

**Tennessee State University
Nursery Research Center**

Safety and Emergency Preparedness Guide

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Introduction

The purpose of this document is to help Nursery Research Center employees prepare for emergency situations by outlining actions to be taken during an emergency. All Nursery Research Center employees must read and understand this document. If there is something in this document that you do not understand, see the Center Superintendent for clarification.

It is important to remember there are significant differences among emergency situations, and these differences will influence the decisions you make and the actions you should take. By learning about these specific situations, you are preparing yourself to react appropriately during an emergency.

Please read through all sections of this document and be sure you thoroughly understand each section. In addition, you should familiarize yourself with the location of all building exits, the location of fire alarm pull stations, fire extinguishers, eye wash stations, emergency showers, first aid kits, fire blankets, the automatic external defibrillator (AED), and the location of other specific areas discussed in this document. The location of these items are noted on the map of the NRC at the end of this document.

Do not feel embarrassed about using emergency equipment even if at first you may feel the emergency is not big enough. The equipment is for your use. It is better to be over safe than to allow a minor problem to become a serious one.

If you have a safety concern or suggestion, contact your supervisor or the Center Superintendent.

Announcing an Emergency Situation

If an emergency situation is encountered, the entire building can be reached simultaneously via the 'Page All' button on any phone in the NRC. Also, remember that pulled fire alarms will result in an immediate evacuation of the building.

Emergency Telephone Numbers

For emergency help at the Nursery Research Center call (9) 911.

Other emergency numbers;

Poison Control: (9) 1-800-222-1222

River Park Hospital: (9) 473-8411

McMinnville Police (non-emergency): (9) 473-3808

Warren County Sheriff (non-emergency): (9) 668-7000

Emergency Medical Situations

If you require emergency medical attention, or know of someone who requires emergency medical attention, obtain it immediately. If you need medical attention for an injury, do not drive yourself to the hospital or doctor. An injured employee should be driven to medical attention by a supervisor or co-worker. If you or the injured person cannot be moved or are unable to drive, contact 911 or activate a fire alarm pull station.

You do not need to seek prior approval to obtain emergency medical care. The closest medical facility to the TSU Nursery Research Center is River Park Hospital, located about ½ mile to the left as you exit the Nursery Research Center.

All accidents should be reported to your supervisor or the Center Superintendent.

Assembly Site

In the event of an emergency requiring the evacuation of the building (fire inside the building, chemical or biological hazard inside the building, or other threat to personal safety inside the building), all employees should leave through the closest available exit and reassemble near the flagpoles in front of the main building. Supervisors from each laboratory should account for their employees at this location. A chain of command within each laboratory is established to account for employees in case the supervisor is unavailable.

Any missing personnel should be reported to the Center Superintendent; if the Superintendent is not available, then report to the Center Administrative Secretary; if Administrative Secretary is not available, then report to the Center Farm Supervisor. An account of missing persons and their last known location should be communicated to the appropriate emergency response personnel. Do not re-enter an evacuated building to look for missing persons.

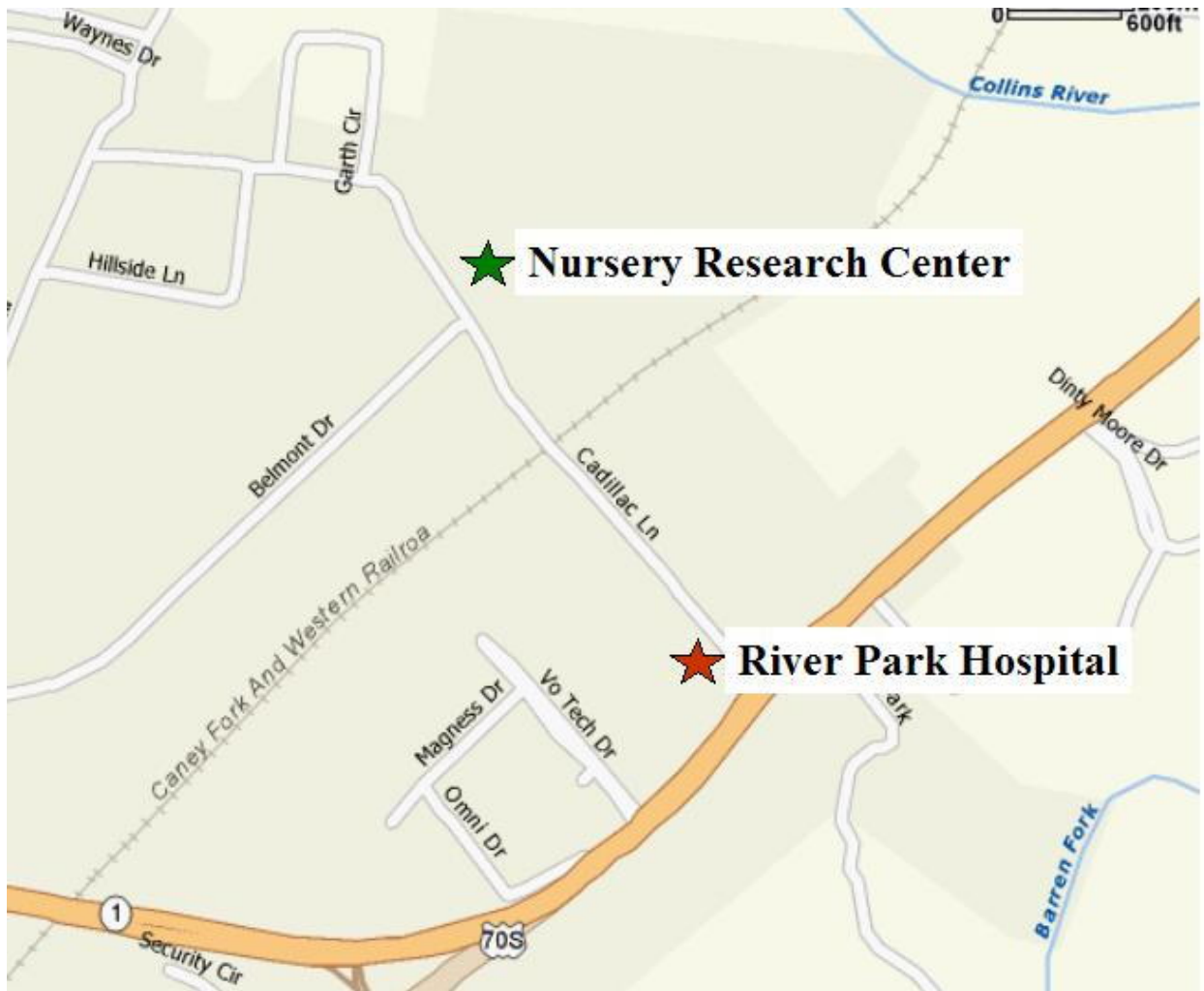
All-Clear Authority

No employee should re-enter an evacuated building until authorized to do so by the person in charge.

NRC Safety Committee

Nick Gawel, Nursery Research Center Superintendent
Donna Fare, USDA/ARS ADOR
Karla Adesso, TSU Research Assistant Professor
Morris Bond, Nursery Research Center Farm Manager

Map to River Park Hospital



Injury Prevention

Clothing and Personal Items

Shoes that cover the entire foot must be worn when working in the laboratory or in the field. Sandals, flip-flops, or other abbreviated footwear are not allowed.

All personnel are urged to dress with potential laboratory and field hazards in mind. Clothing should protect as much of the body as possible.

Laboratory aprons or lab coats can be worn to provide some protection from accidents and spills.

Loose fitting clothes, easily combustible clothes, long unrestrained hair, neckties, necklaces and other such ornamental or pendant items can be potential fire and accident hazards and should not be worn in laboratories or around mechanized equipment.

Eye Protection

OSHA regulations require that appropriate eye protection be worn at all time in laboratories. Contact your supervisor if you are not sure what kind of eye protection you should be wearing. Appropriate eye protection will be furnished to all employees.

Contact lenses can trap and retain chemicals; therefore, they are not recommended for use in laboratories, chemical processing areas, and storage areas.

Eyewash stations are located in each laboratory. Drinking fountains, water taps or any other available source of water may also be used in an emergency. To operate eyewash fountains, push lever in direction indicated. (It is not necessary to uncover the two spray heads prior to use – the pressure of the water will cause these to flip back.) Lower head so that water is directed into affected eye(s). It may be necessary to use fingers to keep eye open. Fifteen minutes of flushing is recommended.

Hearing Protection

Protection against the effects of occupational noise exposure shall be used when sound levels are excessive. When using loud equipment (*i.e.* mowers, grinders, chain saws, etc.), hearing protection should be worn. Contact your supervisor to obtain appropriate hearing protection.

Respiratory Protection

Dust masks should be used when mixing potting media or handling powdered or granular pesticides, fertilizers and lab chemicals. Dust masks offer no protection from chemical fumes and should not be substituted for a respirator. Contact your supervisor for the location of dust masks available for you to use.

