

National Worker Protection Standard: Training for Trainers

of Agricultural Workers and Pesticide Handlers



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EPA WPS TTT W/H 00026

EPA has approved this train the trainer material for workers and handlers in accordance with the 2015 WPS expanded training content (40 CFR 170). The approval number is EPA WPS TTT W/H 00026.

Using these slides to train: Trainers




- This presentation provides the information required to train those who will train workers and handlers under the Environmental Protection Agency's Worker Protection Standard. Additional state rules may apply.
- EPA has approved this train the trainer material for workers and handlers in accordance with the 2015 WPS training content (40 CFR Part 170). The approval number is EPA WPS TTT W/H 00026. This train the trainer material can be used in 2017, 2018 and beyond.
- This presentation must be presented in its entirety.
- If you add or remove slides from this set, you must submit the training to EPA for approval before it may be used for training the trainer.
- Trainings must be conducted in a manner such that the workers understand the information completely.
- The notes section of the PowerPoint presentation contains important information for the trainer and activities designed to engage the audience and reinforce the information learned. Please review the notes prior to conducting the training.

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 = Worker and Handler Training Topics

 = Handler Training Topics Only

Section 1: Rules and Regulations

Review and preparation for trainers



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The Worker Protection Standard

Federal Laws

- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) governs the registration, sale, and use of pesticide products in the United States
- U.S. Environmental Protection Agency (EPA) regulates the use of pesticides
- FIFRA also gives the EPA the authority to write regulations
- Worker Protection Standard (WPS) rule reduces the effects of pesticides on farm workers by providing information, protection and mitigation measures

State Laws

- Pesticide laws developed at the federal level are the minimum national guidelines that a state must follow for pesticide use and protection of people and the environment
- States may enact rules or laws governing parts of the pesticide use that are stricter than the federal regulations
- Some local authorities also could establish rules and/or regulations needs for local or a particular situation

What is the WPS?

- Adopted into the Code of Federal Regulations in 1992; Significantly revised, with most requirements effective January 2, 2017. The remainder are effective January 2, 2018.
- A regulation developed by the U.S. EPA to protect agricultural employees from the harmful effects of pesticides and their residues
- Covers agricultural workers and pesticide handlers who are employed on any farm, forestry operation or nursery engaged in the outdoor or enclosed space production of agricultural plants

What is a Pesticide?

- Any substance used to prevent, destroy, repel, or mitigate insects, weeds, fungi, rodents, nematodes, or any other organism considered a pest
- Plant growth regulators
- Defoliants
- Desiccants
- Insect repellents



Reasons for Using Pesticides

- Important tools that help growers manage weeds, insects, and crop diseases
- Enable growers to provide consumers with nutritious, abundant, and affordable supplies of food and fiber
- Modern pesticides combined with regular pest monitoring and other non-chemical pest management methods, allow agricultural establishments to produce more food and fiber on less land

Who is Responsible for Providing WPS Protections?

- Agricultural employers on crop-producing agricultural establishments
- Commercial pesticide handling establishment employers

Who is Protected?

- Workers – people employed to perform tasks related to production of agricultural plants
- Pesticide handlers – people employed to mix, load or apply pesticides for use on agricultural establishments in the production of agricultural plants
- Other persons during pesticide applications

When Does the WPS Apply?

- Use of a WPS-labeled pesticide product on an “agricultural establishment” directly related to the production of an “agricultural plant”
- Employment of workers or handlers
- There are some pesticide uses that are considered “non-agricultural uses” that are not covered under this standard

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 interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is:

- Coveralls
- Chemical-resistant gloves made of any waterproof material such as polyvinyl chloride, nitrile rubber or butyl rubber
- Shoes plus socks

Who is an Employer Under WPS?

- An agricultural employer is anyone who is an owner of, or is responsible for the management or condition of, an agricultural establishment, and who employs any worker or handler
- Commercial pesticide handler employer means any person, other than an agricultural employer, who employs any handler to perform handler activities on an agricultural establishment

Who is an Agricultural Worker?

- Any person, including a self-employed person, who is employed (receives wages or salary) and performs activities directly relating to the production of agricultural plants on an agricultural establishment
- Employed and receives compensation for his/her work



Who is a Pesticide Handler?



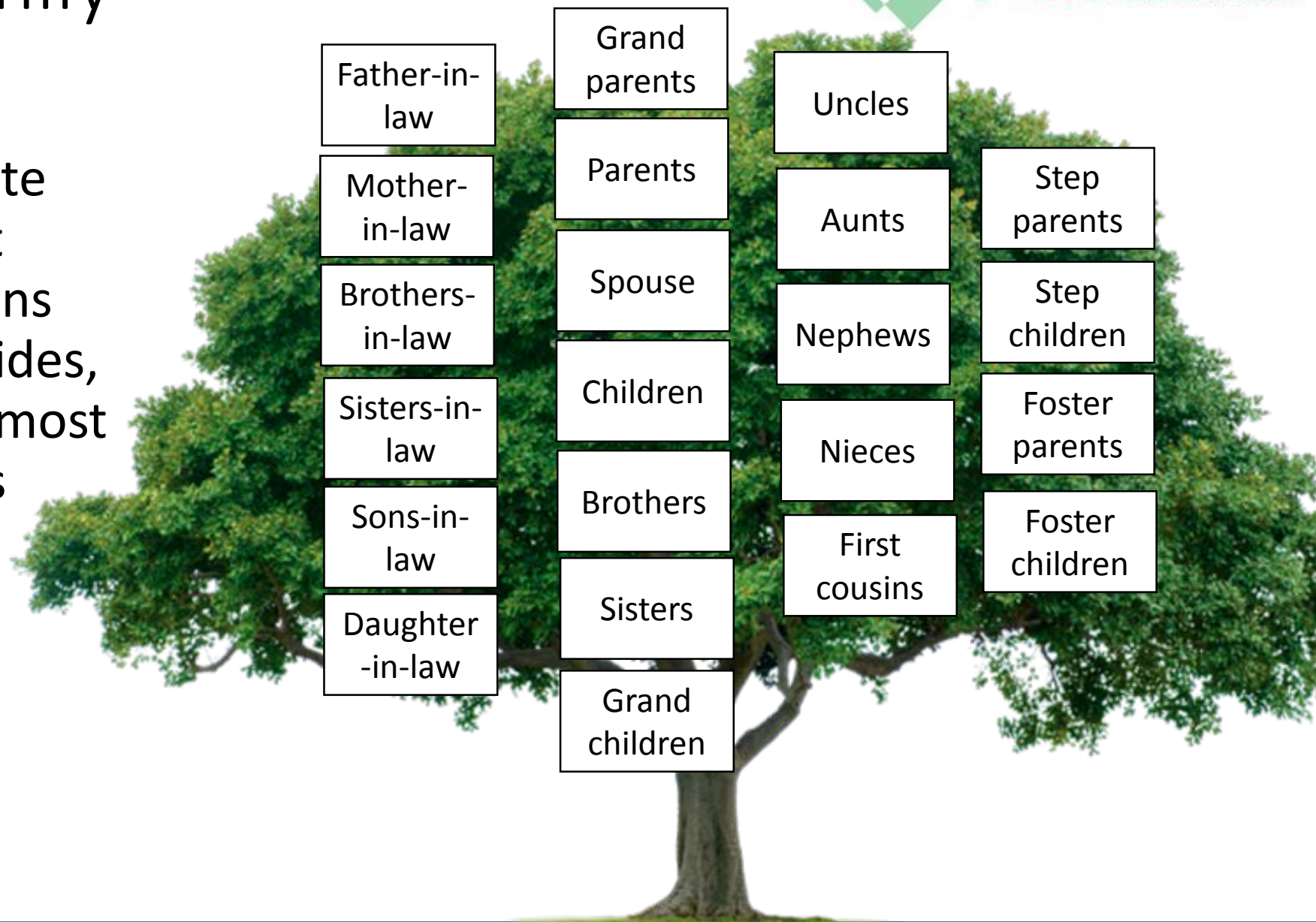
- Handler means any person, including a self-employed person, who is employed by an agricultural employer or commercial pesticide handler employer and mixes, loads, and applies pesticides
- Must be at least 18 years old

Who is an Early-Entry Worker?

- A worker who enters an area after a pesticide application is completed, but before the restricted-entry interval (REI) has expired
- Must be at least 18 years old

Immediate Family Members

- The owner's immediate family members must follow label instructions when handling pesticides, but are exempt from most of the WPS provisions



Goals of WPS



1. Inform



2. Protect



3. Mitigate

Goal 1: Inform

- Annual pesticide safety training
- Pesticide safety information display at central location
- Pesticide application and hazard information in the form of a safety data sheet (SDS) at the central location
- Access to pesticide labeling for handlers

Goal 2: Protect

- Notify agricultural employees about when and where pesticide applications will take place
- Implement application exclusion zones (AEZs) during pesticide applications and REIs for pesticide-treated areas after application
- Provide personal protective equipment for handlers and early-entry workers

Goal 3: Mitigate

- Decontamination supplies at the worksite
- Emergency assistance to and, if needed, transportation to a medical care facility for emergency treatment for employees who get sick or are injured by pesticide exposure while working

Section 2: Training Preparation and Requirements

Review and preparation for trainers



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Who Can Provide Training?

- Have completed an EPA-approved train-the-trainer course
- Are designated as a trainer by state, tribe, or EPA
- Are a certified pesticide applicator

WPS trained handlers may NOT train workers

When Must Workers and Handlers be Trained?

