Literacy Levels, and Educational Backgrounds

**Situation #1 – I've been asked to provide training in a language I don't speak very well. Where can I find a translator?**

**Trainer A** – Some trainers use professional translators and others find translators through local agricultural associations, farmworker or refugee service providers, rural health clinics, offices for the county agricultural commissioner, schools or community-based organizations. Bilingual community members or an employee at the worksite might also be happy to assist you.

**Trainer B** – Call your local county agricultural commissioner, University of California Cooperative Extension Office or Tribal Authorities.

**Trainer C** – Sometimes, the ag-establishment may also have bilingual employees that can assist.

**Trainer D** – Be aware that not all immigrants have the same origin or the same customs. In the case of immigrants working in agriculture, even though we talk about a community, it really includes people from diverse ethnic, social, and cultural origin, so, be sure the translator you pick understands about diversity.

**Situation #2 – A community leader has offered to serve as my pesticide safety training translator. How will I know if they will translate the information correctly?**

**Trainer A** – It will be very difficult for you to know if the leader is translating information correctly, especially if it is a language that you don't speak or understand. Invite the leader to attend a training you will present at a different site, prior to the one that they will help translate. Schedule a follow-up meeting, phone call, or e-mail exchange to answer any questions the leader might have

about terminology or the regulation. Provide them with written materials they can use to study and translate before the training session.

**Trainer B** – I agree with **Trainer A** – however, this item should be part of the trainer preparation. Contacting a translator from a good source should be done well in advance.

**Trainer C** – If there is a great need for translation services in the language spoken by the community leader, ask if they would like to attend a local pesticide safety Train-the-Trainer workshop so that this individual can serve as the pesticide safety trainer for the people in their community.

**Situation #3 – I have found lots of pesticide safety training resources available in English and Spanish. Where can I find resources in other languages?**

**Trainer A** – The Pesticide Educational Resources Collaborative (PERC) offers educational materials in languages other than Spanish. Other possibilities for resources, are to reach out to community leaders that provide services to that particular minority group, or the grower they work for may be able to help you identify additional resources in a specific language. If not, at the least, this will allow you to document that such resources are unavailable and that there is a need to produce them.

**Trainer B** – The California Department of Pesticide Regulation (DPR) has pesticide safety resources in other languages. The [Pesticide Safety Information Series](#) translated into Spanish, English, Punjabi, and Hmong languages are available at <https://www.cdpr.ca.gov/docs/whs/psisenglish.htm>.

DPR also provides [short videos](#) on pesticide safety translated into Mixteco and Zapoteco to augment but not replace safety trainings:  
<https://www.youtube.com/user/CaliforniaPesticides/videos>.

**Situation #4 – There are usually one or two people in my trainings that don't participate in activities that involve reading. I don't want to embarrass them or put them on the spot, but I am worried that they might miss out on important information. How will I know if they understand the information?**

**Trainer A** – When working with small groups, go around and participate with each group for a little bit, answering any questions or concerns and facilitating them to keep on task.

**Trainer B** –

1. Make sure written materials are explained verbally and have illustrations that can help them understand the information.
2. Ask questions to ensure all participants understand the information.

**Trainer C** – If you plan to use written materials or activities that require participants to read, divide the participants into small groups of 3 or 4 people, and ask each person to take a different role. For example, one person can read a section of the label, another person can select the PPE that is required for mixing the pesticide, a third person can put on the appropriate PPE, and a fourth person can describe the PPE that was selected. This allows you to combine the activity with hands-on practice or skill demonstrations which makes training more enjoyable. It also enables each person in the group to participate and show that they understand the information. This technique takes the pressure off of the people who do not have strong reading skills.

**Trainer D** – Remind them that it is their employer's responsibility to ensure the handler has read, or someone has explained to them, the parts of the label on safe use of the pesticide, early-entry labor restrictions, and REIs. If they are unable to read or understand the label, they should ask their employer for directions.

***Situation #5 – I provide pesticide safety training services for hire and don't work at the farms where I teach. How can I help pesticide handlers who are not able to read a pesticide label, since they need to follow it each time they use a pesticide?***

**Trainer A** –

1. Use examples of pesticide labels and help them find key information regarding safety so that they can protect themselves.

2. Pesticide handler supervisors and employers are required to provide label information to employees before they start handling pesticides.

**Trainer B** – You can match pesticide handlers who have limited reading skills with coworkers who can assist them. During training, explain to everyone that the pesticide label is a very important document that must be followed because it contains safety, health and use information.

Ask if there is anyone in the group who would be willing and available to serve as a resource for coworkers who are not able to read the label. Ask if there are any bilingual pesticide handlers who can also serve as translators for people who are unable to read the label, which is often available only in English. If pesticide handlers would benefit from a list of bilingual English/Spanish [pesticide terms](#), including common labeling terms, they can find one on the California Department of Pesticide Regulation website at:  
<http://www.cdpr.ca.gov/docs/license/glosary/glossengl.htm>.

**Trainer C** – An alternative is to ask class participants to highlight or circle the most important places where they will find information that they have to know before they apply pesticides.

**Situation #6 – I am working with a group of trainers that would like to design pesticide safety training materials. Someone told me to make sure that all reading materials are written at a third grade reading level. Another person said a seventh grade reading level was best. Which person is correct?**

**Trainer A** – I have heard similar advice and unsure which level is correct for adults with limited reading skills or formal education. However, despite the level you choose, please remember that the final product will be used by adults.

Some groups have developed comic books, or novellas, which have proven to be a very popular and fun way to learn about pesticide safety. The most effective illustrations are those that depict real-life situations adults may encounter at their worksites or in their homes.

**Trainer B** – Make sure reading materials not only convey information in the

appropriate language, but that the visuals and the examples portray people from that community so that the participants can personally relate to the information.

**Trainer C** – Role play and hands-on activities will also work well in those situations, although time constraints should be taken into consideration.

