

PESTICIDE CHEMICAL SAFETY

This section discusses agricultural chemical safety for pesticides, including rodenticides, insecticides, herbicides, etc. Pesticides are chemicals that protect crops and livestock from rodents, insects, disease, or weeds. They also control pests that endanger human health. Because pesticides are poisonous, they can be extremely dangerous to humans. Before applying commercial pesticides, always ensure your safety, the safety of others, and the safety of the environment. This chapter covers the following topics:

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There are several agencies that govern the use of commercial pesticides. For more information on pesticide usage, contact one or more of the following groups: Texas Department of Agriculture, Texas Department of Health, Structural Pest Control Board, Texas Commission on Environmental Quality (TCEQ), Environmental Protection Agency (EPA).

General Pesticide Safety

The following sections provide general or specific guidelines for handling pesticides. To help reduce the hazards associated with pesticides:

- Do not transport, mix, or use agricultural chemicals unless you can summon help, if needed. Keep an ample supply of water nearby to flush exposed areas if a spill occurs.
- Check all pesticide equipment before you use it to ensure proper working condition.
- Read pesticide labels carefully. Follow the label directions when mixing, applying, storing, or disposing of pesticides.
- Wear personal protective equipment to prevent dermal, inhalation, and mucous membrane exposure.
- Do not eat, drink, or smoke when handling pesticides.
- Launder clothing and bathe after working with pesticides to ensure that all chemicals are removed from clothing and skin.
- Do not use agricultural pesticides around the home or office.
- Observe assigned reentry intervals. Always wear the appropriate protective clothing when entering fields before the reentry date.
- Always handle pesticides downhill from wells, cisterns, sink holes, ditches, or standing water. Do not apply pesticides when rain is imminent or if wind could affect the spraying area.
- Triple-rinse spray equipment and empty containers. Apply the rinse water to the treated field. Properly dispose of empty containers.

Preparing to Apply Pesticides

Preparation is essential for chemical safety. Follow these steps to properly prepare for pesticide application:

1. Plan Ahead.

Always read chemical labels before attempting to work with pesticides. Prepare for a possible emergency by

maintaining a personal decontamination site, a chemical spill kit, and by knowing the proper first aid procedures associated with your pesticide.

2. Move Pesticides Safely.

Careless chemical transportation can cause spills and contamination. Do not carry pesticides in an enclosed area, such as a car. Be sure to secure the pesticides to prevent shifting or bouncing. In addition, never leave your vehicle unattended when transporting chemicals.

3. Select Appropriate Personal Protective Equipment.

Regardless of the pesticide's toxicity, always wear a long-sleeve shirt and pants when working with pesticides. Wear additional protective equipment as necessary.

4. Select Application Equipment.

Choose suitable equipment to properly apply pesticides. Before using the equipment, inspect it to make sure it is in good working order.

5. Provide Prior Notification.

Before applying pesticides, inform all people in or around the application area. Notification allows people to protect themselves from harmful chemicals.

Mixing Pesticides

Always read and carefully follow label directions when mixing pesticides. Even if you are familiar with a particular chemical, reread the label to ensure that you have the latest safety information. In addition, follow these guidelines for mixing pesticides:

1. Wear Personal Protective Equipment.

Always wear protective gear when handling hazardous chemicals.

2. Work in a Safe Area.

The pesticide mixing and loading area should be well ventilated, well lighted, and downhill from any water sources. Concrete slabs are ideal for mixing chemicals since they allow for easy cleanup.

3. Measure Chemicals Correctly.

Measure and mix pesticides carefully. Never mix different pesticides except as directed by the label or chemical manufacturer. Do not use more chemical than prescribed by the pesticide label. The overuse of pesticides is illegal, and may result in the following:

- Higher pest control costs
- Pesticide residue in food
- Groundwater pollution
- Pesticide resistance

4. Pour Pesticides Carefully.

Always wear a face shield and take care not to splash chemicals when pouring pesticides. Never use your mouth to siphon pesticides.

Applying Pesticides

Applicators who want to apply any pesticides (regardless of use classification) to plants, trees, shrubs, grass or other horticultural plants for hire must be licensed by either the Texas Department of Agriculture (TDA) 3A ag category or the Structural Pest Control Service (SPCS), formerly the Structural Pest Control Board but now part of TDA. Applicators who apply only fertilizer do not need to be licensed by either agency.