- Training must be provided annually
- Handlers or workers who have not been trained within the last 12 months must receive pesticide safety training
- Workers must be trained before they enter an area that has been treated with a pesticide or where a restricted-entry interval has been in effect within the last 30 days
- EPA has eliminated the allowance for a grace period for training workers
- Handlers must be trained before they perform any handling task

Recordkeeping Requirements

- Employers are responsible for maintaining records of worker and handler training
- The records must include:
 - The trained handler's or worker's printed name and signature
 - Date of the training
 - Information identifying which EPA-approved training materials were used
 - Trainer's name and qualification to train (e.g., certified applicator license number, Train-the-Trainer course information)
 - Worker or handler employer's name
- Employers must provide a copy of the training record to each worker or handler upon his or her request

WPS Training Topics

- Section 3: Agricultural Employee Tasks and Restrictions
- Section 4: Where You May Encounter Pesticides at Work and How They Can Enter Your Body
- Section 5: Pesticide-Related Health Effects
- Section 6: Ways to Reduce the Risk of Pesticide Exposure
- Section 7: First Aid for Pesticide Illnesses and Injuries
- Section 8: Additional Employer Responsibilities
- Section 9: Pesticide Label Information
- Section 10: Protecting People and the Environment When Using Pesticides
- Section 11: Personal Protective Equipment

Gathering Information



- Know the regulations
 - Be sure you are presenting on the most current federal regulations
 - Be aware of any state, tribal or local regulations governing pesticide use and safety

Gathering Information

- Learn as much as you can about your audience before training
 - Are you training pesticide workers, handlers or both?
 - What is their background?
 - What experience do they have?
 - What crops do they work with?

Example of how ‘tasks’ determine the type of employee under WPS

Controls weeds	The employee weeds by hand or with a tool, while working in a “treated area.”	Agricultural Worker
	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, such as on a sidewalk.	No WPS Training Required

Gathering Information

- Know where you will be training
 - Check out the training site before the scheduled training
 - Training outdoors presents specific challenges
 - Setting up the site when training indoors



Organizing Your Training

- Create a training plan with clear objectives and a course outline
- Think about how much time will be required
- Think about things that require additional time

Organizing Your Training



- Selecting materials and handouts to use
- List of equipment and supplies needed
- Additional considerations

How is Training to be Conducted?

- Training must be provided either orally from written materials or audio-visually
- Training must be provided in a manner the worker or handler can understand
- The training location must be reasonably free from distractions and be conducive to training
- Training materials for workers or handlers must be approved by EPA
- The Train-the-Trainer program used to qualify as a trainer of workers or handlers must be EPA approved
- A qualified trainer must be present during the training session to respond to any questions

Time to Train



- Give the audience some background information
- Engage your audience
- Have fun!
- Read the crowd

Section 3: Employee Tasks and Restrictions

Training Topics for both Workers and Handlers



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Agricultural Worker Tasks

- Work in treated fields
- Agricultural activities
- Exposed to pesticide residues
- **DO NOT HANDLE PESTICIDES**



Early-Entry Worker Tasks



- Enter into a treated field during the restricted-entry interval (REI)
- Additional early-entry specific training and protections before entering a treated field
- Must be at least 18
- **DO NOT HANDLE PESTICIDES**

Pesticide Handler Tasks



- Mix, load, apply pesticides
- Fix application equipment
- YES! Mechanics are handlers
- Must be 18 years old

Section 4: Where You May Encounter Pesticides at Work and How They Can Enter Your Body

Training Topics for both Workers and Handlers



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Pesticide Types

- Insecticides – control insect
- Herbicides – control weeds
- Fungicides – control fungi and disease organisms



Pesticide Formulations

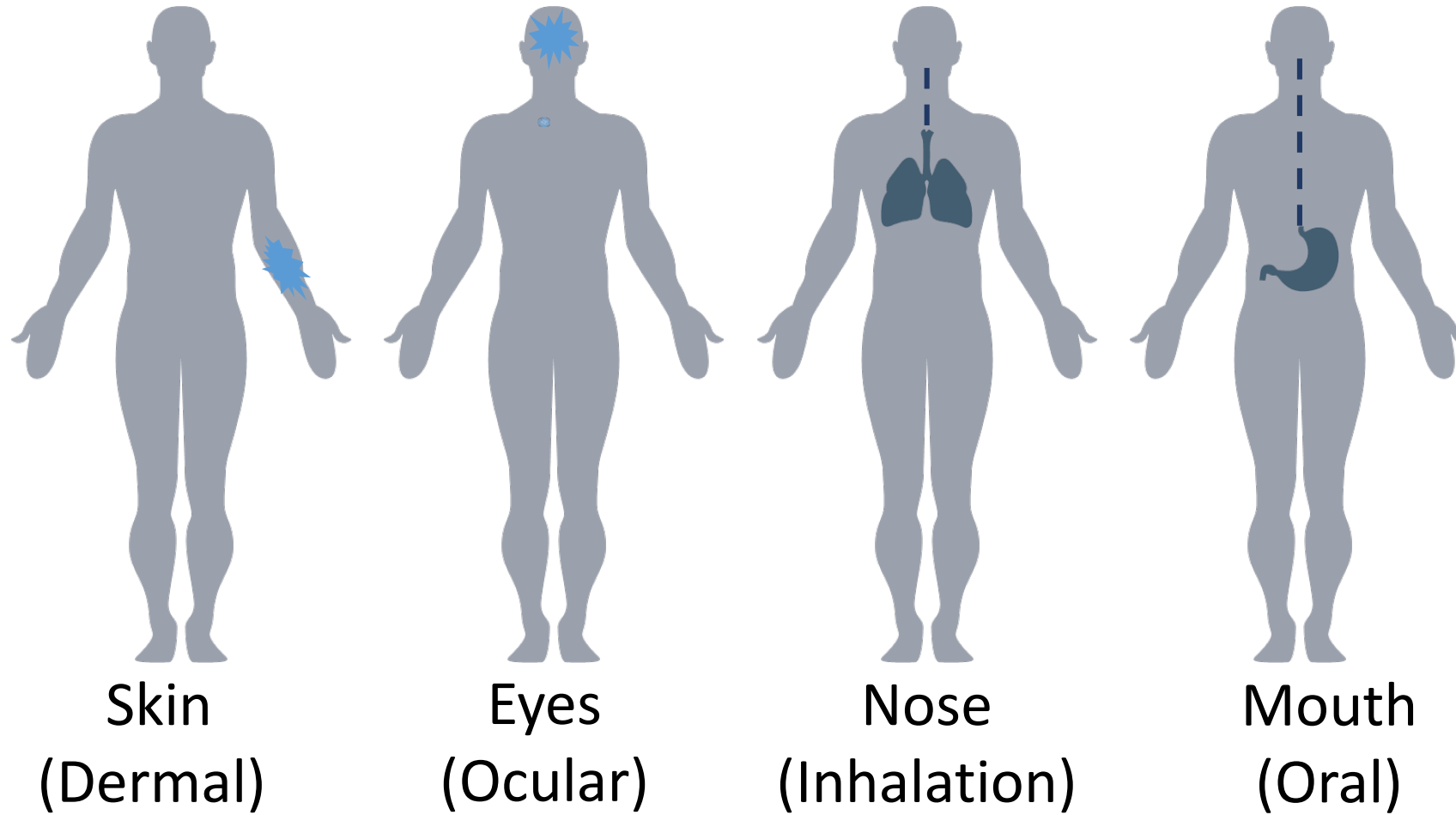


- Liquids
- Dusts
- Powders
- Granules
- Pellets
- Gases
- Gels
- Aerosols

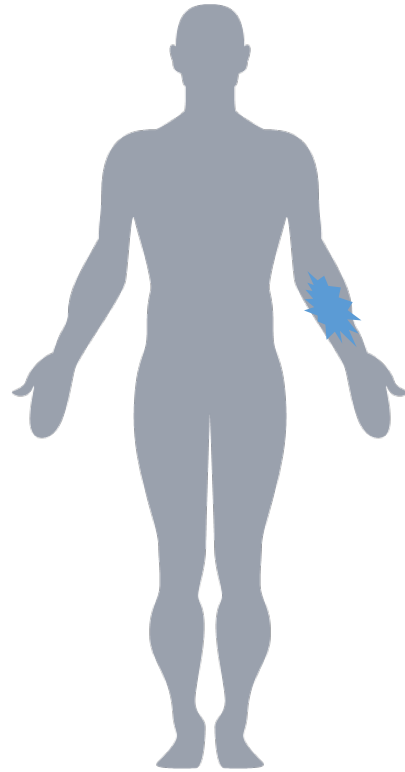
At Work, Pesticides and Pesticide Residues May be Found:

- In or on treated plants (leaves, stems, fruit and vegetables)
- In or on the soil where pesticides were applied
- Tractors, sprayers, and other application equipment
- Used work clothing, shoes, and personal protective equipment (including gloves)
- Pesticide mixing and loading areas
- In the air as drift from a nearby application
- In the irrigation water or irrigation equipment, if the irrigation system is used to apply pesticides, called chemigation
- In or on pesticide containers (including empty pesticide containers)

There are Four Routes of Pesticide Entry into the Body:

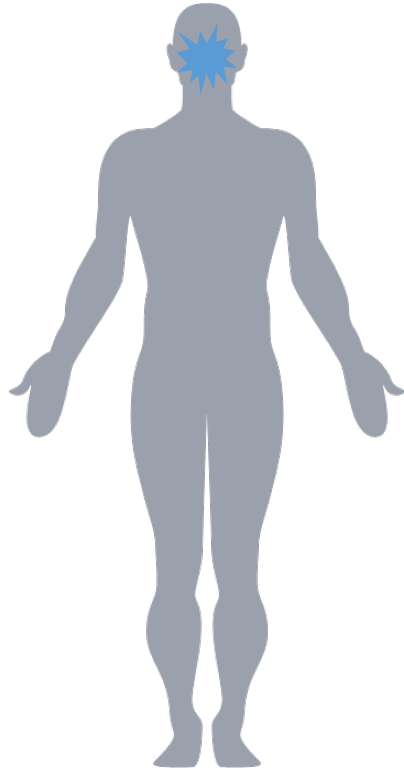


Routes of Entry: Dermal



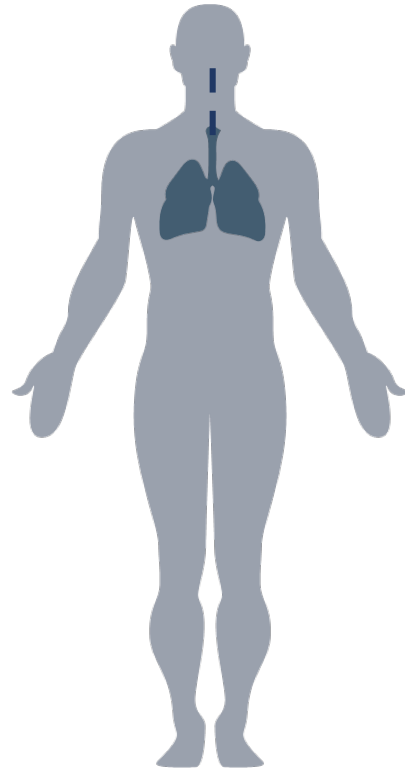
Some pesticides
when contacted
can pass through
the skin into the
blood stream