## Cultural Backgrounds

***Situation #1: What if you are called to provide training to agricultural employees, and you learn that in their country of origin, agricultural work is thought of as an activity performed by strong individuals, who are not afraid of pesticides. People they know or even themselves have always worked with pesticides without getting sick or injured. You also learn that in their view, getting injured by pesticides only happens to weak individuals who should not be working in agriculture in the first place. What can a trainer do in this situation?***

**Trainer A** – Culture plays an important role in how people view, respond, or perceive pesticide safety. In many cases, agricultural employees come from a country or culture where pesticide safety training may not be viewed as a priority, is not provided regularly as a health measure, or it is not required by a rule or regulation.

It is important for trainers to identify the cultural background of the agricultural employees in the audience in order to effectively get the message of pesticide safety and pesticide exposure prevention across to them.

**Trainer B** – Make sure everyone understands how pesticides, specifically insecticides, are designed to kill insects. Explain that insecticides attack parts of the insect's body or organism that are also present in humans. Explain that this is why it is important for us to be careful when working around pesticides and that pesticide injury can happen to anyone, even to strong individuals.

## Knowledge About Pesticides and Workplace Experience

**Situation #1 – Most agricultural employers want all of their employees to go through pesticide safety training together. I know that many of the older foremen and supervisors have already gone through several classes and have a lot of experience working with pesticides. Do you have any tips on how to train a group with mixed knowledge and experience? I want to make sure that new employees get all of the necessary information, but I don't want the class to be too easy or boring for the employees who have been around for a few years.**

**Trainer A –** During the registration process that takes place before the training, we ask attendees how long they have worked around pesticides. We divide all attendees into groups according to experience, purposely putting people with more experience into groups with those who have less experience.

When it's a mixed training, we split people who work at the same place into different groups (unless there are so many from one organization that there is more than one per group). If I notice that one group or person seems to have more knowledge or experience, I assign them activities that are more detailed or difficult. For example, I would assign them a presentation on spill cleanup rather than proper pesticide storage because it requires a more detailed response.

**Trainer B –** Ask the more experienced employees to assist with some of the activities so they have an opportunity to share their experience. In the process, the older employees will get to show off their knowledge and the newer employees get to see that their supervisors are a great resource should they have questions in the future.

**Trainer C –** Provide all of the required pesticide safety information. If there are people in the group with a lot of experience and knowledge, ask them to participate by complementing or providing information on how it applies to their particular situation at their worksite. Additionally, ask those with experience to share some of their experience in reference to the information being provided.

**Trainer D –** Also, be aware that in some workplaces there can be issues among

workers that might arise during training. Sometimes issues might be sparked when more experienced workers or supervisors offer their knowledge, especially when hierarchies are involved which can prevent new workers from engaging in the learning experience.

You also can invite those with less experience to ask what they would like to know or better understand.

## Personalities and Learning Styles

***Situation #1 – It never fails that at least one person falls asleep or stares off into space during training. Does anyone else have a problem with sleepy people? How can I keep everyone awake and alert during the training?***

**Trainer A** – It is very important that everyone receives the information, but sleepy people are a reality in agriculture. Perhaps you may find out that the drowsiest person is the night irrigator, a parent of a newborn, who has been up since 4:00 a.m. There are so many factors that you can't control, so try not to take it personally.

Of course, if everyone in your training is sound asleep, you may want to revisit your training methods. Include several activities that require people to work in small groups. You can also ask the sleepest people to participate in activities that require them to stand up or move around. This will help them to stay alert during the class.

**Trainer B** – Use interactive training methods, such as hands-on or group discussion—they work very well to maintain people's interest.

***Situation #2 – Do you have any suggestions on how to work with people who are so enthusiastic about the training that they dominate the discussions and don't allow others a chance to ask or answer questions?***

**Trainer A** – As a trainer, you want to encourage everyone in the group to participate. However, occasionally there will be one or more people in the class who are so eager to participate that other people do not have a chance to get involved in the discussion.



Most likely, the enthusiastic person just really enjoys learning, participating in activities, and assisting instructors in the teaching process. It is also possible that the person feels bad that other people are not participating in the training and doesn't want you to feel uncomfortable by the silence. Since the enthusiastic person means well, use their energy to your advantage and get them involved in the teaching process.

**Trainer B** – Invite them to help train and to volunteer on a different task—use their enthusiasm in a positive way.

**Trainer C** – I try to find a way to capitalize on their knowledge and enthusiasm. I sometimes do this by asking the enthusiastic person to give a summary of a concept instead of having to explain it myself. I ask a question like, “I know you have a lot of experience with respirators. Can you explain the difference between a filtering facepiece and a pre-filter?” It saves my voice!

**Trainer D** – Another idea to take into consideration is the arrangement of the class seating. Having people sitting in an old school style classroom with the professor in front, sometimes facilitates those who are shy to hide and for those who are outspoken to take over the conversation. Having a U-shape arrangement, or a circle, helps to have everyone face each other, which makes it easier to facilitate the participation of each person.

**Trainer E** – There are methods you can use that will give others an opportunity to speak and participate in the activities. One solution is to compliment the individual for bringing up excellent points and mention that it would be interesting to hear what others in the group have to say about these comments, too.

By inviting others to participate, you open the discussion to the whole group while responding to the enthusiastic individual. You may even try to give the enthusiastic person the job of engaging the other participants by asking something like, “Thank you for all of your great ideas and for eagerly participating. Will you please select three people to volunteer for our next hands-on activity?”.

***Situation #3 – What is the most appropriate way to respond to someone who disrupts class by trying to prove he knows more than the trainer?***

**Trainer A** – Initially, you can address the behavior, acknowledging if you've said something incorrect or uncertain of the answer, or letting the person know the comment is off topic.

You could try saying something like, "That's really good additional information for those of you in charge of [fill in the blank], but it's not something we need to address in this class." If the taunting persists, I would not show a reaction and basically act like the person didn't say anything. If they say something insightful or gives a good answer, then I would give a lot of praise for it. I would try to give positive attention to other trainees and not give the taunting person negative attention.

**Trainer B** – You may come across a person who tries to disrupt the class by verbally attacking or criticizing you. It may take the form of an attack on the accuracy of your information, or the person may constantly interrupt you with inappropriate or unrelated comments.

The first thing to remember in this situation is to keep your temper under control and be polite, no matter how unpleasant or rude a trainee's behavior. Remind him or her that if you are unable to complete the training, the rest of the trainees will not get the information that could protect their health or even save lives. When you do this, other people may provide the peer pressure needed to restrain their coworker from acting out during training.