Safety Practices

General Safety

If you are hurt and need help, ask for help. Do not assume someone else knows you need help.

Be aware there are Black Widow and Brown Recluse spiders at the Nursery Research Center. If you suspect any spider has bitten you, go to the hospital.

Be alert to the presence of ticks; they can carry disease.

All 'Warning - Do Not Enter' signs mean do not enter. These signs generally indicate that a pesticide has been applied to the area. The sign will be taken down when it is safe to enter the area.

If you need information about a particular reagent, pesticide, or other chemical at the NRC, Material Safety Data Sheets are located in the library.

Take time to review the heat stress poster in the break room (room 153). Know the symptoms of heat stress. Walk-in cooler #2 in the head house has shelves for personal water coolers. Ice for drinks and coolers is available from the freezer in the break room.

Do not drink from hoses, faucets, risers, etc. Assume the only safe drinking water is that which originates from inside the main building.

If you see an animal on the NRC grounds acting in an unusual manner, report it to your supervisor or the Center Superintendent. Do not attempt to capture the animal on your own – Animal Control should be called. While most of the dogs that roam through the center are simply a nuisance, be alert for signs of rabies.

Pesticide Safety

The US Environmental Protection Agency (EPA) is charged with regulation the use of pesticides under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). In 1992 EPA issued revised regulations governing the protection of employees in certain agricultural operations from occupational exposure to agricultural pesticides. This Worker Protection Standard (WPS) applies to people who work where pesticides are used, and employees who handle (mix, load apply, etc.) pesticides.

Everyone who works at the Nursery Research Center must receive WPS pesticide safety training, even if they are not directly involved in the handling or application of pesticides. Instruction will provide information on pesticides and safety precautions, the re-entry interval, central information sites, decontamination sites and personal protective equipment. See your supervisor if you have not received this training.

It is Nursery Research Center policy that all pesticide handlers must follow current label instructions regarding pesticide handling.

Check the bulletin board in the mail room to see if any areas in which you will be working will be/have been treated with pesticides.

All 'Warning - Do Not Enter' signs mean do not enter. These signs generally indicate that a pesticide has been applied to the area. The sign will be taken down when it is safe to enter the area.

Laboratory Safety

Keep laboratory bench drawers and cabinet doors closed.

Keep heavy equipment away from the edges of laboratory benches.

Avoid storage of bulky or heavy items in overhead areas.

Keep corridors clear of extraneous items such as boxes and laboratory equipment.

Use suitable eye protection. Contact lenses can trap and retain chemicals; they are not recommended when working with chemicals.

Do not eat or drink in laboratories. Smoking is not permitted in any Nursery Research Center building.

Students are to be under direct, appropriate supervision when working after normal working hours.

Wear proper clothing. Use gloves where appropriate. Only closed-toe, non-abbreviated footwear is to be worn. Loose fitting clothes, easily combustible clothes, long unrestrained hair, neckties, necklaces and other such ornamental or pendant items can be potential fire and accident hazards and should not be worn in laboratories or around mechanized equipment.

When extension cords and power strips must be used, keep them away from water and traffic areas.

Never store or prepare food or drink in areas not designated for this purpose. Laboratory refrigerators and microwave ovens should not be used for food or beverage preparation. The break room (room 153) has a refrigerator and microwave oven available for food preparation purposes.

Emergency showers are available in each laboratory. To activate, pull down on handle. Shower will continue to run until handle is pushed back into place. It is not necessary to continue to hold handle. The bathroom in the headhouse also has a shower that can be used in an emergency.

Fire Safety

Know the location of the fire alarm pull stations and fire extinguishers nearest to your work area. Keep exits and aisle ways clear of equipment and other obstacles

Never leave an open flame unattended.

Store flammable and/or combustible materials in appropriate containers away from heat and spark sources. Store no more than 3 gallons of flammables in any one laboratory; flammables should only be stored in appropriate storage cabinets.

Be prepared to absorb small spills. Be familiar with the appropriate spill control procedures for the chemicals with which you are working. Contact your supervisor for the location of spill control materials.

Do not overload circuits. Avoid the use of temporary wiring, extension cords, etc.

Equipment Safety

If you are operating a piece of equipment, it is your responsibility to make sure no one around you is injured by the equipment.

If you are working near a piece of equipment, it is your responsibility to make sure that you are not injured by the equipment.

When operating a piece of equipment, or working near a piece of equipment, never assume anyone can see you. If you are working where a piece of equipment is being operated, make eye contact with the operator before crossing in front of, or working near, the equipment.

When operating a bobcat, gator, tractor, mower, or other vehicle, always look before turning or backing up.

When operating a bobcat, gator, tractor, mower, or other vehicle,

- Slow down around parked cars
- Slow down around buildings
- Slow down around shade houses, field plots, etc.
- Drive only on established roadways

Always wear appropriate clothing (*i.e.* closed toe shoes, no loose clothing) and use appropriate eye and hearing protection when operating equipment.

Do not use tools or equipment that belongs to another program without permission from that program. Color codes: red = entomology; white = pathology; yellow = horticulture; blue = breeding; green = chemical ecology. Tools marked with orange fluorescent paint are for general use, but are to be returned to their proper storage place at the end of the day.

Microbiological safety

Disinfect microbiological spills immediately.

Decontaminate glassware and equipment by autoclaving or some other means prior to washing.

Do not pipette by mouth.

Do not eat or drink in laboratories.

Wash hands frequently, especially before leaving the laboratory (use a disinfectant soap when working with pathogens).

Use laboratory practices that minimize aerosol formation.

Use appropriate containment chambers when working with pathogens. Decontaminate media, equipment and unwanted cultures promptly after experiments are completed to prevent unnecessary microbial growth.

Automobile Safety

All vehicle occupants must wear seat belts at all times

No smoking is allowed in State or Federal vehicles.

Vehicles are inspected regularly for potential safety dangers (e.g. wear on tires, brake problems, worn windshield wipers). If you notice a problem with any vehicle, report it immediately to your supervisor. Do not operate a vehicle that you know has a safety problem.

Obey posted speed limits.

If you need to use a cell phone, wait until you can safely pull off the road. Talking on cell phones while driving is a major cause of traffic accidents.

If you are involved in an accident, report it immediately to the police. In Federal vehicles, accident report forms are located in the glove box of each vehicle. These reports should be completed promptly; a copy needs to be on the desk of the Director of the U.S. National Arboretum within 24 hours of the accident. In State vehicles, notify the Center Superintendent as soon as possible.

Remember that vehicles are for official use only. Do not carry unauthorized passengers in the vehicles.

Security Issues

Alarms and Locks

The administration/laboratory building, equipment shed and pesticide facility are equipped with security alarms. Doors should be locked and the alarm set on the administrative/laboratory building by the last person to leave the building on workdays and whenever leaving the building on weekends and holidays (assuming no one else is working in the building). The equipment shed is locked and alarm set at the end of the workday by a member of the TSU staff. If you open it during non-work hours, be sure to re-lock the door and set the alarm when leaving. The pesticide facility is locked and armed when not being used, even during work hours.

If you accidentally set off an alarm when entering or exiting a building, you will need to contact Equipment Security by dialing 9-668-6300. They will need to know your password. Normally, they will call the main phone number for the Nursery Research Center before alerting the police. If you do not answer their call, or are unable to provide them with your password, they will summon the police department. An employee (usually the Center Superintendent) will also be summoned to open the gate. Please do not leave the grounds if you have accidentally set off the alarm. Wait outside the main building or at the bottom of the driveway until the police and/or the Center Superintendent arrive.

Unexpected Visitors

Because we work at a government facility in a small town, we often have unexpected visitors drop in. Often, these visitors are local growers with a specific question, people who are using the facility for a meeting, or members of the community who are simply curious as to what goes on at the NRC. All visitors, whether expected or unexpected, should be treated with courtesy. Please direct drop-in visitors to the Center Superintendent or the Administrative Secretary. If they are unavailable, check with your supervisor. Do not give visitors permission to wander through the building or grounds by themselves.

Suspicious Persons or Activities

If anyone acts in a suspicious manner or makes you feel uncomfortable, remove yourself from the area quickly, but as politely as possible. Contact your supervisor, or another senior staff member. While we don't want to overact, everyone should be aware of the threat posed by disgruntled employees (both current and former), domestic violence that finds its way to the workplace, and

unstable people who randomly strike out at government targets. If you strongly feel that someone poses an imminent threat, do not delay in contacting the police (9-911).

Storage of Chemicals

Large quantities of flammable chemicals should not be stored outside of appropriate enclosures.

To reduce possible problems associated with chemical storage, try to avoid purchasing large quantities of reagents; purchase only what is needed in the foreseeable future.

Utilize laboratory practices that minimize the volumes of flammable and corrosive chemicals stored in laboratories.

Glass bottles of chemicals should not be stored overhead or on the floor, where they are susceptible to breakage.

Certain flammable liquids should only be stored in refrigerators specifically approved for such materials. Read labels or precautions on the containers. A refrigerator manufactured to this specification will be clearly labeled "Explosion proof" or "For storage of flammable materials".