To license with TDA, applicators will certify as either commercial or noncommercial. Commercial applicators apply restricted-use and state-limited-use pesticides or regulated herbicides for hire. Applicators who will apply only general-use pesticides (those that can be purchased over the counter without a license) need a noncommercial license.

When you apply pesticides, you are responsible for protecting yourself, other people, and the environment. Follow these guidelines when applying pesticides:

1. Minimize Exposure.

Even mildly toxic chemicals can harm you if you use them daily. Take care to minimize your exposure to any chemical. Avoid working in pesticide spray, mist, or runoff. Always work with another person when working with hazardous chemicals.

2. Avoid Applying Pesticides in Sensitive Areas.

Avoid spraying pesticides near beehives or areas that humans normally occupy (e.g., schools, playgrounds, hospitals, etc.). If you must apply pesticides in sensitive areas, do so when the weather is calm and when people are not around.

3. Avoid Pesticide Drift, Runoff, and Spills.

Pesticides that fall outside the targeted application area can be very hazardous. Choose weather conditions, equipment, and chemicals that do not lend themselves to these hazards.

4. Avoid Equipment Accidents.

Equipment accidents are often caused by poor maintenance and improper work habits. Avoid equipment accidents by following all operating instructions.

Pesticide Storage and Disposal

Always try to use all the pesticide in your application tank. If pesticides remain, use them on other target locations. After emptying the tank, clean and store the equipment.

The following summary of EPA storage criteria should be followed for pesticides labeled with the signal words DANGER, POISON, WARNING, or the skull and crossbones symbol. These procedures and criteria are not necessary for the storage of pesticides classed as less toxic (word CAUTION on the label) or for those registered for use in the home or garden.

Site Storage:

- Locate where flooding is unlikely.
- Locate where runoff will not contaminate any water system.

Storage Facility:

- Dry, well ventilated, separate room, building, or covered area with fire protection (e.g., dry chemical fire extinguisher).
- Secured by fence and/or locked doors.
- Signs on rooms/buildings to provide hazard warning (e.g., DANGER, POISON, PESTICIDE STORAGE).
- Movable pesticide equipment is labeled as contaminated and not removed from the site until decontaminated.
- Provision is available for the decontamination of personnel and equipment; contaminated water disposed of as excess pesticide; contaminated runoff collected and treated as excess pesticide.

Operational Procedures:

- Store pesticide containers in rows with the labels plainly visible. Place contents from damaged containers in sound containers.
- If relevant, segregate pesticides by formulation.
- Store rigid containers in an upright position, with tight lids/bungs, off the ground, in a manner to permit access and inspection.
- Maintain a complete inventory indicating the number and identity of containers. Check containers regularly for corrosion and leaks.
- Keep suitable absorbent (e.g., vermiculite) on hand in case of spills.

Safety Precautions:

- Inspect pesticide containers for leaks before handling them.
- Do not allow unauthorized personnel in the storage area.
- Do not store pesticides next to items intended for consumption by animals or humans. Do not eat, drink, smoke, or chew tobacco where pesticides are present.
- Do not store beverages, food, eating utensils, or smoking material in the storage or loading areas.
- Wear rubber gloves while handling containers of pesticides.
- Wash hands immediately after handling pesticides. Remove contaminated protective clothing immediately; extra sets of clean clothing should be nearby.

Fire Control:

- The local fire department should be notified of the locations where large quantities are stored.

Disposal:

- Unused or outdated pesticides must be disposed as hazardous chemicals.
- See the [Laboratory Safety Manual](#) Hazardous Waste Disposal chapter for more information.

IMPORTANT:

Never leave pesticide containers at a field site. Be sure to account for every container used, and safely dispose of empty containers.

NOTE:

Store herbicides separately from other pesticides. Some herbicides may volatilize and contaminate the pesticides.

Pesticide Cleanup

Always thoroughly clean all pesticide equipment as soon as you are through with it. Leaving pesticide residue in mixing, loading, or application equipment can result in accidental injury or death to livestock or people, or unwanted contamination of plants or soil.

Clean the inside and outside of pesticide equipment, including nozzles. Dispose of contaminated rinse water as directed on the chemical label.

IMPORTANT:

Do not allow pesticide rinse water to contaminate water supplies.