**Trainer C** – If nothing seems to be working with the individual's behavior, wait for a break to talk to them after class but not in front of the group. You might also have to, as a final resort, ask the individual to leave class.

***Situation #4 – I took classes on adult education and learned that people have different learning styles and preferences. How can I set up a training so that everyone can learn the same information at the same time?***

**Trainer A** – Educational research is very interesting, and it is true that most of

the time you will have a group consisting of people who prefer to learn in different ways. A few people might find it easy to learn simply by listening to a lecture.

Other people remember most of the information that they see and hear during a video. Some people like to analyze situations and come up with ideal solutions, while others prefer to practice a task during a hands-on activity. If possible, combine different training methods or use a few that allow trainees to simultaneously hear information, see examples, solve problems, and practice skills.

## Generations

***Situation #1 – Is it my imagination or is the younger generation much shier than we were back in the day? They clam up when I ask them questions and don't want to participate in anything that requires them to stand up in front of a group of people. How can I make them feel comfortable enough in a training environment to want to participate in activities?***

**Trainer A** – You bring up a good point. If you find over time that the majority of the younger people you train are apprehensive about standing in front of a large group, don't force the issue. Instead, set aside some time to ask a few of your younger trainees how they learn best. You may find that high school teachers and college professors have created some very innovative ways to educate the younger generation. Some of these methods might transfer nicely into a pesticide safety training.

**Trainer B** – I think the resistance to opening up and participating may be related to not really knowing who is in the room with them. A lot of the trainings and large group meetings I have been to have started out with an ice breaker before the presentation. I know some of them are lame or corny, but it usually loosens people up!

***Situation #2 – I recently graduated from college and will eventually take over my family's farm. One of our mechanics has been working with my family for 45 years and has known me since I was a kid. I've tried to convince him that he***

*needs to be careful when he works with the application equipment because it could have pesticide residues on it. He insists that if something were going to happen to him, it would have happened already. He thinks my generation is too paranoid and that we would be a lot healthier if we got our hands dirty every once in a while. How can I convince him to take my pesticide safety advice seriously when he still sees me as a little kid?*

**Trainer A** – Talk to him about consequences and the possibilities of pesticides having greater effects on his health now that he is older.

**Trainer B** – Get your hands dirty with him and offer some examples of real-life stories, photos, while you are working alongside him.

## Attitudes About Safety

*Situation #1 – An employer asked me for advice. One of the pesticide handlers at his farm refuses to wear the required respirator even though he has completed the respirator medical evaluation questionnaire, attended respirator use, maintenance, and care training, and has a respirator that fits him. What can the employer do to make sure the handler follows the label and wears the required equipment?*

**Trainer A** –

- Have a safety policy in place and ensure all employees are aware of it and explain the consequences of not following the protocol.
- Enforce the policy.
- Apply corrective measures.

**Trainer B** – This is a common question in warmer states. Pesticide handlers complain about wearing PPE when it is hot and humid outside. Adjusting work schedules to cooler hours is one solution, however some people may still complain that the PPE is uncomfortable. If a pesticide handler is provided with PPE that fits but refuses to wear it even though they have been trained on the importance of following the label and protecting themselves from pesticide exposure, the employer may have to draw up a contract stating that all

employees must agree to wear the label-required PPE or risk termination.

**Situation #2 – I gave a pesticide safety training to a group of about 40 fieldworkers the other day. About 15 minutes into the training, I caught a man playing a video game on his phone. He laughed when I caught him and said he didn't need training because he won't be using pesticides. His comment and attitude surprised me, and I didn't know how to respond. If something like this happens again, what should I tell him? I am worried that if he has a pesticide incident at work, I will be held liable since I was the pesticide safety trainer. Can I be held liable?**

**Trainer A –** To answer the question about if the trainer is liable – no. It is the agricultural employer's responsibility to ensure workers are trained, and it is the trainer's responsibility to provide training in a manner the trainee understands, answer all questions, and cover all training topics.

It is the employees' responsibility to use the information given in training to protect himself. If the trainer feels comfortable, the trainer could tell the employer or supervisor about the interaction, so the employer knows that the employee likely didn't get the information.

As for the trainee – I wonder if you could use peer pressure. Ask the audience how they would feel if they heard their son or daughter (or mom or dad, or uncle, or...) give the same response. Ask what they would say to convince that person that they are exposed to pesticides even if they aren't handling pesticides. Explain that their health and safety matters to the rest of the family.

**Trainer B –**

1. Explain to the person that even though he won't be using pesticides, he may enter into areas that have been treated with pesticides and that pesticide residues may still cause him or any family at home harm.
2. Tell him it is a requirement as part of his employment in agriculture.

**Situation #3 – My employer just hired an employee who will be responsible for coordinating the workplace safety program for all harvesting crews. The new**

***employee seems overwhelmed with all of the programs and paperwork that we need to complete at the beginning of harvest season and has told us that we are only allowed to spend 15 minutes on pesticide safety training. I don't think this is enough time for me to cover everything that is required in the new pesticide worker safety regulations. Is there a minimum amount of time required for fieldworker training? If not, how much time do you think we should spend training?***

**Trainer A** – This is a really good question. Neither the U.S. Environmental Protection Agency nor the Department of Pesticide Regulation have set a minimum amount of time for pesticide safety training, however you are required to present it in a manner and language that attendees understand and allow time for trainees to ask questions.

Some trainers show a pesticide safety video while fieldworkers are being transported to the field. However, several have mentioned that they worry about people being able to see or hear the video.

If you have doubts about the effectiveness of a 15-minute pesticide safety training class, talk to your employer about your concerns. Print off a copy of the points that must be included and your ideas for the presentation. You can also put together a lesson plan, such as the one provided in the training preparation chapter. This will allow you to show your employer your ideas and the amount of time that you feel is sufficient for the training. Don't forget to add extra time to complete a training sign-in sheet.