Routes of Entry: Ocular



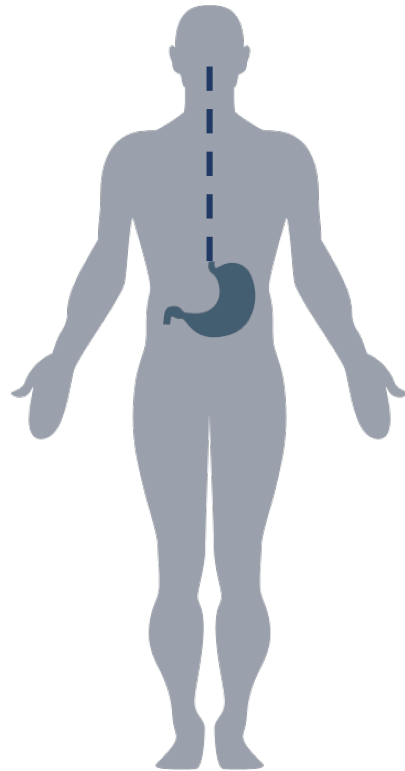
Significant amounts of pesticide can penetrate the outer tissues of the eye and enter the bloodstream

Routes of Entry: Inhalation



Once pesticides have been inhaled, they enter the lungs and bloodstream

Routes of Entry: Oral



Pesticide illness can occur if pesticide residues are transferred to consumed food from unwashed hands

Section 5: Pesticide-Related Health Effects

Training Topics for both Workers and Handlers



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Common Signs and Symptoms

- Eye irritation
- Nose and throat pain
- Skin rash
- Dizziness
- Headache
- Muscle aches or cramps
- Exhaustion
- Nausea
- Diarrhea
- Chest pain
- Breathing difficulties
- Blurred vision
- Excessive salivation or drooling
- Very small, pinpoint pupils
- Lack of muscle control
- Convulsions or seizures
- Unconsciousness
- Death

Symptoms of Exposure to Fumigants

- Irrational behavior
- Elevated body temperatures

Pesticide Poisoning Symptoms Can be Confused with Other Illnesses



- Cold
- Flu
- Heat illness
- Food poisoning
- Hangover

Mild Symptoms



Nose and
throat pain



Dizziness



Eye irritation

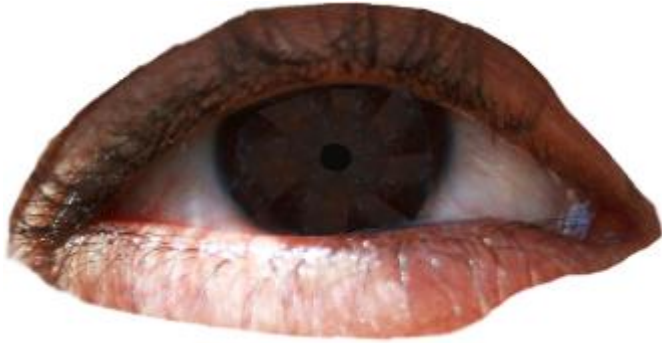


Skin rash

Moderate Symptoms

- Excessive saliva or drool
- Breathing difficulties
- Blurry vision

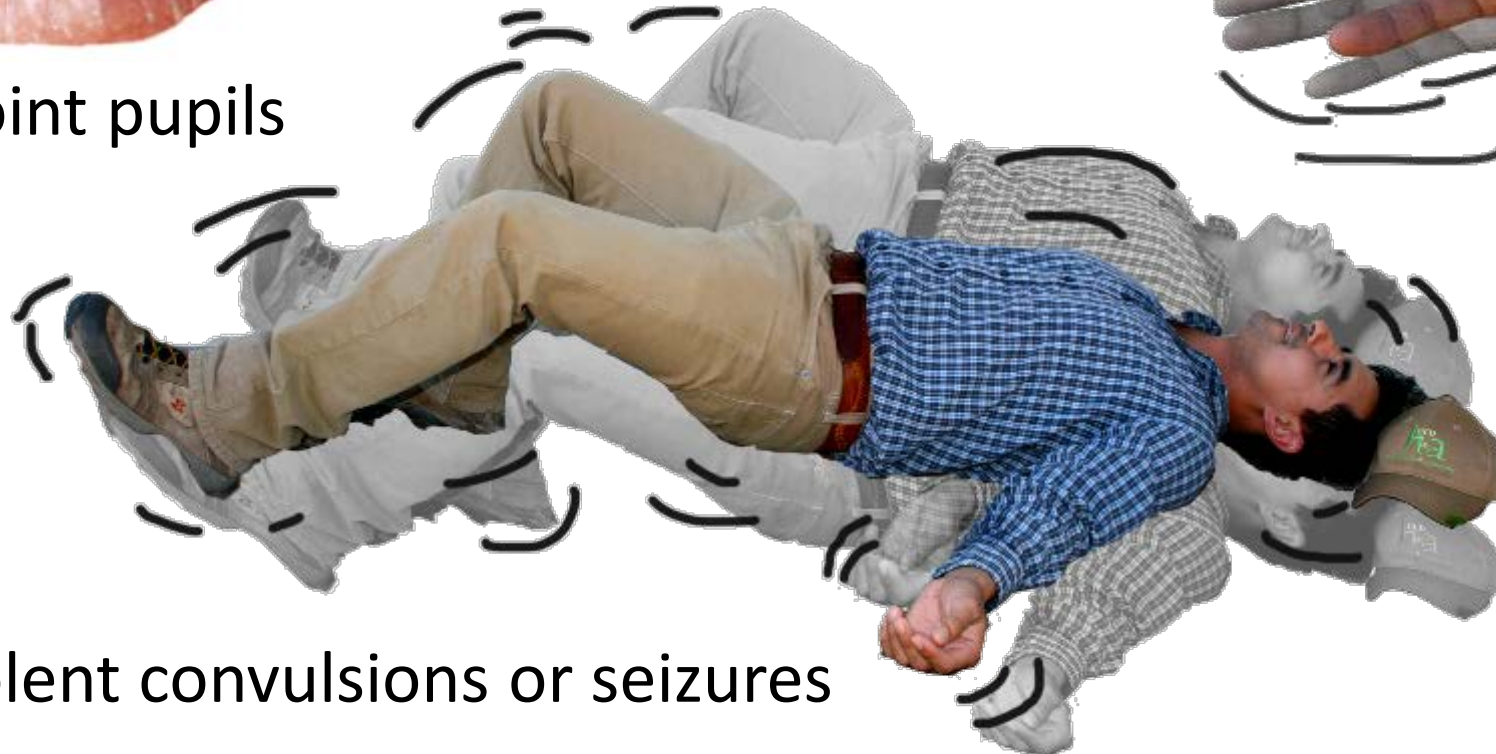
Severe Symptoms



Pinpoint pupils



Trembling, lack of
muscle control



Violent convulsions or seizures

The Type and Severity of Symptoms Depend on:

- The pesticide
- The route of exposure
- The length of exposure
- How often you are exposed
- Age of the person
- Health of the person

Hazards to Children and Pregnant Women

- Pregnant women
 - Miscarriage
 - Birth defects
- Children
 - Still small
 - Still developing



Potential Hazards from Pesticides

Acute

- Short-term
- Symptoms appear shortly after exposure
- Single exposure
- Mild to serious illnesses

Chronic

- Long-term
- Symptoms appear months or years later
- Repeated exposures to a small dose
- Mostly causes serious illnesses

Chronic Pesticide Hazards

- Cancer
- Fertility problems
- Respiratory illness
- Nervous system disorders
- Birth defects
- Immune system disorders

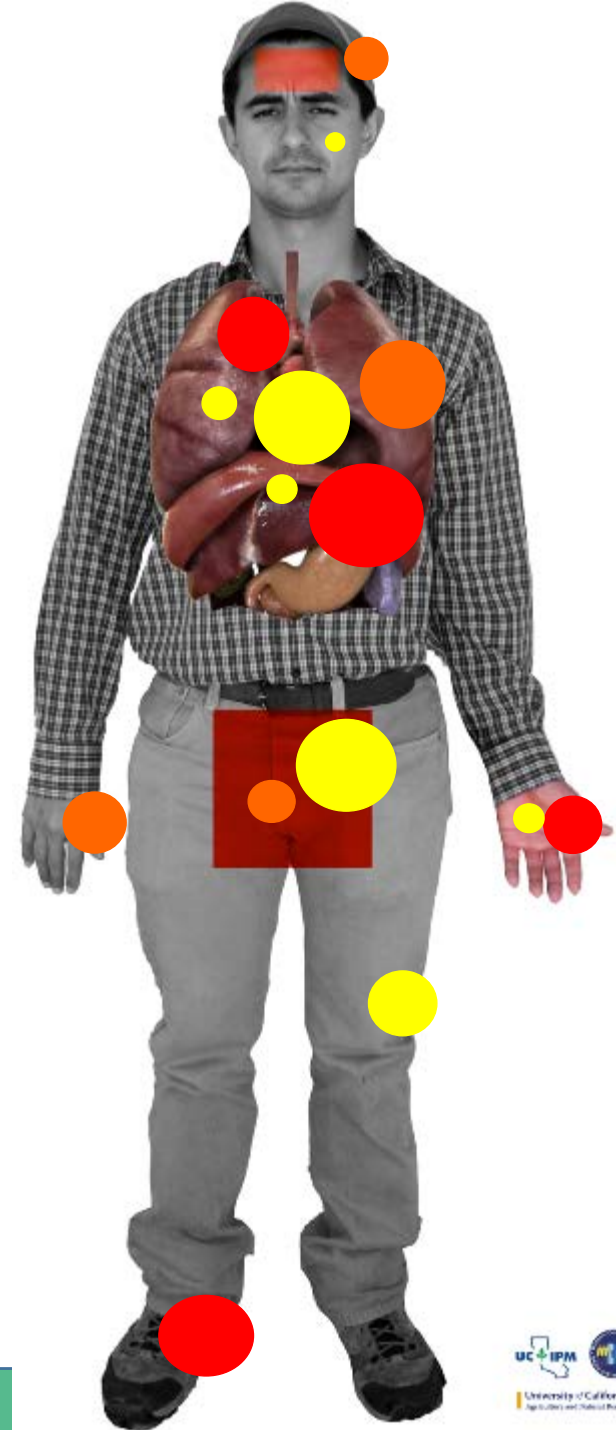


Image credit: Sarah Risorto, UC Statewide IPM Program

Sensitization



- Not overexposure or poisoning
- Allergic reaction that develops over time
- Skin irritation
- Respiratory problems