Food or drinks should never be stored in laboratory refrigerators. Make sure all stored reagents are labeled as to content and concentrations.

It is the responsibility of the individual user to know the properties of the reagents he/she is using and the precautions for their safe handling and disposal. Reagent labels contain important warning and other pertinent information, read labels on reagents prior to their use.

For information on specific hazards of individual reagents and additional details of safe handling procedures, the Material Safety Data Sheet (MSDS) for the reagent should be consulted. Each laboratory has a collection of MSDS sheets of the reagents used in that laboratory. In addition, MSDS sheets are available in the library. MSDS sheets for field chemicals are located in the pesticide storage facility.

Employees under the age of 18 shall not conduct laboratory or field experiments utilizing reagents classified as "Extremely Hazardous"

Disposal of Chemical Wastes

When planning to purchase or use a reagent, employees should consider what waste will be produced and the manner of disposal of the wastes.

According to the CFR concerning hazardous waste, any hazardous waste residue remaining in an empty container is not subject to regulation, with the

exception of containers that have held acutely hazardous substances (a list of acutely hazardous chemicals is in the Program and Updates folder on the Center server). A container is considered empty if all materials have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g., pouring, pumping, or aspirating; and no more than 2.5 centimeters (one inch) of residue remain on the bottom of the container, or no more than 3 percent by weight of the total capacity of the container remains in the container (if the container is less than or equal to 119 gallons in size). In addition, the original label must be removed or significantly defaced.

This means that in most cases, once you have emptied a chemical container under normal conditions and defaced the label, it can be disposed in the regular trash, even though there may be a small amount of residual chemical in the container.

These conditions do not apply to containers that held acutely hazardous chemicals. These containers are to be triple rinsed (one rinse = 10% of original volume), have the label defaced, then discarded. The rinsate is to be collected and disposed of as hazardous waste.

Please note- the acetic acid listed on the acutely hazardous chemical list is fluoro-acetic acid (sodium fluoroacetate) and is not the glacial acetic acid commonly used in Nursery Research Center labs.

Wastes must be stored in appropriate containers. Liquids must be stored in screw-capped bottles or safety cans. The container should be placed in a secondary container large enough to hold the content of all the combined volumes of the containers placed into the secondary container. The secondary containment is a precaution in the event of a rupture of a primary container. Gloves, paper, and similar solid wastes may be stored in sealed plastic bags. Other solid wastes are to be stored in bottles, jars, or plastic lined sealed boxes.

A running log of the material added to the primary storage container should be kept so that a proper manifest may be available for waste disposal. Each entry for additions to the waste container should be dated and initialed by the disposer, and include the volume and composition of the waste being added. When the container is about two thirds full, it should be appropriately sealed and placed in the hazardous waste storage cabinet.

Any material that has a flash point of less than 140°F should not be poured down the drain. Toxic, reactive, and corrosive materials, as well as heavy metals are not to be poured down the drain or placed in the garbage. Liquid wastes are not to be placed in the garbage. Empty chemical containers can be disposed of in the trash if empty.

Improper disposal is not only illegal, but it endangers the environment and all the people who handle the trash.

Avoid the use of common collection containers for liquid wastes. By collecting wastes separately, they are easier to identify, treat, and store. Treatment and disposal costs are significantly reduced if wastes are not mixed. Identify waste chemicals as completely as possible. List all constituents regardless of hazard level. Give approximate percentages of each constituent in the final waste. Identify the person responsible for the waste should additional information be needed.

Gloves, syringes, paper towels, etc. that are contaminated with identifiable toxic waste are to be treated as solid hazardous waste. Package all contaminated material in labeled containers and dispose by the appropriate means. If you are not sure of the proper disposal procedures, contact your supervisor. If pointed or sharp objects are included in the waste, (e.g. needles, razors, scalpels, etc.) place the entire contents in a secondary container that cannot be punctured. Laboratories should have proper storage containers for new and used syringes and needles.

Equipment and Vehicle Use

Equipment

Do not use any piece of equipment unless you have been properly trained to use that equipment. See your supervisor if you require training.

If a piece of equipment is not operating correctly or is broken, inform the Farm Manager or Center Superintendent.

Clean off equipment and tools when returning them to the equipment shed. Return equipment and tools to their proper place. The hoses near the equipment shed can be used at any time.

Record use of equipment on the sheets in the equipment shed or the mail room.

Record equipment reservations on the equipment log sheets in the mail room.

If you unlock a door, it is your responsibility to see that the door is re-locked when you are finished in that area.

If you open a door to remove a piece of equipment from the equipment shed, it is your responsibility to see that the door is closed and locked when the equipment is returned.

Vehicles

New employees should check with their supervisor for proper documentation procedures prior to driving vehicles for the first time.

Seat belts must be worn at all times by all occupants.

There is no tobacco use allowed in any vehicles (including smokeless tobacco).

Do not transport anyone other than Center personnel in a vehicle unless you have permission from your supervisor.

Vehicle reservations should be made on the sheets in the mail room. Vehicle keys are kept in the key box located in the stairwell next to the mail room.

Clean up after yourself when finished with a vehicle.

Vehicles should be returned with at least 1/2 tank of fuel. Check with your supervisor for gasoline procurement procedures.

Record use of vehicles in the log book in the vehicles.

Break Room Use

Food left on the table is considered to be there for public consumption, first come - first served.

Do:

Clean up after yourself (including wiping crumbs and food residue off of the table)

Clean up spills in the refrigerator

Throw away old food stored in the refrigerator

Clean the inside of the microwave if your food has splattered; cover your food during heating.

Unload the dishwasher if needed

Do Not:

Leave any dirty dishes in the sink

Eat food that does not belong to you

Leave the table messy with magazines, papers, etc.

What To Do In An Emergency

Deciding to Stay or Go

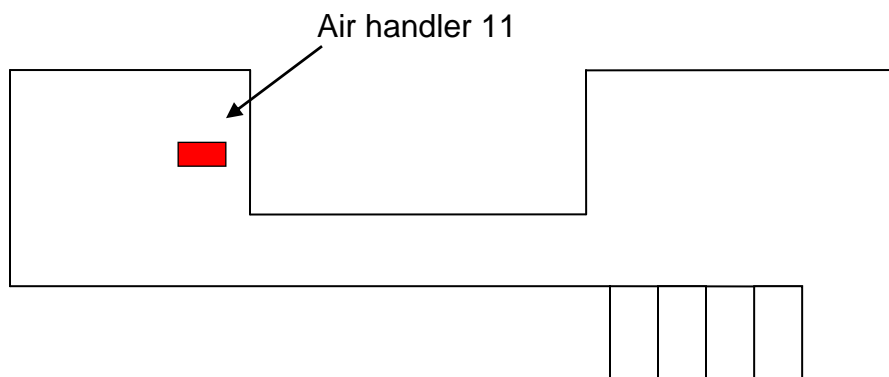
Depending upon your circumstances and the nature of the emergency, the first important decision you should make during an emergency is whether you should evacuate the building, stay put, or evacuate the region. You should understand and plan for all possibilities. Use common sense and all available information to determine if there is immediate danger. If there is an emergency situation that threatens your personal well-being, evacuate the building immediately. In situations where the emergency is external to the TSU Nursery Research Center, local authorities may or may not be able to provide immediate information on what is happening and what you should do. However, you should listen to the radio or check the Internet often for information or official instruction as it becomes available. In the case of a major regional or national emergency, the weather radio in the break room (Room 153) will broadcast emergency information and instructions. If you're specifically told to evacuate or seek medical treatment, do so immediately. The closest medical facility to the TSU Nursery Research Center is River Park Hospital, located about ½ mile to the left as you exit the Nursery Research Center.

Staying Put and Shelter-in-Place

There may be situations when it's simply best to stay where you are and avoid any uncertainty outside. In fact, there are some circumstances where staying put and creating a barrier between yourself and potentially contaminated air outside, a process known as sheltering-in-place and sealing the room, is a matter of survival. Use available information to assess the situation. If you see large amounts of debris in the air, or if local authorities say the air is badly contaminated, you may want to shelter-in-place and seal the room. Follow these instructions if it is necessary to shelter-in-place at the TSU Nursery Research Center:

1. The best room to shelter-in-place is the small conference room off of the front lobby (Room 133). Other areas and rooms in the Nursery Research Center are not suitable for this task because the ceilings are open to the mezzanine space, and the mezzanine space is directly ventilated with outside air.
2. If the electricity is still on, the air handler for Room 133 should be turned off – this will prevent contaminated outside air from entering the room. This can be done either via the HVAC computer in Room 132 (storage room behind the library) or by manually turning off the power to the air handler in the mezzanine area (up the stairs located near Room 141, the mail room). If you are not familiar with the operation of the HVAC computer, the air handler unit should be turned off manually. Turning off the HVAC computer will NOT turn off the air handlers. Go up the stairs make a u-turn at the top of the stairs; proceed to the opposite end of the walkway. Look to your right for unit number 11. Turn the switch for this unit to the off position. Use caution when traversing the walkway to not hit your head on any low beams. See page 16 for a diagram and

3. Retrieve the emergency supplies (white 5-gallon buckets) from storage room 132.
4. When everyone is in the conference room, seal the doors with duct tape from the emergency supply kits.
5. Listen to the radio (in the supply kit) for instructions.