***Situation #4 – What can I do when trainees tell me that their employer is not following the pesticide worker safety regulations? They would like me to do something about it but in a way that won't get them in trouble.***

**Trainer A** – If trainees have concerns about their workplace conditions or their employers' compliance with the California regulations for pesticide worker safety, be supportive by listening to their concerns. As appropriate, encourage them to discuss their concerns with their employers, appropriate regulatory agencies such as DPR, their local county agricultural commissioner, or farmworker-oriented social service agencies. Keep in mind that fieldworkers may

have concerns about possible employer retaliation. Remain neutral and avoid expressing personal opinions you may have about a particular situation. It is also possible that the employer's only knowledge about the state pesticide worker safety regulations is that his or her employees must be trained. If you feel comfortable doing so, invite the employer to a pesticide safety training session. You can also offer the employer a "compliance assistance" visit to discuss any pesticide worker safety regulatory requirements that might be new to the employer. Bring along an extra copy of the Pesticide Safety Information Series and other materials to leave with the employer.

**Trainer B** – Remind them that the contact information for their local County Agricultural Commissioner's Office is listed at the central posting information site. They can contact the agency to explain the situation and their concerns. Many agencies allow the caller to remain anonymous.

**Trainer C** – Encourage them to talk to their supervisor about their concerns and if things do not change, provide participants with contact information of local authorities to address their concerns.

## Additional Trainer Resources

### ***Situation #5 – Who can I contact if I have questions or need resources for workers, handlers, or their employers?***

The Department of Pesticide Regulation is the primary contact for regulatory and training information.

[Licensing and Certification Program](#) – licensing and examination information and continuing education resources for licensees:

<http://www.cdpr.ca.gov/docs/license/liccert.htm>.

[Enforcement Branch](#) – regulatory and compliance information for employers and employees, liaison with County Agricultural Commissioners:

[http://www.cdpr.ca.gov/docs/enforce/pest\\_enf.htm](http://www.cdpr.ca.gov/docs/enforce/pest_enf.htm).

[Worker Health and Safety Branch](#) – worker health and safety information and resources: <https://www.cdpr.ca.gov/docs/dept/quicklinks/humanhea.htm>.

[Train-the-trainer program approval and training resources](https://www.cdpr.ca.gov/docs/whs/trainers.htm) are available at <https://www.cdpr.ca.gov/docs/whs/trainers.htm>.

The following is a list of organizations and websites that may be helpful:

1. [Tribal pesticide regulatory agencies](http://npic.orst.edu/reg/tribes.html) (npic.orst.edu/reg/tribes.html)
2. [University of California Pesticide Safety Education Program](http://ipm.ucanr.edu/training) (ipm.ucanr.edu/training)
3. [American Association of Pesticide Safety Educators \(AAPSE\)](http://aapse.wildapricot.org) (aapse.wildapricot.org)
4. [Pesticide Educational Resources Collaborative \(PERC\)](http://pesticideresources.org) (pesticideresources.org)
5. [Migrant clinician's network](http://migrantclinician.org), or similar organizations (migrantclinician.org)
6. [Farmworker organizations](http://afop.org) or associations (afop.org)
7. [State Contacts for Health Departments](http://npic.orst.edu/shemlr.html) (npic.orst.edu/shemlr.html)

The following is a list of additional agencies or organizations that may be able to provide information and services:

1. California Department of Industrial Relations, which regulates **farm labor contractors**
2. Rural health clinics
3. Social service agencies, which might provide services to farmworkers and their families

Trainers can find training materials and supplemental pesticide safety and use information through the following websites:

1. [PERC WPS Inventory of Training Resources](http://www.pesticideresources.org/wps/inventory.html) (www.pesticideresources.org/wps/inventory.html)
2. [EPA Safety Information Related to the Worker Protection Standard](http://epa.gov/pesticide-worker-safety) (epa.gov/pesticide-worker-safety)
3. [National Pesticide Information Center](http://npic.orst.edu) (npic.orst.edu)
4. [University of California, Safe and Effective Use of Pesticides Manual, 3<sup>rd</sup> Edition, 2016](http://ipm.ucanr.edu/IPMPROJECT/ADS/manual_safeeffectiveuse.html) (http://ipm.ucanr.edu/IPMPROJECT/ADS/manual\_safeeffectiveuse.html)



## Appendix

### Regulatory Code Sections

#### Title 3. Food and Agriculture

The following codes reference the regulations that are described in this manual.

[Title 3 of the California Code of Regulations \(3CCR\)](https://www.cdpr.ca.gov/docs/legbills/calcode/subchpte.htm#a0303) is accessible at:

<https://www.cdpr.ca.gov/docs/legbills/calcode/subchpte.htm#a0303>.

- §6000.** Definitions.
- §6400.** Restricted Materials.
- §6406.** Supervision Standards.
- §6412.** Restricted Material Permit Requirements.
- §6445.** Fumigation-Handling Activities.
- §6600.** General Standards of Care.
- §6602.** Availability of Labeling.
- §6604.** Accurate Measurement.
- §6606.** Uniform Mixture.
- §6608.** Equipment Cleaning.
- §6609.** Wellhead Protection.
- §6610.** Backflow Prevention.
- §6614.** Protection of Persons, Animals, and Property.
- §6618.** Notice of Applications.
- §6619.** Notice of Completed Applications.
- §6728.** Medical Supervision.
- §6738.1.** Personal Protective Equipment Use.
- §6738.2.** Selection of Protective Eyewear.
- §6769.** Enclosed Space Ventilation Criteria.
- §6670.** General Requirement
- §6674.** Posting of Pesticide Storage Areas.
- §6676.** Container Requirements.
- §6678.** Service Container Labeling.
- §6680.** Prohibited Containers for Pesticides.
- §6682.** Transportation.
- §6738.3.** Selection of Gloves
- §6684.** Rinse and Drain Procedures.
- §6686.** Exemptions.
- §6690.** Pesticide Use Near School Sites.
- §6691.** Pesticide Application Restrictions.
- §6692.** Annual Notification.