Reduce Pesticide Residue on Clothing

- Wear work clothes only once
- Put work clothes in a plastic bag after use

Section 6: Ways to Reduce Pesticide Exposure

Training Topics for both Workers and Handlers



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Recognize and Understand the Meaning of Posted Warning Signs

- If you see this sign- or one similar to this one - Do Not Enter!
- This sign means that there may be pesticides or pesticide residues present in the area
- You need to receive training and special protection to enter those areas



Follow Directions and/or Signs About Keeping Out of Pesticide Treated Areas



- Keep out of treated areas or areas being treated with pesticides
- Your supervisor will post signs or notify you verbally about what areas are under a restricted-entry interval (REI)
- Stay away from the application equipment during pesticide applications

Using Protective Clothing

- Remember to use work clothes and/or personal protective equipment that protect your skin
- Keep out of areas indicated by your supervisor
- Leave the area if pesticides are carried towards the area where you are working
- Wash with soap and water after working and before eating, chewing tobacco or using the bathroom and before you contact your family

Wash and Change into Clean Clothes



- Wash or shower with soap and water, shampoo hair as soon as you can after work
- Change into clean clothes as soon as possible after working with pesticides or in areas treated with pesticides

After Working in Pesticide Treated Areas

- Remove work boots or shoes before entering your home
- Remove work clothes and wash or shower before physical contact with children or family members



Wash Work Clothes

- Wash work clothes before wearing them again
- Wash work clothes separately from other clothes
- Wash work clothing separate from family laundry
- Use hot water
- Decontaminate washing machine



Do Not Take Pesticides or Pesticide Containers Used at Work to your Home

- Never take pesticides or pesticide containers home – they may contain pesticide residues that may harm you and/or your family
- Typically pesticides used in agriculture are not to be used at home

Keep Children and Family Members Away from Pesticide Treated Areas



- Keep children out of places where pesticides may be found
- Nonworking family members should not enter into pesticide treated areas
- At home – keep pesticide out of reach of children

Section 7: First Aid for Pesticide Illnesses and Injuries

Training Topics for both Workers and Handlers



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What is Decontamination?

Routine Decontamination

- Cleansing face, hands or the entire human body to minimize exposure to pesticide residues

Emergency Decontamination

- Removing pesticides from eyes, skin or clothes during emergency situations

Agricultural Workers Routine Decontamination

- Wash hands before eating, drinking, smoking, using the bathroom; before touching eyes or mouth; and before getting into vehicles
- Change into clean clothes and shoes
- Shower or bathe



Pesticide Handlers Routine Decontamination



- Follow routine procedures for workers
- Decontaminate pesticide application equipment
- Decontaminate reusable personal protective equipment (PPE)

Emergency Decontamination Procedures

- Remove any PPE as quickly as possible or remove contaminated clothing as quickly as possible
- Rinse the pesticide from the skin immediately with clean water
- Wash with soap and water and shampoo hair as soon as possible
- Put on clean, uncontaminated clothes
- Report to supervisor or person in charge
- Get medical care immediately if symptoms of pesticide poisoning develop or are suspected

Safety Data Sheets

- Provides information about the pesticide product
- Refer to the SDS if there is an exposure
- SDS for all pesticides used on the establishment are located at central location
- SDS should match up with the pesticide application records

How and When to Obtain Emergency Medical Care

- Seek medical attention immediately
- Employer will provide transportation



First Aid for Skin Exposure



- Help the victim to:
 - Rinse with water
 - Remove contaminated PPE or contaminated clothing
 - Wash with plenty of soap and water

First Aid for Eye Exposure



- Help the victim to:
 - Immediately, using a gentle stream of water, flush the eye
 - Keep the eye open and as wide as possible while flushing
 - Continue flushing for at least 15+ minutes
 - Report to supervisor and get medical attention

First Aid for Inhalation Exposure

- Move the exposed person into fresh air
- Loosen tight clothing
- Keep air passages clear
- Perform artificial respiration if necessary
- Get medical attention as soon as possible

First Aid for Oral Exposure



- Never induce vomiting if the person is not fully conscious, or suffering convulsions
- Never induce vomiting without specific instructions from the label or a medical professional
- Get person to a medical facility as quickly as possible

Section 8: Additional Employer Responsibilities

Training Topics for both Workers and Handlers



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Employer's WPS Responsibilities

- The employer's responsibility to make sure the worker or handler gets annual pesticide safety training before they begin their work to remind them of the basic steps they can take to protect themselves, their families, and in the case of a handler, other people and the environment, from pesticides that can cause harm
- The agricultural employer needs to provide pesticide application and hazard information, for the worker or handler to refer to if they wish to know about pesticides used on the establishment, what kinds of risks those pesticides pose, and where those restrictions on entry into an area are on the establishment
- A worker or handler can ask their employer for a copy of the application information and the safety data sheets, or they may designate a representative to ask for them on their behalf. The designation of a representative must be in writing

Employer's WPS Responsibilities

- Your employer must tell workers and handlers where the central location is and where the decontamination supplies are on the establishment
- The safety information display at the central location and at some places with supplies for washing up (decontamination supplies) is a reminder about the steps workers and handlers can take to reduce exposures. It has the name and address of a nearby medical facility, in case of an emergency where a worker or handler is made sick from a pesticide. In case a worker or handler needs to report a violation involving a pesticide, contact information for enforcement is on the display
- The employer must provide water, soap, and towels near where workers and handlers are working so they can wash up when they leave the work area, and if there is an accidental exposure like a spill on a handler, the supplies may be used in an emergency to remove pesticides and reduce their effect. Handlers using products that require eye protection, or are under pressure, must have access to water for emergency eye flushing, too

Employer's WPS Responsibilities

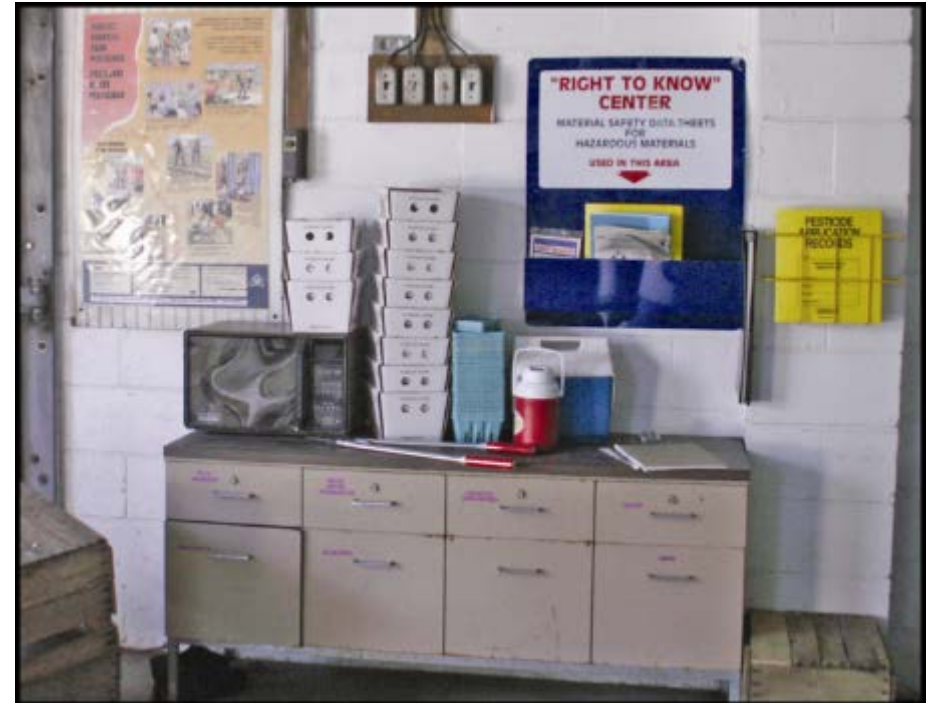
- If a worker or handler is made sick, and pesticides may have been the cause, the employer needs to be told so he can make sure they are taken to a medical facility, and provide the medical personnel with information about the exposure
- Workers have to be notified by the employer of restrictions on areas where applications are taking place and where an REI is in effect. Those notifications may be in the form of oral warnings or the posted warning signs that will be around the treated area