Location of air handler unit 11 in mezzanine area, view from above

Biological Threat

Overview

A biological attack is the deliberate release of germs or other biological substances that can make you sick. Many agents must be inhaled, enter through a cut in the skin or be eaten to make you sick. Some biological agents, such as anthrax, do not cause contagious diseases. Others, like the smallpox virus, can result in diseases you can catch from other people.

If there is a biological threat

Unlike an explosion, a biological attack may or may not be immediately obvious. While it is possible that you will see signs of a biological attack, as was sometimes the case with the anthrax mailings, it is perhaps more likely that local health care workers will report a pattern of unusual illness or there will be a wave of sick people seeking emergency medical attention. You will probably learn of the danger through an emergency radio or TV broadcast, or some other signal in the community. You might get a telephone call or emergency response workers may come to the Center.

In the event of a biological attack, public health officials may not immediately be able to provide information on what you should do. It will take time to determine exactly what the illness is, how it should be treated, and who is in danger. However, you should watch TV, listen to the radio, or check the Internet for official news including the following:

- Are you in the group or area authorities consider in danger?
- What are the signs and symptoms of the disease?
- Are medications or vaccines being distributed?
- Where? Who should get them?
- Where should you seek emergency medical care if you become sick?

During a declared biological emergency:

1. If you, a co-worker, or a family member becomes sick, it is important to be suspicious of the cause.
2. Do not assume, however, that you should go to a hospital emergency room or that any illness is the result of the biological attack. Symptoms of many common illnesses may overlap those of a deliberate infection.
3. Use common sense, practice good hygiene and cleanliness to avoid spreading germs, and seek medical advice.
4. Consider if you are in the group or area authorities believe to be in danger.
5. If your symptoms match those described and you are in the group considered at risk, immediately seek emergency medical attention.

If you are potentially exposed:

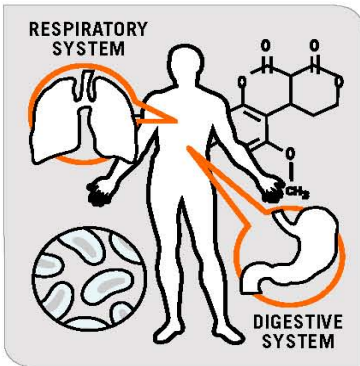
1. Follow instructions of doctors and other public health officials.
2. If the disease is contagious, expect to receive medical evaluation and treatment. You may be advised to stay away from others or even deliberately quarantined.
3. For non-contagious diseases, expect to receive medical evaluation and treatment.

If you become aware of an unusual and suspicious substance nearby:

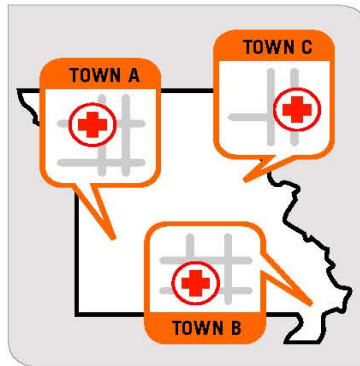
1. Quickly get away.
2. Protect yourself. Cover your mouth and nose with layers of fabric that can filter the air but still allow breathing. Examples include two to three layers of cotton such as a t-shirt, handkerchief or towel. Otherwise, several layers of tissue or paper towels may help.
3. Wash with soap and water.
4. Contact authorities.
5. Watch TV, listen to the radio, or check the Internet for official news and information including what the signs and symptoms of the disease are, if medications or vaccinations are being distributed and where you should seek medical attention if you become sick.
6. If you become sick seek emergency medical attention.

BE INFORMED

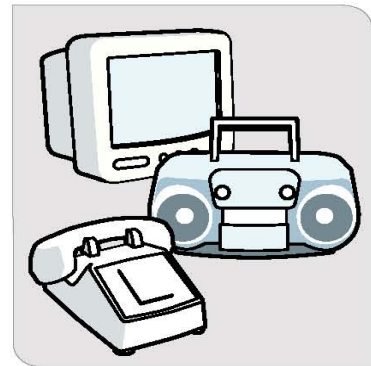
BIOLOGICAL THREAT



1. A biological attack is the release of germs or other biological substances. Many agents must be inhaled, enter through a cut in the skin or be eaten to make you sick. Some biological agents can cause contagious diseases, others do not.



2. A biological attack may or may not be immediately obvious. While it is possible that you will see signs of a biological attack it is perhaps more likely that local health care workers will report a pattern of unusual illness.



3. You will probably learn of the danger through an emergency radio or TV broadcast.



4. If you become aware of an unusual or suspicious release of an unknown substance nearby, it doesn't hurt to protect yourself.



5. Get away from the substance as quickly as possible.

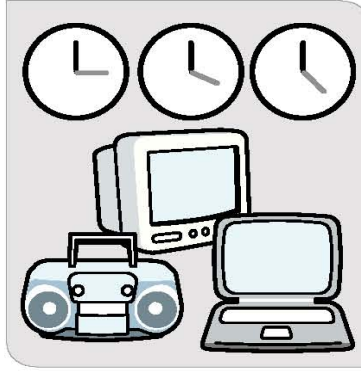


6. Cover your mouth and nose with layers of fabric that can filter the air but still allow breathing.

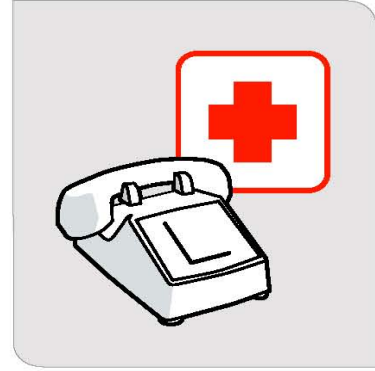
BE INFORMED
BIOLOGICAL THREAT



7. Wash with soap and water and contact authorities.



8. In the event of a biological attack, public health officials may not immediately be able to provide information on what you should do. However, you should watch TV, listen to the radio, or check the Internet for official news as it becomes available.



9. At the time of a declared biological emergency be suspicious, but do not automatically assume that any illness is the result of the attack. Symptoms of many common illnesses may overlap. Use common sense, practice good hygiene and cleanliness to avoid spreading germs, and seek medical advice.

Chemical Attack

A chemical attack is the deliberate release of a toxic gas, liquid or solid that can poison people and the environment.

Possible signs of chemical threat

- Many people suffering from watery eyes, twitching, choking, having trouble breathing or maintaining coordination.
- Many sick or dead birds, fish or small animals are also cause for suspicion.

If you see signs of chemical attack, find clean air quickly

- Quickly try to define the impacted area or where the chemical is coming from, if possible.
- Take immediate action to get away.
- If the chemical is inside a building where you are, get out of the building without passing through the contaminated area, if possible.
- If you can't get out of the building or find clean air without passing through the area where you see signs of a chemical attack, it may be better to move as far away as possible and shelter-in-place.
- If you are outside, quickly decide what is the fastest way to find clean air. Consider if you can get out of the area or if you should go inside the closest building and "shelter-in-place."

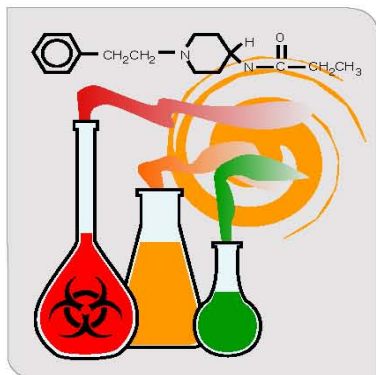
If you think you have been exposed to a chemical

If your eyes are watering, your skin is stinging, and you are having trouble breathing, you may have been exposed to a chemical.

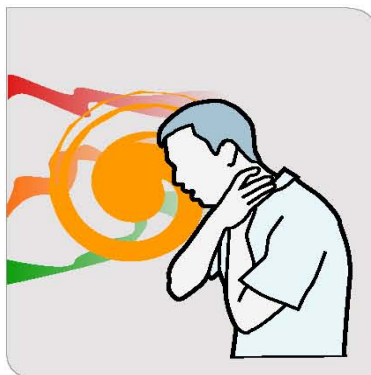
- If you think you may have been exposed to a chemical, remove your clothes immediately and wash your body. There are emergency-use towels and Tyvek suits (to replace contaminated clothing) in the plastic container near the shower in the restroom located in the head house.
- Look for a hose, fountain, or any source of water, and wash with soap if possible, being sure not to scrub the chemical into your skin.
- Seek emergency medical attention.