**§6700.** Scope.

**§6702.** Employer-Employee Responsibilities.

**§6720.** Safety of Employed Persons.

**§6722.** Minimum Age Requirements.

**§6723.** Hazard Communication for Pesticide Handlers.

**§6723.1.** Application-Specific Information for Handlers.

**§6724.** Handler Training.

**§6726.** Emergency Medical Care.

**§6730.** Working Alone.

**§6732.** Change Area.

**§6734.** Handler Decontamination Facilities.

**§6738.** Personal Protective Equipment.

**§6738.4** Personal Protective Equipment Exemptions.

**§6739.** Respiratory Protection.

**§6739(r)** Voluntary Respirator Provision Information – Information for Employees Using Respirators When Not Required By Label or Restricted Material Permit Conditions or Regulation.

**§6740.** Adequate Light.

**§6742.** Safe Equipment.

**§6744.** Equipment Maintenance.

**§6746.** Closed Systems.

**§6760.** Employer Responsibility and Exceptions.

**§6761.** Hazard Communication for Fieldworkers.

**§6761.1** Application-Specific Information for Fieldworkers.

**§6762.** Field Work During Pesticide Application.

**§6764.** Fieldworker Training.

**§6766.** Emergency Medical Care.

**§6768.** Fieldworker Decontamination Facilities.

**§6770.** Field Entry After Scheduled or Completed Pesticide Application.

**§6771.** Requirements for Early Entry Employees.

**§6772.** Restricted Entry Intervals.

**§6776.** Field Postings.

**§6780.** General Fumigation Safe-Use Requirements.

**§6782.** Fumigation of Enclosed Spaces.

**§6784.** Field Fumigation.

**§6790.** Minimal Exposure Pesticides

**§6791.** Exemptions

**§6792.** Conditions of Use

**§6793.** Minimal Exposure Pesticide Safety Use Requirements

**§6800.** Groundwater Protection List

## Title 8. General Industry Safety Orders

The following codes reference the regulations that are described in this manual.

The [Title 8 Cal/OSHA General Industry Safety Order](https://www.dir.ca.gov/samples/search/query.htm) regulations are accessible online at: <https://www.dir.ca.gov/samples/search/query.htm>.

**§3395.** Heat Illness Prevention

### Glossary – Definitions of Common Terms

**Active ingredient** — The substance component of a pesticide product that will prevent, destroy, repel, or mitigate a pest, or the chemical that functions as a plant regulator, desiccant, defoliant, or nitrogen stabilizer.

**Acute health effects** — Ailments or injuries that occur immediately following exposure to a pesticide. Acute injuries may last temporarily, persist for the long-term, or in the most severe cases, result in death.

**Adjuvant** — Any wetting agent, spreading agent, deposit builder, adhesive, emulsifying agent, deflocculating agent, water modifier, or similar agent with or without toxic properties that is used with another pesticide as an aid to the application. Additives, for example, help to neutralize the pH of the water before mixing, a pesticide to adhere to a plant for better pest control, or prevent drift by making the spray droplets larger, weighing the pesticide down.

**Agricultural establishment** — Any farm, forest operation, or nursery engaged in the outdoor or enclosed space production of agricultural plants.

**Agricultural commodity** — An unprocessed product of farms, ranches, nurseries, and forests (except livestock, poultry, and fish). Agricultural commodities include fruits and vegetables, grains, legumes, animal feed and forage crops; rangeland and pasture, seed crops, fiber crops; trees grown for lumber and wood products; nursery stock grown commercially; Christmas trees; ornamentals and cut flowers; and turf that is grown commercially for sod.

**Air-purifying respirator** — A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

**Application exclusion zone (AEZ)** — The area surrounding the application equipment that should be free of all persons other than appropriately trained and equipped handlers during pesticide applications.

**Application-specific information** — Once complete, specific information about the pesticides used in the application must be displayed at the central location within 24 hours, for any treated field(s) that falls within a quarter-mile of where employees will be working, to prevent early-entry.

The displayed application-specific information must have unimpeded access to employees for 30 days after the end of the last restricted entry interval (REI), or until fieldworkers or handlers are no longer on the establishment, whichever comes first.

The application-specific information must contain:

- The product name, EPA registration number, and active ingredient(s) of the pesticide.
- If applicable, the spray adjuvant product name and its accompanying California registration number.
- The crop or site treated, and the location and description of the treated field(s).
- The date and start time of the pesticide application.
- The date and time the application was completed.
- The duration of the REI for that application.
- A copy of the Safety Data Sheets (SDSs) for the applied pesticide(s).

**California Pesticide Worker Safety Regulations** — A simplified name used throughout this manual to refer to the California Code of Regulations, Title 3 (or 3CCR), Division 6. Pesticides and Pest Control Operations, Chapter 3. Pest Control Operations. Subchapter 3. Pesticide Worker Safety.

[These regulations](#) are available in their entirety on the California Department of Pesticide Regulation webpage at:

<https://www.cdpr.ca.gov/docs/legbills/calcode/subchpte.htm#a0303>.

**California Poison Control** — The California Poison Control System has adopted

the national toll-free hotline that can instantly route calls to a regional poison control expert for product specific first aid information: 1-800-222-1222.

**Cartridge respirator** — See the definition for air-purifying respirator.

**Caution** — The signal word used on labels of pesticides having a low level of toxicity. Acute oral LD<sub>50</sub> values in this group are greater than 500 mg/kg. An ounce or more of this material could be fatal to a 150-pound person.

**Central location** — The central location is any area the employees are likely to pass by or congregate where information specific to employees can be easily seen and read. Many employers choose to display the application-specific information on the wall of a lunchroom, on a display board outside of a central office, or in a binder inside the farm shop.

**Chemigation** — The process of applying pesticides or fertilizers through irrigation systems.

**CHEMTREC** — A chemical industry-supported organization that provides assistance and advice on pesticide emergencies. The telephone number of CHEMTREC is 800-424-9300.

**Chronic health effects** — Illnesses or injuries that persist for a long period of time (months to years). These chronic illnesses or injuries may result from a single exposure incident and occur immediately, or, appear later in life – days, weeks, or years, after repeat, low levels of overlooked exposure to a pesticide.

These illnesses or injuries may be difficult to associate with a single cause, such as pesticide exposure to a particular pesticide, because of the lapse of time until the health effect(s) is observed.

**Chronic illness** — An illness that will last for long periods of time. Cancer, respiratory disorders, and neurological disorders are examples of chronic illnesses that have been associated with exposures to some types of pesticides.