Pesticide Safety Training

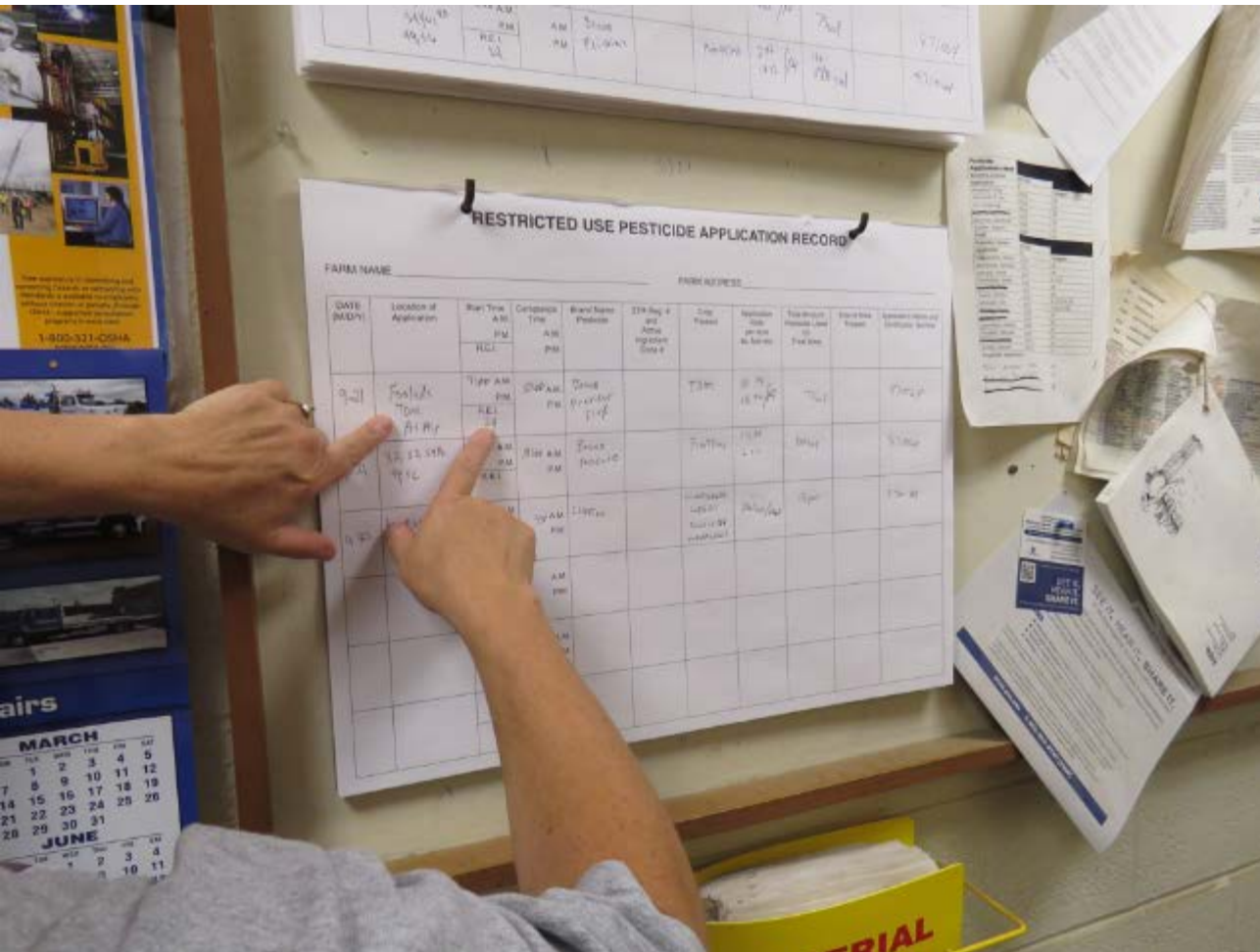
- Annual training is required
- Training must be provided to a
 - Worker before starting work in a treated area
 - Handler before performing any handling task
- A worker or handler can ask for a record of the training

Pesticide Safety Information

- Pesticide safety information must be displayed at:
 - Central location
 - Permanent decontamination supply sites
 - Other decontamination locations where supplies are provided for 11 or more workers or handlers



Pesticide Application Information and Safety Data Sheets



- Name, EPA registration number and active ingredient
- Crop or site treated and location and a description of treated area
- Date(s) and times the pesticide application started and ended
- Duration of the restricted-entry interval (REI) for that application
- A copy of the Safety Data Sheets (SDS)

Requesting Pesticide Application Information and Safety Data Sheets

- Workers and handlers can request the pesticide application information and SDS from their employer, or they may designate a representative to do so on their behalf
 - A treating medical person can also request access to or a copy of the application information and SDS

Other Employer Responsibilities in Relation to Pesticide Information

- Employers must inform workers and handlers where the pesticide safety, application and hazard information is located
- Allow workers and handlers unrestricted access to the posted information

Decontamination Supplies for Agricultural Workers

- Water
- Soap
- Single use towels



Decontamination Supplies for Pesticide Handlers

- Water
- Soap
- Single use towels
- Clean change of clothes to be used in case the handler's clothes or PPE become contaminated

Decontamination supplies must be located within $\frac{1}{4}$ mile of the pesticide handler, at mixing and loading site, and at the site where PPE is removed

Decontamination Supplies for Pesticide Handlers

- Emergency eye flushing station: a system or container of water that can provide a gentle stream to rinse the pesticide from the eye
- Located at any site where handlers are mixing or loading a pesticide that requires protective eyewear or are using a closed system that is under pressure
- Applicators using products that require protective eyewear must be provided a pint of water that they need to keep close by so they have ready access in case of an exposure to their eyes



Provide Emergency Medical Assistance

- If a worker or handler has been made ill and it is reasonable to think it was from pesticides, they should:
 - Inform their employer, who must make transportation available to a medical facility
 - Get first aid, if there is time, but do not delay getting to medical personnel!
 - The employer needs to give this information to the medical personnel: the safety data sheet for the product, the name of the product, its registration number and active ingredients, and the circumstances of the use of the product and of the exposure

Oral and Posted Notification of Treated Areas

- Workers must be notified by the employer of restrictions on areas where applications are taking place and where an REI is in effect
- Notifications may be in the form of oral warnings or the posted warning sign that will be around the treated area



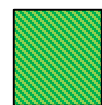
Protections During Applications: Outdoor Production

- Drift can result in contact that can make workers ill or contaminate their clothes worn home
- If workers feel drift contacting them, leave the area immediately and wash up as soon as is practical
- Agricultural employers must keep workers and other persons out of application exclusion zones (AEZs)

Application Exclusion Zone in Outdoor Production



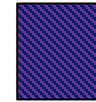
When the application is concluded, the AEZ no longer exists.



Field

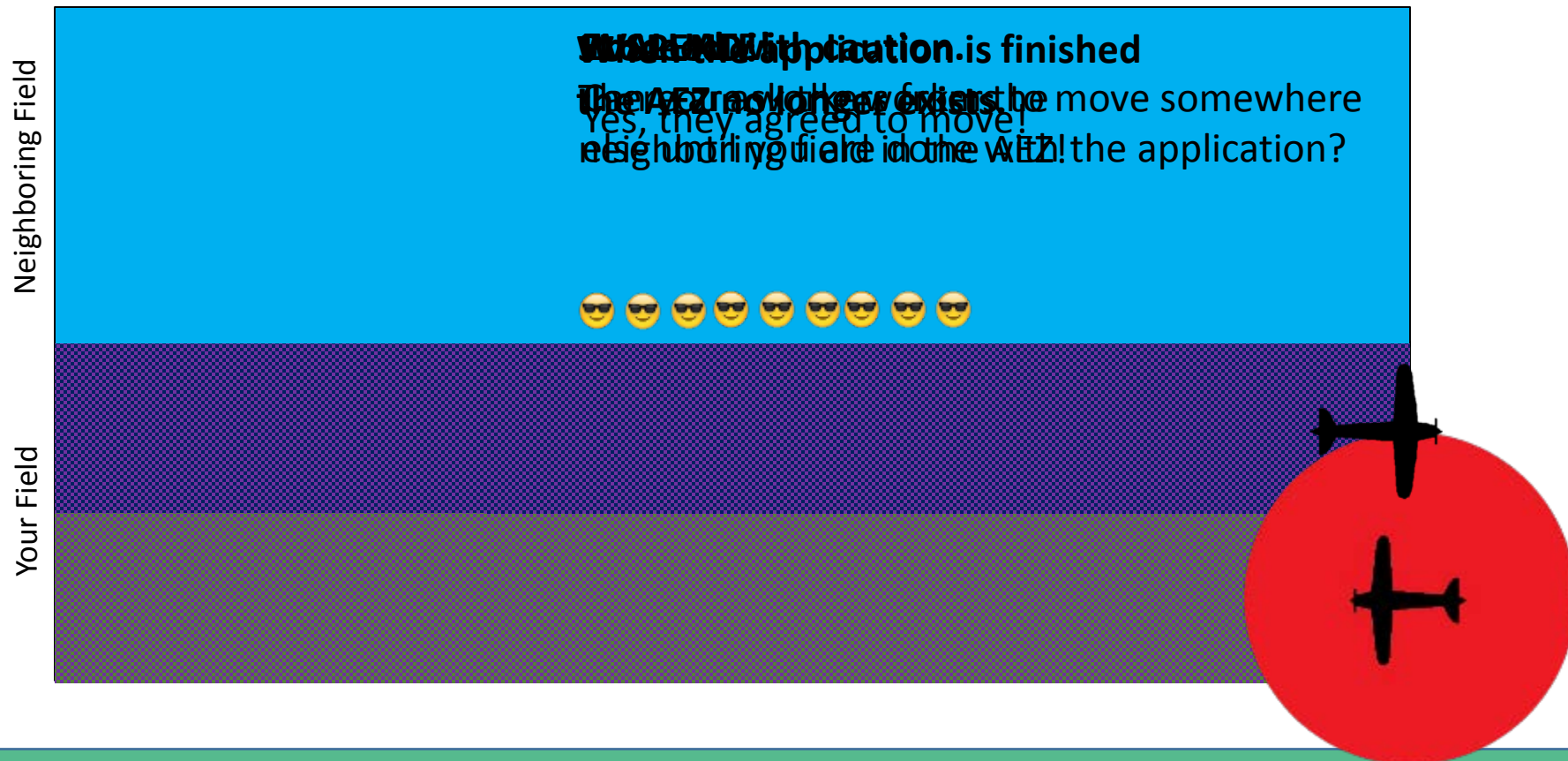


AEZ



Treated Area

AEZs on Field Borders



Protections During Applications: Enclosed Space Production

- Ensure that no pesticide contacts any workers and other persons directly or through drift
- No worker entry to an enclosed space structure until the air concentration level specified on the label is met or, if no air concentration level is specified, until after proper ventilation criteria is met for certain types of applications

Other WPS Topics

- Employer responsibilities:
 - Provide records or other information required by the WPS for inspection to an employee of EPA or any duly authorized representative of a federal, state or tribal agency responsible for pesticide enforcement
 - Employers cannot punish workers for attempting to comply with WPS
- Workers and handlers:
 - Report suspected use violations

Section 9: Pesticide Label Information

Training Topics for Handlers only



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Pesticide Labels

- Safety information
- Legal use information



Read the Label BEFORE:

- Buying the pesticide
- Mixing the pesticide
- Applying the pesticide
- Storing the pesticide
- Disposing of the pesticide container



Parts of the Pesticide Label



Brand Name

- Commercial name



Knock 'em down 3SL Herbicide By ToxiK™

A weed, grass, and harvest aid desiccant/
defoliant herbicide.