BE INFORMED

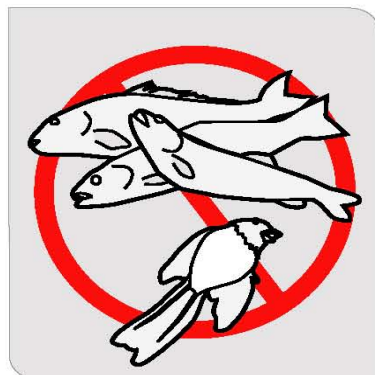
CHEMICAL THREAT



1. A chemical attack is the deliberate release of a toxic gas, liquid or solid that can poison people and the environment.



2. Watch for signs such as many people suffering from watery eyes, twitching, choking, having trouble breathing or losing coordination.



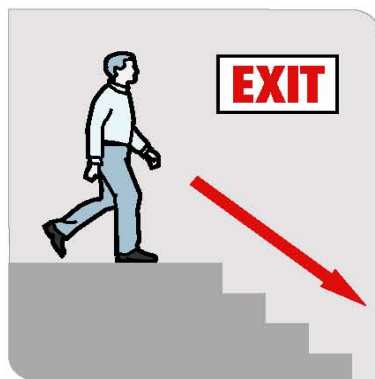
3. Many sick or dead birds, fish or small animals are also cause for suspicion.



4. If you see signs of a chemical attack, quickly try to define the impacted area or where the chemical is coming from, if possible.



5. Take immediate action to get away from any sign of a chemical attack.



6. If the chemical is inside a building where you are, try to get out of the building without passing through the contaminated area, if possible.

BE INFORMED
CHEMICAL THREAT



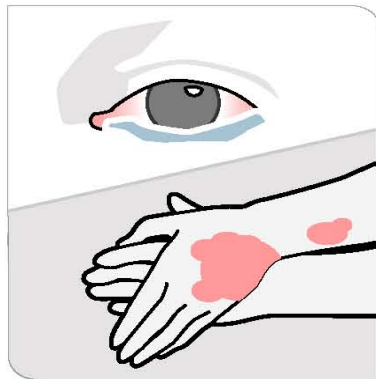
7. Otherwise, it may be better to move as far away from where you suspect the chemical release is and "shelter-in-place."



8. If you are outside when you see signs of a chemical attack, you must quickly decide the fastest way to get away from the chemical threat.



9. Consider if you can get out of the area or if it would be better to go inside a building and follow your plan to "shelter-in-place."



10. If your eyes are watering, your skin is stinging, you are having trouble breathing or you simply think you may have been exposed to a chemical, immediately strip and wash. Look for a hose, fountain, or any source of water.



11. Wash with soap and water, if possible, but do not scrub the chemical into your skin.



12. Seek emergency medical attention.

Chemical Spill, Chemical Exposure

The following are general guidelines to be followed in the event of a chemical spill or other chemical release inside a building.

Immediately alert area occupants and your supervisor. Evacuate the area if necessary.

If there is a fire, or medical attention is needed, or an evacuation is necessary, activate a fire alarm pull station.

If needed, Material Safety Data Sheets are located in the library and in individual laboratories.

Attend to any people who may be contaminated. Contaminated clothing must be removed immediately and the skin flushed with water for no less than fifteen minutes. There are emergency-use towels and Tyvek suits (to replace contaminated clothing) in the plastic container near the shower in the restroom located in the head house. If a volatile, flammable material is spilled, immediately warn everyone and control sources of ignition and ventilate the area.

Put on personal protective equipment, as appropriate to the hazard(s). Refer to the Material Safety Data Sheet or other references for information.

Consider the need for respiratory protection. The use of a respirator requires specialized training and medical surveillance. Never enter a contaminated atmosphere without protection and never use a respirator without training. If respiratory protection is needed and no trained personnel are available, call 911. If respiratory protection is used, be sure there is another person outside the spill area in communication, in case of an emergency. If no one is available, contact 911.

If the spill too large to be cleaned up with in-house materials, or if there has been a release to the environment, or if there is no one knowledgeable about spill clean-up available, call 911.

It is the responsibility of each laboratory to have spill control and personal protective equipment appropriate for the chemicals being used in that laboratory.

General spill control procedures:

- Protect floor drains or other means of environmental release. Spill socks and absorbents may be placed around drains, as needed.
- Loose spill control materials should be distributed over the entire spill area, working from the outside, circling to the inside. This reduces the chance of splash or spread of the spilled chemical. Bulk absorbents and many spill pillows

do not work with hydrofluoric acid. POWERSORB (by 3M) products and their equivalent will handle hydrofluoric acid. Specialized hydrofluoric acid kits also are available. Many neutralizers for acids or bases have a color change indicator to show when neutralization is complete.

- When spilled materials have been absorbed, use brush and scoop to place materials in an appropriate container. Trash bags may be used for small spills. Five gallon pails or 20 gallon drums with polyethylene liners may be appropriate for larger quantities.
- Spill control materials may need to be disposed of as hazardous waste.
- Decontaminate the surface where the spill occurred using a mild detergent and water, when appropriate.

Earthquake

During an Earthquake

Minimize your movements during an earthquake to a few steps to a nearby safe place. Stay indoors until the shaking has stopped and you are sure exiting is safe.

If you are indoors:

Take cover under a sturdy desk, table, or bench or against an inside wall, and hold on. If there isn't a table or desk near you, cover your face and head with your arms and crouch in an inside corner of the building.

Stay away from glass, windows, outside doors and walls, and anything that could fall, such as lighting fixtures or furniture.

If you are in bed when the earthquake strikes, stay in bed. Hold on and protect your head with a pillow, unless you are under a heavy light fixture that could fall. In that case, move to the nearest safe place.

Use a doorway for shelter only if it is in close proximity to you and if you know it is a strongly supported, load bearing doorway.

Stay inside until shaking stops and it is safe to go outside. Most injuries during earthquakes occur when people are hit by falling objects when entering or exiting buildings.

Be aware that the electricity may go out or the sprinkler systems or fire alarms may turn on.

If you are outdoors:

Stay outdoors.

If you are in a moving vehicle:

Stop as quickly as safety permits and stay in the vehicle. Avoid stopping near or under buildings, trees, overpasses, and utility wires.

Proceed cautiously once the earthquake has stopped, watching for road and bridge damage.

If you are trapped under debris:

Do not light a match or cigarette lighter. Do not move about or kick up dust.

Cover your mouth with a handkerchief or clothing.

Tap on a pipe or wall so rescuers can locate you. Use a whistle if one is available. Shout only as a last resort - shouting can cause you to inhale dangerous amounts of dust.

After an Earthquake

- Be prepared for aftershocks. These secondary shockwaves are usually less violent than the main quake but can be strong enough to do additional damage to weakened structures.
- Open cabinets cautiously. Beware of objects that can fall off shelves.
- Stay away from damaged areas unless your assistance has been specifically requested by police, fire, or relief organizations.
- If you smell gas, be prepared to turn off the gas valves to damaged buildings.

Explosion

If there is an explosion:

- Take shelter against or under your desk or a sturdy table.
- Exit the building as quickly as possible.
- Check for fire and other hazards.
- Take your emergency supply kit if time allows.
- Go to the flagpoles outside the front of the main building.
- Account for your co-workers and/or report to your supervisor

If there is a fire:

- Exit the building as quickly as possible.
- Crawl low if there is smoke.
- Use a wet cloth, if possible, to cover your nose and mouth.
- Use the back of your hand to feel the upper, lower, and middle parts of closed doors.
- If the door is not hot, brace yourself against it and open slowly.
- If the door is hot, do not open it. Look for another way out.
- If you catch fire, do not run. Stop-drop-and-roll to put out the fire.
- Go to the flag poles outside the front of the main building.
- Account for your co-workers and/or report to your supervisor.
- Never go back into a burning building.

If you are trapped in debris:

- If possible, use a flashlight to signal your location to rescuers.
- Avoid unnecessary movement so that you don't kick up dust.
- Cover your nose and mouth with anything you have on hand. (Dense-weave cotton material can act as a good filter; try to breathe through the material.)
- Tap on a pipe or wall so that rescuers can hear where you are.
- If possible, use a whistle to signal rescuers.
- Shout only as a last resort. Shouting can cause a person to inhale dangerous amounts of dust.

BE INFORMED

EXPLOSIONS

If there is an explosion...



1. Take shelter against your desk or a sturdy table.



2. Exit the building as quickly as possible.



3. Do not use elevators.



4. Check for fire and other hazards.



5. Take your emergency kit if time allows.

BE INFORMED

EXPLOSIONS

If there is fire...



1. Exit the building as quickly as possible.



2. Crawl low in smoke.



3. Use a wet cloth to cover your nose and mouth.



4. Use the back of your hand to feel the lower, middle, and upper parts of closed doors.



5. If the door is not hot, brace yourself against the door and open it slowly.



6. Do not open the door if it is hot. Look for another way out.

BE INFORMED

EXPLOSIONS If there is fire...