**Closed system** — An engineering control used to protect handlers from pesticide exposure hazards when mixing and loading pesticides.

**Compatible** — When two or more chemicals can be mixed together without reducing the effectiveness or characteristics of any individual chemical in the

mixture.

**Danger** — The signal word used on labels of pesticides that have the highest level of toxicity. The acute (single dosage) oral LD<sub>50</sub> for pesticide products in this group ranges from a trace amount to 50 mg/kg. For example, exposure of a few drops of a material taken orally could be fatal to a 150-pound person.

**Defoliant** — A pesticide used to remove leaves from target plants, often as an aid in harvesting the plant.

**Delayed acute health effects** — Injuries or illnesses that do not occur immediately after an incident of pesticide exposure and develop hours or days after the incident has taken place, such as lung irritation or muscle weakness. Delayed acute health effects are similar to acute health effects in that these ailments are related to a single incident and not long-term exposure to a pesticide. Certain delayed acute health effects are temporary while others may persist long-term.

**Delayed chronic health effects** — Illnesses or injuries that persist for a long time (months to years), such as lung disease, nerve damage, or cancer, are the result of a single exposure incident or repeat, low levels of overlooked exposure to a pesticide, and which appear days, weeks, or years later after the exposure.

**Delayed health effects** — See the definitions for “delayed acute health effects” and “delayed chronic health effects”.

**Dermal or dermal exposure** — The skin is one of the major routes for pesticides to enter the body and cause possible irritation or poisoning through a splash or spill.

**Desiccant** — A pesticide that destroys target pests by causing them to lose body moisture or facilitates harvest by removing leaves or drying out plants.

**Designated representative (DR)** — Any person designated in writing by a fieldworker or handler to exercise a right of access on behalf of the employee for obtaining a copy of pesticide application information and safety data sheets.

**Dose** — The measured quantity of pesticide. Often the size of the dose determines the degree of effectiveness, or in the case of poisoning nontarget

organisms, the degree of injury.

**Drift** — The offsite movement of pesticide dust, spray, or vapor away from an application site. Offsite movement of a pesticide occurs through wind currents, water runoff, crop harvest, blowing dust, and by being carried away on people, animals, or equipment.

**Early-entry** — Entry by an employee into a treated area on an agricultural establishment after a pesticide application is complete, but before any restricted entry interval for the pesticide has expired.

**Early-entry employee** — An employee at least 18 years of age, who enters a pesticide treated area on an agricultural establishment after a pesticide application is complete, but before any restricted entry interval for the pesticide has expired to conduct fieldworker tasks.

**Employee** — A person who for any kind of compensation performs work, services, or activities related to pesticides or pest control operations for the employer. See definitions for fieldworker and pesticide handler.

**Employee housing area** — Any place or area of land on or near an agricultural establishment where housing or space for housing is provided for workers or handlers by an agricultural employer, owner, labor contractor, or any other person responsible for the recruitment or employment of fieldworkers.

**Employer** — Any person who exercises primary direction and control over the work, services or activities of an employee. A crew leader, foreman or supervisor who exercises primary direction or control represents the employer but is not in themselves the employer.

**Enclosed cab** — A cab with a nonporous barrier that totally surrounds the occupant(s) of the cab and prevents dermal contact with pesticides that are being applied outside of the cab.

**Enclosed space production** — A space enclosed, entirely or in part, with a nonporous covering of sufficient size to permit entry and is used in the commercial or research production of an agricultural commodity. This includes glasshouses, poly- or greenhouses, mushroom houses, hoopouses, and similar enclosed structures.

**EPA registration number** — The identification number for a registered pesticide that is assigned by the U.S. Environmental Protection Agency (EPA) and required on pesticide labels.

**Exposure** — Contact with pesticides or pesticide residues by people, other organisms, or the environment.

**Farm labor contractor** — A person, other than a commercial pesticide handler, who employs workers or handlers to perform tasks on an agricultural establishment for an agricultural employer or a commercial pesticide handler employer.

**Fieldworker** — An employee of a farming operation who, for any kind of compensation, performs cultural activities in a field. Fieldworker does not include persons performing tasks as a pest 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.

**Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)** — The federal law that governs the registration, sale, and use of pesticide products in the U.S.

**Filtering facepiece** — The National Institute for Occupational Safety and Health (NIOSH)-approved negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium, such as N95, R95 or P95.

**Fit-testing** — A type of testing that is performed every year to ensure that tight-fitting NIOSH respirators properly seal to the user's face and prevent pesticide exposure from contamination or leakage of outside air into the respirator. There are two types of fit-tests: qualitative and quantitative. These tests are used to detect leakage into the respirator. See the glossary for definitions. An annual respirator fit-test should not be confused with a **user seal check**.

**First aid** — The immediate assistance provided to someone who has been exposed to a pesticide. First aid for pesticide exposure usually involves removal of contaminated clothing and washing the affected area of the body to remove as much of the pesticide material as possible. First aid is not a substitute



for qualified medical treatment.

**Formulation** — A mixture of both the active ingredient and other materials during the pesticide manufacturing process. Other materials are added to improve the mixing and handling qualities of a pesticide.

**Fumigant** — Vapor or gaseous form of a pesticide used to penetrate porous surfaces for control of soil dwelling pests or pests in enclosed areas or storage.

**Fungicide** — A pesticide used for control of fungi.

**Fungi (Fungus)** — A multicellular lower plant lacking chlorophyll, such as a mold, mildew, or plant rust.

**Hand labor** — Any agricultural activity performed by hand or with hand tools that causes a worker to have substantial contact with plants, plant parts, or soil or other surfaces that may contain pesticide residues, except that hand labor does not include operating, moving or repairing irrigation or watering equipment, or performing crop advisor tasks.

**Handle** — 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 pesticide product labeling or greenhouse ventilation criteria has been reached.