Active Ingredients:

Paraquat dichloride

(tetrachloroisophthalonitrile)43.2%

Other Ingredients:..... 56.8%

Total: 100.00%

Pesticide Manufacturer

- Company that makes or distributes the pesticide

Knock 'em down 3SL Herbicide By ToxiK™



A weed, grass, and harvest aid desiccant/
defoliant herbicide.

Active Ingredients:

Paraquat dichloride

(tetrachloroisophthalonitrile)43.2%

Other Ingredients:..... 56.8%

Total: 100.00%

Pesticide Type

HERBICIDES



WEEDS/PLANTS

INSECTICIDES



INSECTS

RODENTICIDES



RODENTS

FUNGICIDES



FUNGI/PLANT PATHOGENS

ACARICIDES or MITICIDES



MITES

MOLLUSCICIDES



SLUGS and SNAILS

Ingredients

- Active ingredient(s)
- Other ingredients

Sulfur DF

Fungicide / Acaracide

Active Ingredient: Sulfur	80%
Other Ingredients:	20%
Total	100%

<i>Active Ingredient:</i>	
Chlorothalonil (tetrachloroisophthalonitrile)	82.5%
<hr/>	
<i>Other Ingredients:</i>	17.5%
<hr/>	
<i>Total:</i>	100.0%

Pesticide Formulations

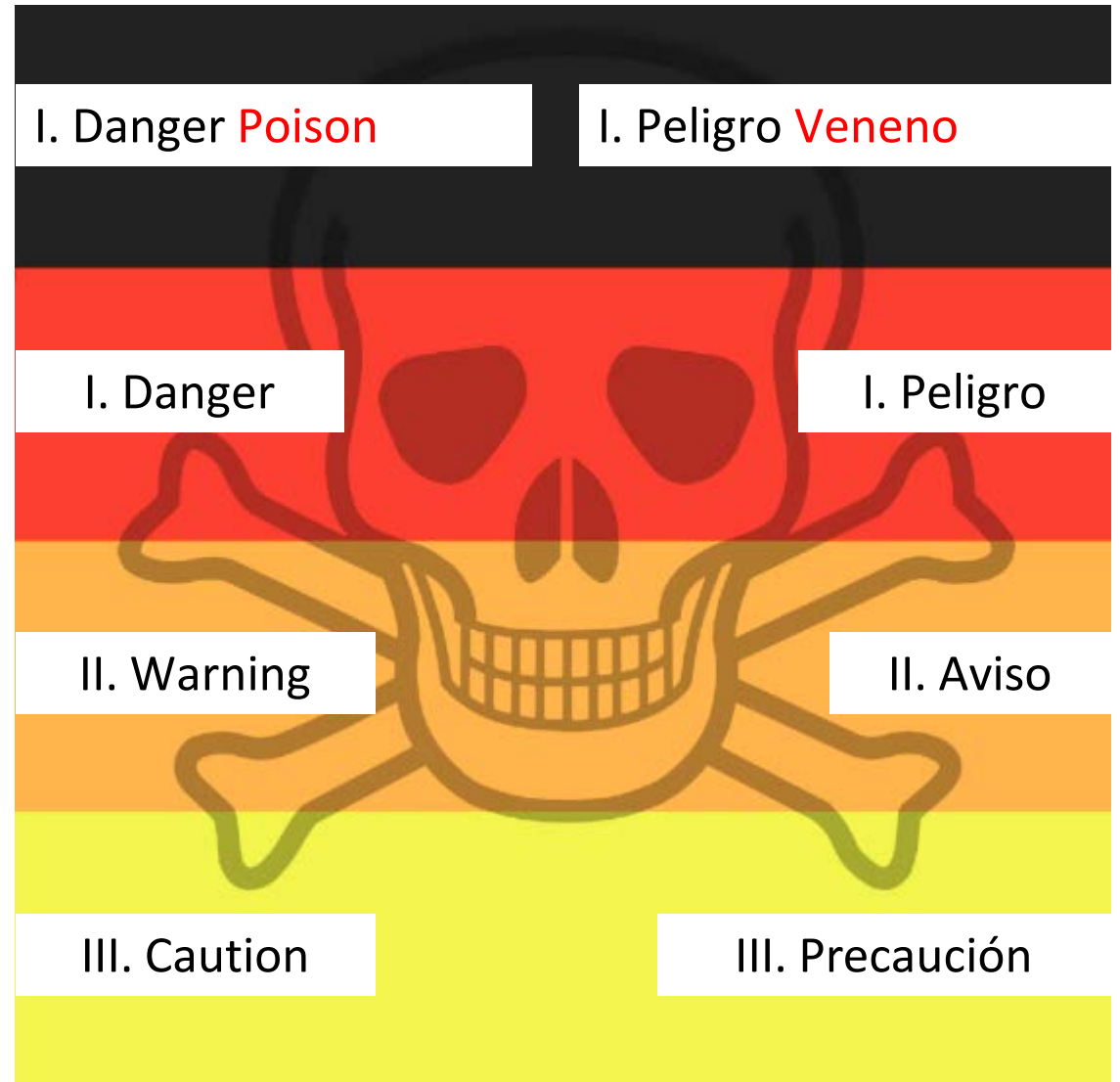
Liquid Formulations	Dry or Solid Formulations	Other Formulations
Emulsifiable concentrate (EC)	Dust (D)	Aerosol
Flowable (F)	Dry Flowable (DF)	Fogger
Liquid baits and gels	Wettable powder (WP)	Soil fumigant
Soluble liquids (SL)	Pellets (P)	Structural fumigant

EPA Registration Number

- Unique number
- Important for pesticide emergencies

Signal Words

- Danger Poison
- Danger
- Warning
- Caution



First Aid

- First aid for each route of exposure:
 - Eyes
 - Nose
 - Mouth
 - Skin

FIRST AID	
If in eyes	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15-20 minutes.• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.• Rinse eye only with water. Do not put eye drops, drugs, or ointments in eyes unless specifically recommended by a medical doctor or a poison control center.• Call a poison control center or doctor for treatment advice.
If inhaled	<ul style="list-style-type: none">• Move person to fresh air.• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.• Call a poison control center or doctor for further treatment advice.
If on skin or clothing	<ul style="list-style-type: none">• Take off contaminated clothing.• Rinse skin immediately with plenty of water for 15-20 minutes.• Call a poison control center or doctor for treatment advice.

Personal Protective Equipment (PPE)

- PPE could be different for each of these different tasks:
 - Mixing and loading
 - Applying
 - Early entry

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Harmful if absorbed through skin. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse. Wear long-sleeved shirt and long pants, socks and shoes and chemical-resistant gloves made of any waterproof material such as polyvinyl chloride, nitrile rubber or butyl rubber.

Personal Protective Equipment (PPE)

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

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material such as polyvinyl chloride, nitrile rubber or butyl rubber
- Shoes plus socks

User Safety Requirements

Follow the manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Precautionary Statements

- How to protect people and the environment

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

DANGER/PELIGRO POISON/VENENO

May be fatal if swallowed. Fatal if inhaled. Corrosive. Causes irreversible eye damage. Wear protective eyewear. Do not breathe spray mist. Wear a dust/mist respirator. Do not get in eyes or on clothing. Harmful if absorbed through skin. Avoid contact with skin. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

IMPORTANT: Inhalation is an unlikely route of exposure due to low vapor pressure and large spray droplet size, but mucosal irritation or nose bleeds may occur. Prolonged contact with this concentrated product can irritate your skin.

Environmental Hazard Statements

- Some pesticides are harmful to:
 - Birds
 - Fish
 - Beneficial insects
 - Water resources

ENVIRONMENTAL HAZARDS:

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply where runoff is likely to occur. Do not apply where weather conditions favor drift from areas treated. Do not contaminate water when disposing of equipment washwater or rinsate.

Restricted-Entry Interval (REI)

- Period of time between the end of the application and when re-entry into the field is permitted
- To enter during the REI, you must:
 - Wear label-required PPE
 - Receive training and information specific to the early entry

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 Interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry Interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is:

- Coveralls
- Chemical-resistant gloves made of any waterproof material such as polyvinyl chloride, nitrile rubber or butyl rubber
- Shoes plus socks

Directions for Use

- Sites allowed
- Pests controlled
- Application rates
- Mixing instructions
- Application restrictions

BRASSICA LEAFY VEGETABLES CROPS AND TURNIP GREENS

All members of the Brassica Leafy Vegetable Group 5, plus Turnip greens, including: Broccoli, Broccoli raab (rapini), Brussels sprouts, Cabbage, Cauliflower, Cavalo broccolo, Chinese broccoli (gai lan), Chinese cabbage (bok choy), Chinese cabbage (napa), Chinese mustard cabbage (gai choy), Collards, Kale, Kohlrabi, Mizuna, Mustard greens, Mustard spinach, Rape greens, Turnip greens

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Flea beetles Harlequin bug Leafhoppers	1/2 to 1	Repeat applications as needed up to a total of 4 times per year but not more often than once every 7 days.
Armyworm Aster leafhopper Corn earworm Diamondback moth Fall armyworm Imported cabbageworm	1 to 2	

DIRECTIONS FOR APPLICATION

CROP	DISEASES (Pathogen)	Lbs. Product/A (lbs. a.i./A)	APPLICATION DIRECTIONS
Asparagus	Rust (<i>Puccinia asparagi</i>) Purple spot (<i>Pleospora herbarum</i>) Cercospora blight (<i>C. asparagi</i>)	1.8 to 3.6 (1.5 to 3.0)	Use water volumes of 25 to 50 gallons per acre. Begin applications following final harvest of spears. Repeat applications at 14 to 28 day intervals (the minimum retreatment interval is 14 days), depending on disease pressure. Use the higher rate and shorter interval if disease severity begins to increase during the season or weather conditions are conducive for severe epidemics. Apply by ground.