7. Use appropriate fire exits, not elevators.



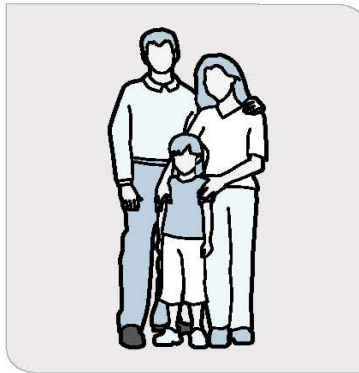
8. If you catch fire, do not run!



9. Stop, Drop and Roll.



10. If you are at home, go to previously designated meeting place.



11. Account for your family members.



12. Do not go back into a burning building and carefully supervise small children.

BE INFORMED

EXPLOSIONS If there is fire...

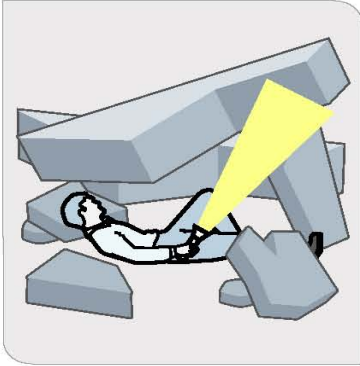


13. Call the fire department.

BE INFORMED

EXPLOSIONS

If you are trapped in debris...



1. If possible, use a flashlight to signal your location.



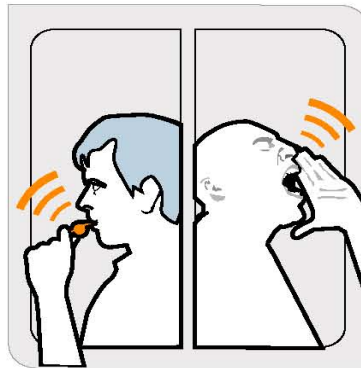
2. Avoid unnecessary movement so that you don't kick up dust.



3. Cover your mouth and nose with anything you have on hand. Dense weave cotton material can create a good filter. Try to breathe through the material.



4. Tap on a pipe or wall so that rescuers can hear where you are.



5. Use a whistle if one is available. Shout only as a last resort - shouting can cause a person to inhale dangerous amounts of dust.

Fire

If you hear the fire alarm, evacuate the building. Go to the flagpoles in front of the building.

If you see a fire, activate the fire alarm (pull down on one of the fire alarm pull stations).

If the fire is small enough, and you will not be in personal danger, and have been trained in the use of fire extinguishers, you may try to control the fire with a fire extinguisher. Pull the pin on the handle of the extinguisher, squeeze the handle, and aim at the base of the fire.

During a Fire

To escape a fire, you should:

Check closed doors for heat before you open them. If you are escaping through a closed door, use the back of your hand to feel the top of the door, the doorknob, and the crack between the door and door frame before you open it. Do not use the palm of your hand or fingers to test for heat - burning those areas could impair your ability to escape a fire (*i.e.* using ladders and crawling).

If the door is hot:

Do not open the door. Try to escape another way.

If the door is cool:

Open the door slowly and ensure fire and/or smoke is not blocking your escape route. If your escape route is blocked, shut the door immediately and use an alternate escape route. If clear, leave immediately through the door and close it behind you. Be prepared to crawl. Smoke and heat rise. The air is clearer and cooler near the floor. Crawl low under any smoke to your exit - heavy smoke and poisonous gases collect first along the ceiling.

Close doors behind you as you escape to delay the spread of the fire.

Stay out of the building once you are safely out. Go to the flagpoles in front of the main building. Call 911.

If you are with burn victims, or are a burn victim yourself, call 911; cool and cover burns to reduce chance of further injury or infection.

Nuclear Threat

A nuclear blast is an explosion with intense light and heat, a damaging pressure wave and widespread radioactive material that can contaminate the air, water and ground surfaces for miles around. During a nuclear incident, it is important to avoid radioactive material, if possible. While experts may predict at this time that a nuclear attack is less likely than other types, terrorism by its nature is unpredictable.

If there is advanced warning of an attack

Take cover immediately, as far below ground as possible, though any shield or shelter will help protect you from the immediate effects of the blast and the pressure wave.

If there is no warning

1. Quickly assess the situation.
2. Consider if you can get out of the area or if it would be better to go inside a building to limit the amount of radioactive material you are exposed to.
3. If you take shelter, go as far below ground as possible, close windows and doors, turn off air conditioners, heaters or other ventilation systems. Stay where you are, watch TV, listen to the radio, or check the Internet for official news as it becomes available.
4. To limit the amount of radiation you are exposed to, think about shielding, distance and time.
 - Shielding: If you have a thick shield between yourself and the radioactive materials more of the radiation will be absorbed, and you will be exposed to less.
 - Distance: The farther away you are away from the blast and the fallout the lower your exposure.
 - Time: Minimizing time spent exposed will also reduce your risk.

Use available information to assess the situation. If there is a significant radiation threat, health care authorities may or may not advise you to take potassium iodide. Potassium iodide is the same chemical added to your table salt to make it iodized. It may or may not protect your thyroid gland, which is particularly vulnerable, from radioactive iodine exposure. Plan to speak with your health care provider in advance about what makes sense for your family.

BE INFORMED NUCLEAR BLAST



1. Take cover immediately, below ground if possible, though any shield or shelter will help protect you from the immediate effects of the blast and the pressure wave.



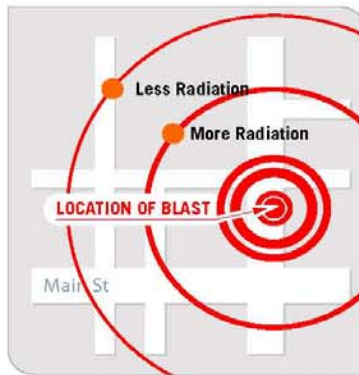
2. Consider if you can get out of the area;



3. Or if it would be better to go inside a building and follow your plan to "shelter-in-place".



4. **Shielding:** If you have a thick shield between yourself and the radioactive materials more of the radiation will be absorbed, and you will be exposed to less.



5. **Distance:** The farther away from the blast and the fallout the lower your exposure.



6. **Time:** Minimize time spent exposed will also reduce your risk.

Radiation Threat (Dirty Bomb)

A radiation threat, commonly referred to as a "dirty bomb" or "radiological dispersion device (RDD)", is the use of common explosives to spread radioactive materials over a targeted area. It is not a nuclear blast. The force of the explosion and radioactive contamination will be more localized. While the blast will be immediately obvious, the presence of radiation will not be clearly defined until trained personnel with specialized equipment are on the scene. As with any radiation, you want to try to limit exposure. It is important to avoid breathing radiological dust that may be released in the air.

If there is a Radiation Threat or "Dirty Bomb"

If you are outside and there is an explosion or authorities warn of a radiation release nearby, cover your nose and mouth and quickly go inside a building that has not been damaged. If you are already inside, check to see if your building has been damaged. If your building is stable, stay where you are.

Close windows and doors; turn off air conditioners, heaters or other ventilation systems.

1. If you are inside and there is an explosion inside, or you are warned of a radiation release inside, cover nose and mouth and go outside immediately. Look for a building or other shelter that has not been damaged and quickly get inside.
Once you are inside, close windows and doors; turn off air conditioners, heaters or other ventilation systems.
2. If you think you have been exposed to radiation, take off your clothes and wash as soon as possible.
3. Stay where you are, watch TV, listen to the radio, or check the Internet for official news as it becomes available.
4. Remember: To limit the amount of radiation you are exposed to, think about shielding, distance and time.
 - Shielding: If you have a thick shield between yourself and the radioactive materials more of the radiation will be absorbed, and you will be exposed to less.
 - Distance: The farther away you are away from the blast and the fallout, the lower your exposure.
 - Time: Minimizing time spent exposed will also reduce your risk.

As with any emergency, local authorities may not be able to immediately provide information on what is happening and what you should do. However, you should watch TV, listen to the radio, or check the Internet often for official news and information as it becomes available.

BE INFORMED

RADIATION THREAT



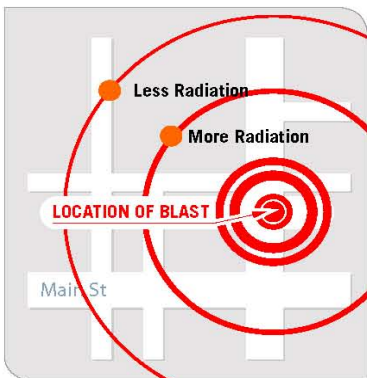
1. A radiation threat or "Dirty Bomb" is the use of common explosives to spread radioactive materials.



2. It is not a nuclear blast. The force of the explosion and radioactive contamination will be more localized. In order to limit the amount of radiation you are exposed to, think about shielding, distance and time.



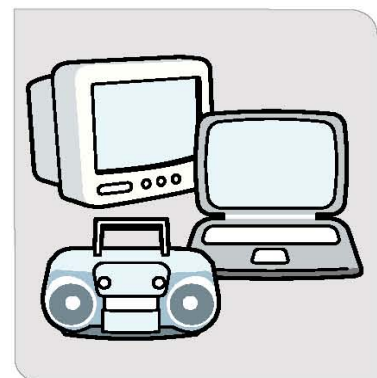
3. **Shielding:** If you have a thick shield between yourself and the radioactive materials more of the radiation will be absorbed by the thick shield, and you will be exposed to less.