**Handler** — This person is also referred to as a “pesticide handler,” “agricultural handler,” or “non-agricultural handler,” depending on their employer and work setting. Any person age 18 years or older, who is employed by an agricultural employer, commercial pesticide handler employer, or is self-employed and performs any of the following activities:

- mixing, loading, transferring or applying pesticides,
- disposing of a pesticide,
- handling opened containers of pesticides, emptying, triple-rinsing, or

cleaning pesticide containers according to pesticide product labeling instructions or disposing of pesticide containers that have not been cleaned,

- acting as a flagger,
- cleaning, adjusting, handling, maintaining, servicing or repairing the parts of mixing, loading or application equipment that may contain pesticide residues,
- assisting with the application of pesticides,
- entering an enclosed space after the application of a pesticide and before the inhalation exposure level listed on the labeling is reached, or one of the ventilation criteria established by 3CCR, or the labeling has been met to operate ventilation equipment, monitor air levels, adjust, repair, or remove coverings used in fumigation, or incorporate pesticides into the soil,
- entering a treated area outdoors after application of any soil fumigant during the labeling-specified entry-restricted period to adjust or remove coverings used in fumigation, and
- performing tasks as a crop advisor during any pesticide application or restricted entry interval, or before the inhalation exposure level listed in the pesticide product labeling has been reached, or one of the ventilation criteria established by 3CCR or the pesticide product labeling has been met.

**Herbicide** — A pesticide used to control weeds.

**Incompatible** — Two or more materials that cannot be mixed or used together because of reduced effectiveness or characteristics of any individual chemical in the mixture.

**Inhalation or inhalation exposure** — A route of pesticide exposure that involves the accidental inhaling or breathing in of spray droplets, mist, or fog through the nose and into the lungs.

**Ingestion or ingestion exposure** — A route of pesticide exposure that involves the accidental swallowing of pesticides either through illegal storage of liquid

formulations in beverage containers, dry formulations in food canisters, or the use of contaminated measuring utensils, including other possible scenarios that lead to ingestion.

**Insecticide** — A pesticide used for the control of insects. Some insecticides are also labeled for control of ticks, mites, spiders, or similar pests.

**Label** — The manufacturer's pesticide or product labeling and all associated materials, including supplemental labels.

**LC<sub>50</sub>** — The lethal concentration of a pesticide that will kill half of a test animal population. LC<sub>50</sub> values are given in micrograms per milliliter of air or water (mg/ml).

**LD<sub>50</sub>** — The lethal dose of a pesticide applied to the skin or taken internally that will kill half of a test animal population. LD<sub>50</sub> values are given in milligrams per kilogram of test animal body weight (mg/kg).

**Medical facility** — A clinic, hospital, or physician's office where immediate medical care for a pesticide-related illness or injury can be obtained.

**Miticide** — A pesticide used to control mite pests.

**Nematicide** — A pesticide used to control nematode pests.

**Nematode** — Elongated, cylindrical, non-segmented worms. Nematodes are commonly microscopic; some are parasites of plants or animals.

**Non-agricultural handler** — See the definition for "handlers."

**Ocular or ocular exposure** — Pesticide exposure to the eye through splashing or an accidental spill and one of the routes of entry of pesticides into the body.

**Other ingredient** — Any substance other than an active ingredient that is intentionally added to a pesticide product, such as solvents, stabilizers, spreaders or stickers, preservatives, surfactants, and defoamers.

**Operator or owner of the property** — A person who owns the property or is legally entitled to possess or use the property through terms of a lease, rental contract, trust, or other management arrangement.

**Outdoor production** — The production of an agricultural commodity in a field or

outside area that is not enclosed or covered in any way that would obstruct natural airflow.

**Personal protective equipment (PPE)** — Devices and garments that protect handlers from exposure to pesticides and their residues. These include coveralls, protective eyewear, chemical-resistant gloves, boots, headgear, and suits, respirators, aprons that must be provided by the employer.

**Pesticide** — Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any insects, rodents, nematodes, fungi, bacteria, or weeds, or any other forms of life declared to be pests; and any other substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant.

**Pest Crop Adviser** — Any licensed person by the state of California who assesses pest numbers or damage to agricultural commodities and makes recommendations for their management, which may include commercial pesticides.

**Pesticide handler** — See the definition for handler.

**Pesticide or product label** — See the definition for “label.”

**Pesticide residue(s)** — See the definition for “residues.”

**Precautionary statements** — This is the section on pesticide labels where human and environmental hazard, personal protective equipment requirement, first aid instructions, and information for physicians.

**Protective clothing** — Clothing or garments that cover the body including the arms and legs that the employer is not required to provide. See the definition for “work clothing.”

**Qualitative fit-test (QLFT)** — This is a pass or fail fit-test to assess the adequacy of the respirator fit that relies on the individual's response to a sensory test agent, such as a taste, smell, or a reaction to an irritant that produces coughing, to detect if there is leakage into the respirator. This type of fit-testing is typically performed on half mask respirators (one that covers the mouth and nose), such as filtering facepiece respirators (i.e., N95 or elastomeric cartridge respirators).

**Quantitative fit-test (QNFT)** — This is an assessment of the adequacy of the respirator fit through the use of a machine to numerically measure the amount of leakage into the respirator. It does not require the individual test taker to respond to some type of sensory stimulus.

**Residue** — Traces of pesticide that remain on treated surfaces after a period of time.

**Respiratory equipment** — A device that filters out pesticide dusts, mists, or vapors to protect the wearer from respiratory exposure during mixing and loading, application, or while entering treated areas before the restricted entry interval expires.

**Respiratory protection program** — A written program that must have work-site specific procedures for respirator selection, medical clearance, fit-testing, maintenance, and use. The minimum requirements of the respiratory protection regulations are found in 3CCR Section 6739. The purpose of this program is to protect employees from respiratory hazards associated with the use of pesticides and to comply with current regulations and label requirements. This program includes the following components:

- respirator selection,
- medical evaluation,
- fit-testing,
- routine and emergency use,
- cleaning, maintenance, and care,
- breathing air quality,
- training in respiratory hazards,
- training in wearing a respirator and respirator limitations, and
- program evaluation.

**Respiratory Program Administrator** — A person, such as a staff member or contracted employee, who is responsible for ensuring the effectiveness of the respiratory protection program and its compliance with the respiratory protection regulation. This individual is qualified by obtaining the appropriate training or experience to demonstrate the knowledge necessary to administer a

respiratory protection program. Such training or experience includes, but is not limited to, reading and understanding either the American National Standard for Respiratory Protection Publication (ANSI Z88.2), or the U.S. Department of Labor's "Small Entity Compliance Guide for the Revised Respiratory Protection Standard," or taken specific course work on developing a respiratory protection program from a college or a respirator manufacturer's authorized representative, or is an American Board of Industrial Hygiene Certified Industrial Hygienist.