Specific Use Restrictions:

- Do not apply more than 11 pounds of Bravo Ultrex (9.0 lbs. a.i.) per acre during each growing season.
- Do not apply within 190 days of the harvest of spears in the following season.

Storage and Disposal Instructions

- Storage temperature range
- Specific storage or disposal instructions

STORAGE AND DISPOSAL

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

Pesticide Storage

Store in original containers only. Keep container closed when not in use. Do not store near food or feed. In case of spill on floor or paved surfaces, mop and remove to chemical waste storage area until proper disposal can be made if product cannot be used according to the label.

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 of the nearest EPA Regional Office for guidance.

Container Handling [less than or equal to 5 gallons]

Non-refillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use and disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration.

Section 10: Protecting People and the Environment When Using Pesticides

Training Topics for Handlers only



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Pesticide Handlers

- Pesticide handlers (employees who):
 - Mix, load and apply agricultural pesticides
 - Flaggers or spotters for aerial applications
 - Responsible for cleaning and repairing pesticide application equipment
 - Irrigators may be considered pesticide handlers if they work with chemigation systems
- Employees who are pesticide handlers must be at least 18 years old

Posting Treated Areas

- Required when applying a pesticide with an REI greater than:
 - 48 hours in outdoor areas
 - 4 hours in enclosed spaces
- Posting is also mandatory when required by the label
- Employer is responsible for checking the label for REI and posting requirements



Proper Application and Use of Pesticides

- Pesticide 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 and appear uniform and are not separating or clumping
 - Hoses, valves, nozzles, hoppers, and other equipment parts are functioning properly

Safety Requirements for Transporting Pesticides

- Transport pesticides in the truck bed, cargo area, or on the back of the spray rig
- Check containers for leaks before loading and unloading
- Protect containers from rain and other potential weather damage
- Secure or tie down all pesticide containers in the cargo area
- Monitor containers at all times during transportation
- Keep containers in a locked area

Storage and Disposal of Pesticides

- Storage and disposal instructions are usually found at the end of the label
- Storage and disposal regulations may vary between states or counties
- Employers should check with their local pesticide regulatory agency for additional storage and disposal regulations, container recycling services, and unused pesticide collection programs

General Procedures for Spill Cleanup

- Protect yourself by putting on the PPE listed on the label
- Control the spill by placing the container upright to stop more from spilling or by putting a broken or leaking container into a plastic bag or other secondary container
- Contain the spill and the area by using an absorbent material to keep the product from spreading
- Clean up the spill according to label directions



Do Not Spray Other People

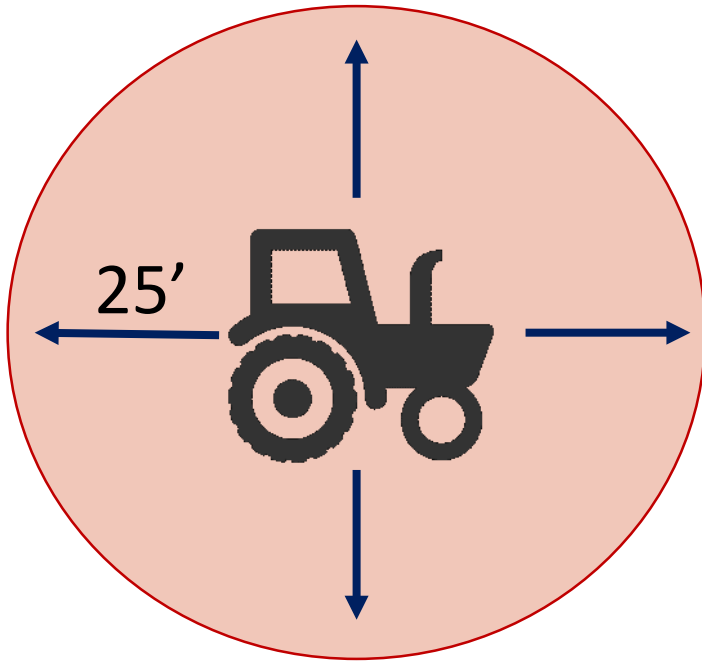
- Pesticide handlers are prohibited from applying pesticides in a manner that will contact workers or other people, either directly or through drift



Reducing Hazards from Pesticide Drift

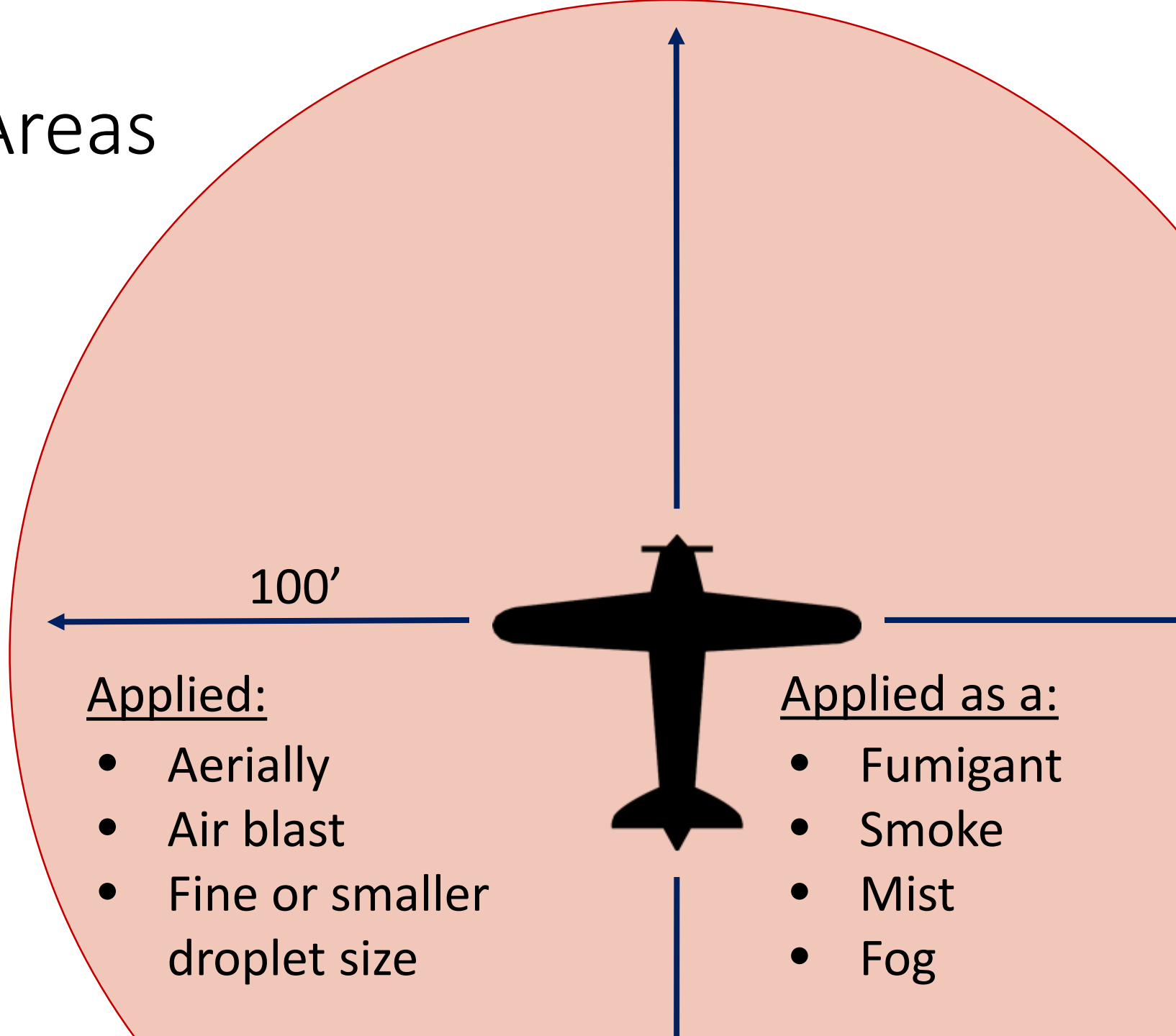
- Pesticides have a greater potential to drift when they are applied through nozzles designed to deliver small droplets.
- Wind also plays an important role in the distance vapors or dust can travel
- Application exclusion zones (AEZ) are intended to protect people from drift

AEZs in Outdoor Areas



Applied:

- Medium or larger droplet size
- >12" off ground



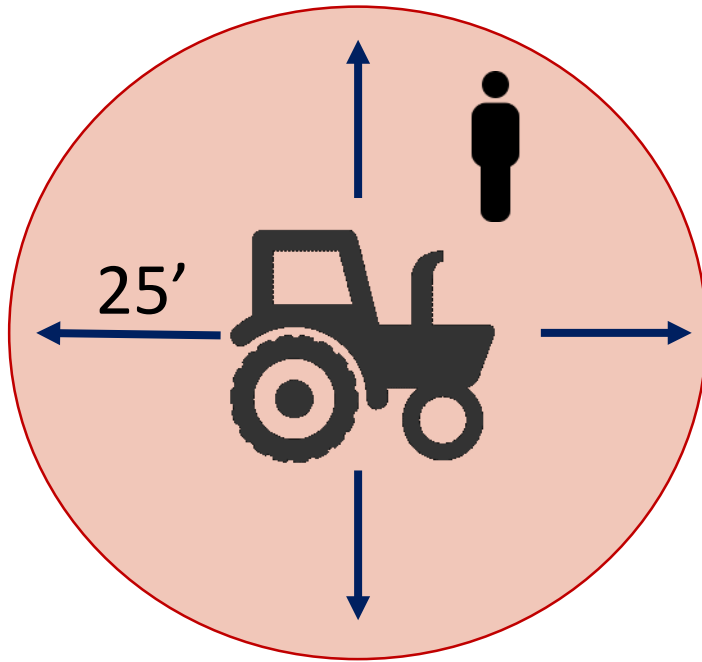
Applied:

- Aerially
- Air blast
- Fine or smaller droplet size

Applied as a:

- Fumigant
- Smoke
- Mist
- Fog

Suspend Applications if People are in the AEZ



- Handlers must suspend pesticide application if worker or other person is in AEZ

Protecting Sensitive Areas



- Be exceptionally careful when applying pesticides near or adjacent to:
 - Places where people and pets live, work, play, or travel
 - Water sources
 - Wildlife and beneficial insect habitats
 - Livestock areas
- The label will provide details about sensitive environmental areas, where handlers should remain careful of (under “Environmental Hazards”)

Other Impacts of Pesticides on the Environment

- Pesticides that are not absorbed by plants or soil can move from the site and contaminate other areas
- Applying pesticides when it is raining or shortly before it rains can result in runoff or pesticide movement off the application site
- Application during precipitation events may reduce the efficacy of the application, as well as lead to off-site movement of the pesticide

Section 11: Personal Protective Equipment

Training Topics for Handlers only



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Importance of PPE



PPE on the Pesticide Label

- Select PPE based on label instructions
- Some labels ask handlers to wear specific work clothing, such as
 - Long-sleeved shirt
 - Long pants
 - Shoes and socks
 - Short-sleeved shirts or shorts



PPE on the Pesticide Label

- Other pesticide labels list the PPE handlers must wear, which may include:
 - Gloves
 - Aprons
 - Chemical-resistant footwear
 - Coveralls (cloth)
 - Chemical-resistant suit
 - Chemical-resistant headgear
 - Protective eyewear
 - Respirator
- If handling more than one pesticide, use the most protective PPE for that task

Read the Label CAREFULLY:

- Read the label thoroughly to make sure you understand ALL of the PPE requirements.
- Don't skim- it's easy to miss important details

Personal Protective Equipment:

Some materials that are chemical-resistant to this product are listed below.

Handlers who may be exposed to the dilute through application or other tasks must wear: Long-sleeved shirt and long pants, Chemical-resistant gloves, such as Nitrile, Butyl, Neoprene, and/or Barrier Laminate, and Shoes plus socks.

Handlers who may be exposed to the concentrate through mixing, loading, application, other tasks must wear: Long-sleeved shirt and long pants, Chemical-resistant gloves, such as Nitrile, Butyl, Neoprene, and/or Barrier Laminate, Shoes plus socks, and Protective eyewear.

Chemical-resistant PPE

- Chemical-resistant PPE doesn't allow a measurable amount of chemical to pass through
- Chemical-resistant can refer to different types of PPE including:
 - Gloves
 - Footwear
 - Suit
 - Aprons

Waterproof PPE

- Waterproof PPE refers to PPE that is made of a material that doesn't allow a measurable amount of water or pesticides mixed with water to pass through

Reusable vs Disposable PPE

- Reusable PPE must be cleaned after use
- Disposable PPE must be thrown out after the work day or if soiled by pesticides

Coveralls or Chemical-resistant Suits

- Must be loose fitting
- 1 or 2 piece garments
- Must cover entire body except the head, hands, and feet
- Coveralls = cloth/fabric
- Chemical-resistant suit = chemical-resistant material



Apron

- Aprons must be long enough to cover the front of the body from mid-chest to knee



Chemical-resistant Headgear

- A chemical-resistant hood or hat, with a wide brim

Hat or Overhead Protection

- Non-absorbent material
- Wash with soap and water at the end of the handling task
- **DO NOT WEAR** absorbent hats, such as baseball caps



Protective Eyewear



- Provide front, brow, and temple protection
 - Safety glasses
 - Chemical splash goggles
 - Face shield
 - Full-face respirators

Chemical-resistant Footwear

- Chemical-resistant shoes, boots or shoe coverings
- Must be made of chemical-resistant material such as rubber or vinyl

Gloves



- Gloves must be worn during handling, including repairing equipment and adjusting nozzles
- If the label requires a certain material, such as nitrile, gloves must be made of specified material
- Handlers **MUST NOT** wear cotton, suede or leather gloves

Glove Liners

- Glove liners can be worn underneath gloves
- They must not extend outside of chemical-resistant glove
- Glove liners must be discarded either after 10 hours of use or within 24 hours after they are first put on, whichever comes first
- They must be removed if they contact pesticide directly, and they cannot be reused
- Glove liners should be separate from the glove itself
- Cotton-lined and fleece-lined gloves are not permissible

Respirators

- Respirators are important if there is the likelihood of the handler's exposure to droplets or vapors
- Respiratory equipment tested and certified by the National Institute of Occupational Safety and Health (NIOSH)
- Identified by a "TC" code



Respirators

- Make sure to use the correct respirator, cartridges and filters as listed on the label
- Respirators, cartridges and filters are product- and task specific

Respirator-Use Requirements

- When a handler uses a pesticide that requires respiratory protection THE EMPLOYER is responsible for providing the following to the handler (at no cost) before he/she uses a respirator required by the label:
 - Medical evaluation
 - Respirator fit test
 - Respirator use and maintenance training

Medical Evaluation

- Medical evaluation required before handler uses respirator
- Medical history questionnaire
- Possible follow-up visit
- Repeat evaluation if there is a change in the conditions of use or health status of handler

Respirator Fit Test

- Fit tests must be performed before the handler uses the respirator and at least annually after that
- Fit tests must be repeated if:
 - The respirator changes
 - There are changes to the size and/or shape to the handler's face

Respirator Use and Maintenance Training

- Handlers that use respirators must be trained
 - Before they begin using the respirator
 - At least annually
- Training must be repeated if handler demonstrates a lack of knowledge



PPE Inspection

- Inspect PPE to make sure it is in good condition before wearing
- Inspect PPE when cleaning at the end of the work day
- If PPE is damaged or needs repair, the handler should report to employer who must fix or replace

PPE Inspection Checklist

- Inspect boots or chemical-resistant shoe coverings for holes, tears, or weak spots.
- Inspect re-usable gloves for damage, such as holes, cracks, tears, areas that have become bubbled or spongy, and any discoloration.
- Check coveralls and chemical-resistant suits for rips, tears, holes or separation along seams and zippers.
- Make sure that the coveralls or chemical-resistant suit that you will use is the correct size so that it will offer you optimal protection and doesn't interfere with movement.
- Check apron material for holes or damage. Make sure that apron strings are in good condition and enable you to wear the apron securely.

PPE Inspection Checklist cont.

- Inspect protective eyewear for scratched or cracked lenses and replace if needed.
- If you will use goggles, check the elastic parts for fraying, tears, wear, or loss of elasticity and replace if it is worn.
- If you will use overhead protection, check the protective headwear for cracks, holes, and worn adjustable fittings.
- Faceshields and protective headgear often have adjustable fittings for a secure fit and to prevent them from slipping or falling off. Inspect these fittings to make sure that they are working properly.

Replacing Respirator Filters and Cartridges

- Filters, cartridges and gas- or vapor-removing canisters must be removed and replaced when any of the following occur:
 - Breathing becomes difficult
 - The filter is damaged or torn
 - The handler detects a pesticide taste, smell or any type of irritation
 - When required by manufacturer's label
 - When instructed by pesticide label
 - At the end of 8 hours of total use

Employer's Responsibility

- Provide and pay for all PPE on label
- Ensure proper PPE use and care training for handlers
- Maintain all PPE
- Properly dispose of any damaged or disposable PPE
- Train handlers on cleaning, drying and storing re-usable PPE
- Provide a place away from pesticide storage for handlers to put on, remove and store PPE

Wearing PPE



- Wear PPE in a way that prevents pesticide spray from entering boots or sleeves

PPE and Heat Stress

Early Stages of Heat Illness

- Fatigue
- Muscle weakness
- Dizziness
- Headache
- Nausea
- Heavy sweating

Severe Stages of Heat Illness

- Chills
- Severe thirst and dry mouth
- Fainting
- Lack of sweat as heat stress progresses
- Hot, dry, clammy skin
- Slurred speech
- Irrational behavior and confusion

Seek medical assistance if symptoms persist

Employers Should Reduce the Risk of Heat Stress



- Provide plenty of cool drinking water and shade
- Alter work hours to cooler times

Section 12: Early Entry and Minimum Age for Early Entry Workers

Information for Early-entry Workers only



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Early-Entry

- If your employer needs you to enter a treated area while the REI is still in effect:
 - You must be at least 18 years old at that time
 - You must have had pesticide safety training
 - Your employer must give you PPE and the information described on the next two slides

Early Entry

- Your employer must, before you enter the treated area, provide to you:
 - Location of the early entry work to be done
 - What pesticide(s) were applied
 - REI start and end date and time
 - The exception under which the WPS permits you to enter the area (for example, no contact, agricultural emergency, irrigation)
 - Whether contact with treated surfaces is allowed
 - How long you can work in the area
 - Label required PPE
 - Location of the decontamination supplies and the pesticide safety information
 - Information from the pesticide label about the health hazards, precautions, first aid, and user

Early Entry



- Your employer must provide this information and these protections before you start work in the area

Acknowledgments

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This program was developed through a cooperative agreement between the US EPA (#X8-83616301) and University of California Davis Extension in cooperation with Oregon State University.