4. **Distance:** The farther away you are from the radiation the lower your exposure.



5. **Time:** Minimizing time spent exposed will also reduce your risk.



6. Local authorities may not be able to immediately provide information on what is happening and what you should do. However, you should watch TV, listen to the radio, or check the Internet often for official news and information as it becomes available.

Severe Weather

In the event of a severe thunderstorm warning or a tornado warning, the alarm on the weather radio in the break room (Room 153) will sound. Also, the municipal outdoor severe weather sirens may be heard, signaling a severe weather warning.

During a severe weather event, avoid rooms with outside walls and outside windows. The safest places in the TSU Nursery Research Center main building for severe weather protection are rooms 122, 124, 144 and 146. These rooms have a red 'Tornado Shelter' sign on the door. While sheltering in these rooms, keep the door closed to minimize the amount of flying debris entering the room. While taking refuge from severe weather, crouch down to make as small a target as possible for flying debris. This is especially important in the Nursery Research Center main building as there is a lot of glass that may become airborne.

If you are in one of the other buildings on the TSU Nursery Research Center property, get to an interior portion of the building. Stay away from corners because they tend to trap debris. Get under a piece of sturdy furniture such as a workbench or heavy table or desk and hold on to it. Use your arms to protect your head and neck. If you are in one of the mobile/portable buildings, get out of that building and find shelter elsewhere.

If you are outdoors and a tornado is imminent and you have no time to get indoors, lie in a ditch or low-lying area or crouch near a strong building. Use your arms to protect your head and neck.

If you are outdoors and can hear thunder, you are within striking distance of lightning; you should seek safe shelter immediately.

Emergency Utility Shut Off Procedures

Electricity

Nursery Research Center Main Building

In Room 121 (access from the head house, between labs 125 and 115), move the big breaker switches on the left wall of the room (pictured below) to the off position.

=ALSO=

In the greenhouse boiler building (located in back of the main building) move the breakers in the panels located against the wall on the right to the off position (pictured on the next page).

Both of the above actions are needed to turn off the electricity to the main building. If the breakers in the greenhouse boiler building are not turned off, the backup generator will energize certain circuits in the main building.

Individual circuit breaker panels for the various individual circuits in the main building are located in different parts of the building: Room 121, Room 140, in the main hallway in between rooms 169 and 170, in the mezzanine near air handler unit 9 (these are circuit breakers for generator circuits), in the greenhouse boiler room, and in the greenhouse corridor.



Pictured above: Main breaker panel in Room 121



Pictured above: breaker panels located in greenhouse boiler building.



To open the circuit breaker panels in the greenhouse boiler room, press on the bottom portion of the latch.

Electricity

Other buildings

Pesticide Building and Equipment Building

To disconnect the electricity to the pesticide building and the equipment building, turn the main disconnect switch to the off position; it is located on the inside south wall of the equipment building.



Electricity

Other buildings

Fire Ant Lab and Soil Mixing Shed

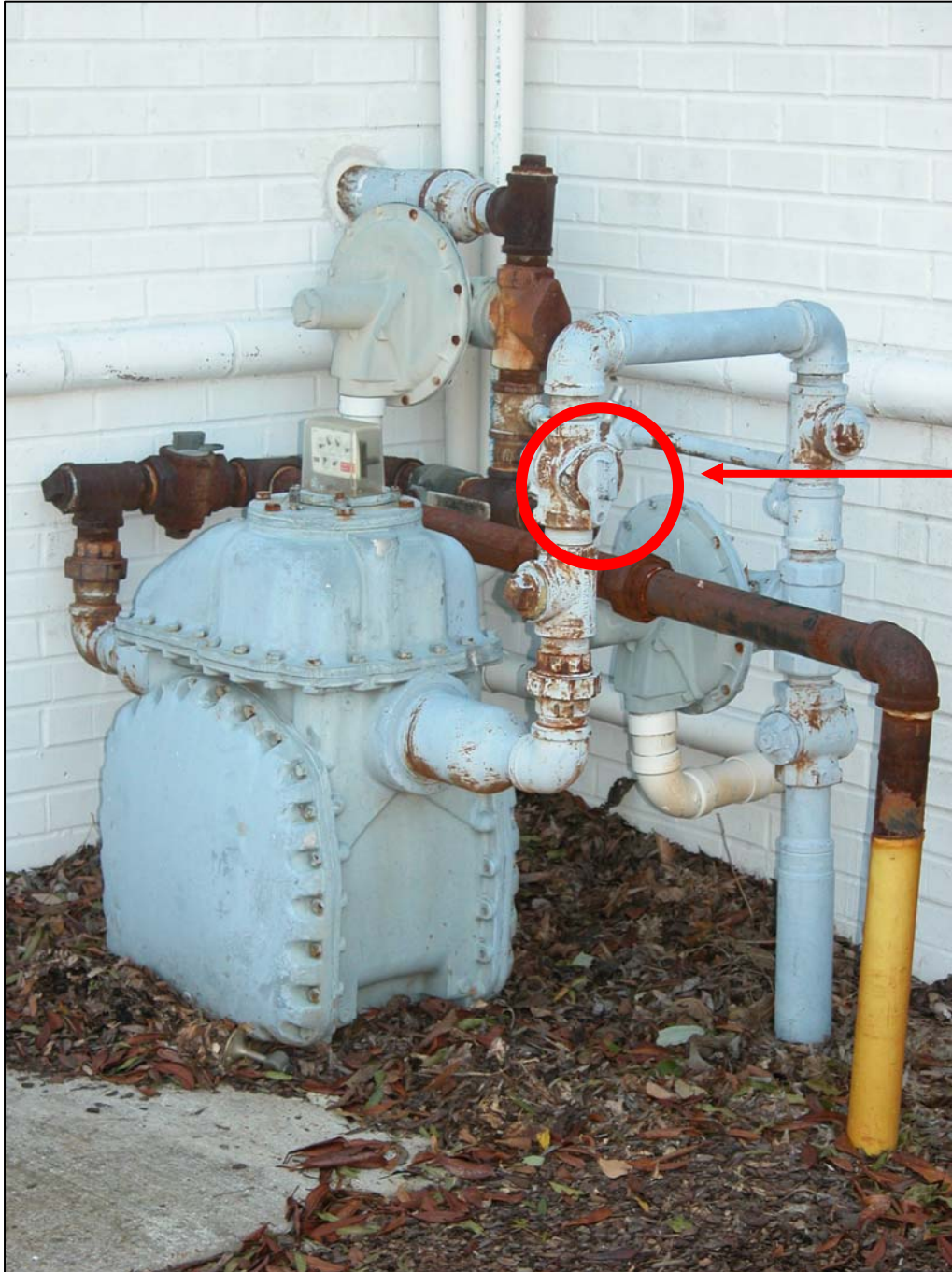
To disconnect the electricity to the fire ant lab and soil mixing shed, turn the main disconnect switch, located on the outside southwest wall of the fire ant lab, to the off position. To open the breaker panel, lift up on the outside cover and swing the door outward and upward.



Natural Gas

TSU Nursery Research Center Main Building

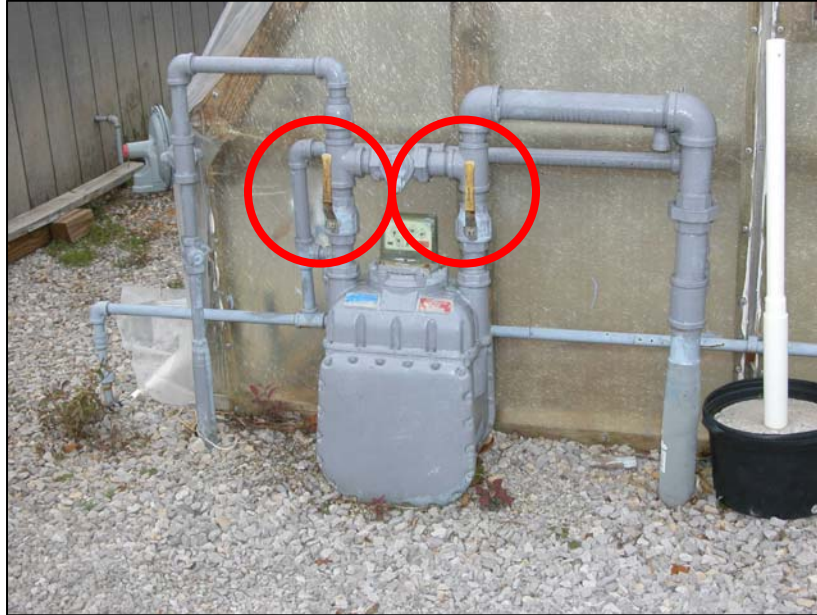
The main gas valve is located outside the building near the boiler room (outside the head house door by the walk-in coolers). A wrench to operate the valve is hanging on the wall to the right inside the boiler room. The boiler room door is to the immediate left of the gas meter and is accessed from outside of the building.