**Restricted entry interval (REI)** — A period of time that must lapse between the application of a pesticide and when it is safe to allow employees into the treated area without PPE (personal protective equipment) and early-entry employee training. This includes associated roads, paths, ditches, borders, and headlands, if the pesticide was also directed to those areas.

**Restricted material** — DPR designates pesticides that can impair human health or pose hazards to the environment as "restricted materials" on the basis of active ingredient, concentration, container size, or use patterns on the labeling.

**Rodenticide** — A pesticide used for control of rats, mice, gophers, squirrels, and other rodents.

**Route of exposure** — The way a pesticide gets onto or into the body. The four routes of exposure are dermal (on or through the skin), ocular (in the eyes), respiratory (into the lungs), and oral (through swallowing).

**Runoff** — The liquid spray material that drips from treated plants or from other treated surface, which includes rain or irrigation water that leaves an area.

**Safety data sheet (SDS)** — A document available from the manufacturer that provides information on chemical properties, toxicity, first aid, hazards, and emergency procedures to be followed in the event of a spill, leak, fire, or transportation crisis.

**Sensitization** — An allergic reaction to pesticides.

**Signal word** — One of three words (danger or danger-poison, warning, or caution) found on pesticide labels to indicate the relative hazard of the chemical.

**Symptom** — Any abnormal condition that can be caused by a pesticide exposure that can be seen or felt; or, can be detected by examination or laboratory tests.

**Tight-fitting respirators** — A NIOSH-approved (National Institute for Occupational Safety and Health) tight-fitting facepiece or mask forms a complete seal on the user's face. The facepiece is usually made of a molded flexible elastomer — an elastic substance that resembles rubber (i.e. silicone) — and is available in half-face, and full-face masks. Even a filtering facepiece such as an N-95 or P-95, is considered to be a tight-fitting respirator.

**Triple-rinsing** — Triple-rinsing is a process that handlers must perform when a pesticide container is empty to avoid the spread and contamination of remaining product, prevent the reuse of containers, and ensure the containers are properly recycled. See procedure on page 105 of the manual:

**Toxicity** — The potential the pesticide has for causing harm.

**Toxicity testing** — A process in which known doses of a pesticide are given to groups of test animals and the results observed.

**Training record** — A document to record the date, the type of pesticide safety training, and the name of each of the pesticide safety training attendees. Contact a County Agricultural Commissioner's Office or the Department of Pesticide Regulation for guidance.

**Treated field or area** — A treated field or area is any site to which a pesticide was applied, and the end of the REI has occurred within the past 30 days. This 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.

**Treated surfaces** — The surfaces of plants, soil, or other items that were treated with pesticides.

**Use pesticides** — "To use a pesticide" refers to any of the following, including, but not limited to:

- Arranging for the application of the pesticide.
- Mixing and loading the pesticide.

- Making necessary preparations for the application of the pesticide, including responsibilities related to fieldworker notification, training of fieldworkers or handlers, providing decontamination supplies, providing pesticide safety information, and pesticide application and hazard information, use and care of personal protective equipment, providing emergency assistance, and heat stress management.
- Application of the pesticide.
- Post-application activities intended to reduce the risks of illness and injury resulting from handler and fieldworker occupational exposure to pesticide residues during and after the restricted entry interval, including responsibilities related to fieldworker notification, training of workers or early-entry employees, providing decontamination supplies, providing pesticide safety information and pesticide application and hazard information, use and care of personal protective equipment, providing emergency assistance, and heat stress management.
- Other pesticide-related activities, including, but not limited to, transporting or storing pesticides that have been opened, cleaning equipment, disposing of excess pesticides, spray mix, equipment wash waters, pesticide containers, and other pesticide containing materials.

**User seal check** — Employers must demonstrate to employees as part of an annual respirator safety training how to properly wear a respirator and check its seal. A user seal check is a quick check performed by the wearer each time the respirator is put on to determine if it is properly sealed to the face. There are two seal checks the user of a tight-fitting respirator should always make prior to a pesticide application.

- a) positive fit check - remove or close off the exhalation valve and gently exhale into the facepiece. The fit is satisfactory if a slight positive pressure can be built up inside the facepiece with no outward leakage of air at the seal.
- b) negative fit check - close off the inlet of the canister or cartridge by covering with the palm of the hand, inhale gently so that the facepiece collapses slightly, and hold your breath for ten seconds. If the facepiece



remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

**Warning** — The signal word used on labels of pesticides that are moderately toxic. In this category, the acute oral LD<sub>50</sub> ranges from 50 to 500 mg/kg. A teaspoon to an ounce of this material could be fatal to a 150-pound person.

**Warning sign posting** — The placement of warning signs around a pesticide treated area, if required by the pesticide label or by California regulation. This serves to provide information about treated areas under an REI.

**Work clothing** — These are garments such as long-sleeved shirts, long pants, shoes, and socks. Work clothing is not considered personal protective equipment, although pesticide product labeling or regulations may require specific work clothing during some activities. Employees are required to provide and launder their own work clothing. See also the definition for “protective clothing.”

**Worker Protection Standard (WPS)** — Regulation in 40 CFR Part 170 which contains a national standard designed to reduce the risks of occupational illness or injury resulting from fieldworker and handler exposure to pesticides used in the production of agricultural plants on farms or in nurseries, greenhouses, and forests and also from the accidental exposure of workers and other persons to such pesticides. It requires workplace practices like the pesticide safety training of fieldworkers and pesticide handlers, central information postings, and procedures for responding to exposure-related emergencies.

**Written notice** — An option for notifying employees of an application when field posting is not required, and may appear in the form of a paper notice, an email, a text message, or in some other written or verbal form and include

- the location of the treated field,
- the time for which entry is restricted or the REI, and
- instructions for when it safe to re-enter once the REI expires.

The written notice does not need to be posted at the central location since it is different from the information that is required for posting at the central location.

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