Natural Gas

Buildings Other Than the Main Building

Locate gray gas meter outside structure, turn valve to off position. Pictured below are typical gas meters.



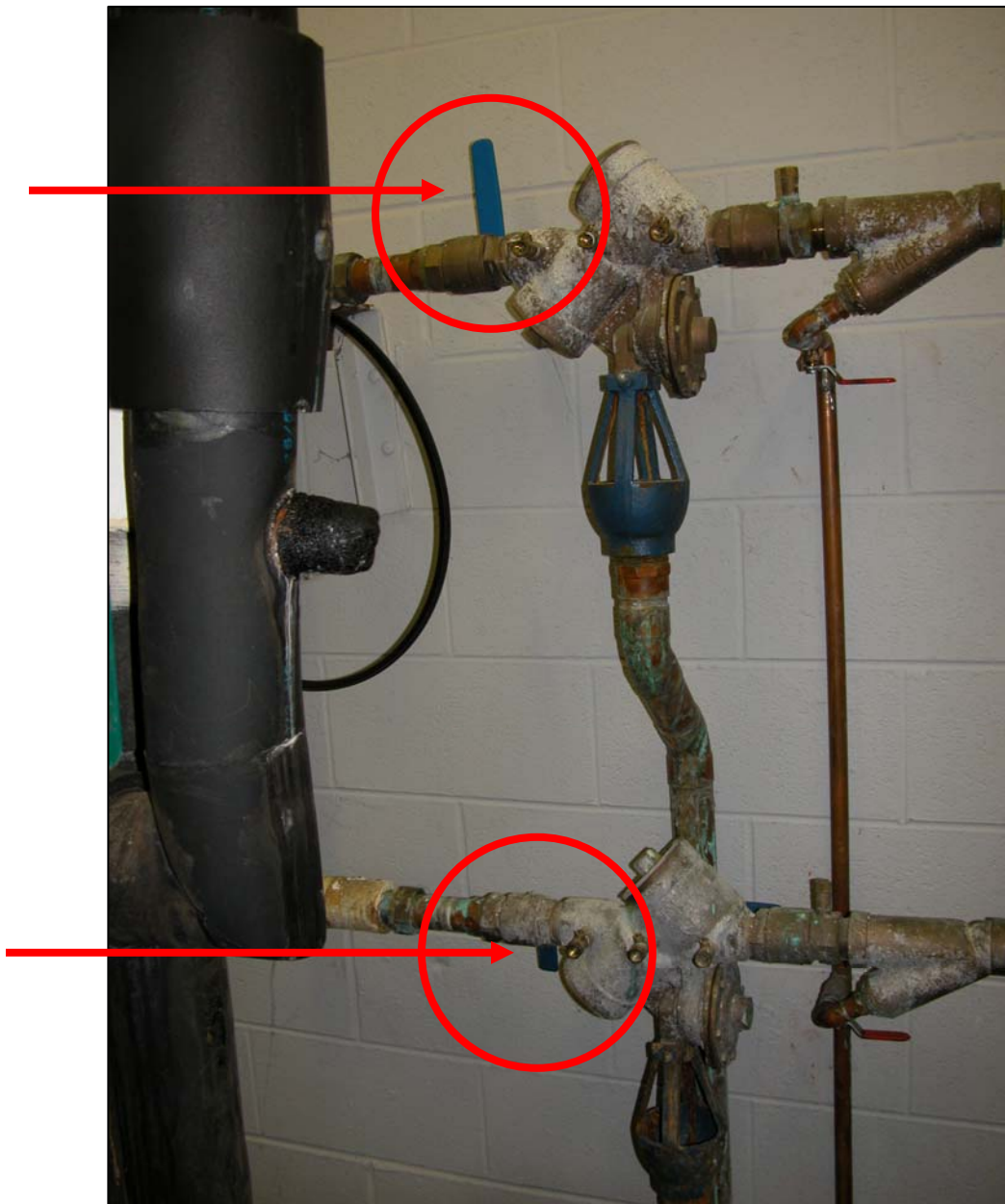
Water

TSU Nursery Research Center Main Building:

The valves to turn off the water supply to the main building are located on the southern (right hand) wall in Room 110 (mechanical room off the large conference room). The valves are blue handles located on the wall side of the pipes. Close the upper **and** lower blue valves as noted in photo below. **In the photo, the valves are in the closed position so they can be seen.** When the handles are parallel to the pipes, the valve is open; when the handles are perpendicular to the pipes, the valve is closed.

Please note – water-cooled incubators (Rooms 112 and 122) should be turned off prior to turning off the building water supply.

The valves described here do not turn off the greenhouse water supply.



Water

Greenhouses and Greenhouse Boiler

Close the red valve on the south wall of the greenhouse boiler house (separate building located behind the center, in back of the large gray air conditioner chiller units near the large conference room).



Water

Deionized (DI) Water

Located in Room 143 (between Room 142 and 147, access from the head house). The DI system continually circulates the water in the DI loop. The recirculation pump is located on the floor of the left side of this room. This pump does not have an on/off switch; it must be unplugged from the wall to turn it off. To stop the flow of fresh water into the loop, turn the valve labeled “Domestic Cold Water” on the left of the rear wall to the closed position. Alternatively, there are PVC ball valves adjacent to the DI tanks.



Valve to turn off water supply to deionized water loop.



Plug to turn off circulation pump in deionized water loop.

Equipment Disconnects

Boiler - Main Building

Located in the boiler room (access is from the outside of the rear of the building near the large conference room). The large gray metal rectangular unit in the middle of the room is the boiler. Viewing the unit from the doorway, the black on/off switch is located on the right of the unit.



Boiler - Greenhouse

Located in the greenhouse boiler room (small building separate from main building, located behind the large gray chiller units, in back of the main building near the large conference room). The big dark gray/green unit on the left side of the room is the boiler. The on/off switch is a toggle switch located on the back side of the unit.



On/off toggle switch is on the back of the unit where indicated by the arrow.

Vacuum Lines

Go to the boiler room (access is from the outside of the rear of the building near the large conference room). The white mechanical unit on the immediate left is the vacuum pump. Turn the handles on the control panel to the “off” position. There are also shut-off valves located in the main building, in the main hall between Rooms 111 and 115 and between Rooms 169 and 170, pictured on the next page.



Compressed Air

Go to the boiler room (access is from the outside of the rear of the building near the large conference room). The white mechanical unit near the far wall is the air compressor. Turn the handles on the control panel to the 'off' position. There are also shut-off valves located in the main building, in the main hall between Rooms 111 and 115 and between Rooms 166 and 169.



Between Rooms 111 and 115

Compressed air
and vacuum
cut-off valves



Between Rooms 166 and 169

Water Heater

The water heater for the building is located in the boiler room (access is from the outside of the rear of the building near the large conference room). It is the large bluish tank in the far left corner of the room. "In" and "Out" valves are located on top of the tank. To turn the water off, turn the valve handles until they are perpendicular to the pipe.

In addition to the water heater, there is a recirculation pump that keeps the water in the hot water loop moving. The pump is a red cylindrical unit mounted on the wall to the upper right of the water heater. The recirculation pump on/off switch is located on the wall beneath the pump.

To stop water from moving in the hot water lines, the water flow to the water heater **and** the recirculation pump must be turned off.

Water supply (in and out) valves



Hot water recirculation pump switch



Fire Sprinklers

The test station and water inlet for the fire sprinkler system is located in Room 110, off the main conference room.

Air Handlers

Air handlers are switched off either via the HVAC computer in Room 132 (off the library) or manually. Turning off the HVAC computer will not turn off the air handlers. To turn off an air handler manually, look for a circuit breaker-type switch on the unit and switch it to "off". There are 5 locations of air handler units.

The locations of air handlers in the main building are:

- 1) Upstairs in mezzanine (stairs located near the door to the copy room, Room 141)
- 2) In rooms 168 and 172 (off of labs 169 and 170, respectively, east end of building)
- 3) In room 110 (accessed from the large conference room)
- 4) Above the walk-in coolers in the head house
- 5) Above the ceiling in room 139 (must be turned off via computer or by accessing unit via the ceiling)

Appendix A: Safety Tips

Basic First Aid Measures

Basic First Aid Measures

Editor's note: This chart is designed to give you and your employees tips on performing basic first aid measures in emergency situations. **The information in this chart is not a**

substitute for professional emergency medical care. Be sure to instruct your employees to call 911 or an alternative emergency number when a serious injury or illness occurs.

ILLNESS/ INJURY

TREATMENT

Bleeding

For minor bleeding, use gauze to clean wound with soap and water. Bandage cut with a Band-Aid™ or gauze and tape.

For severe bleeding, call the EMS. Cover wound with clean gauze pad and press down firmly. Elevate injured area above the heart unless broken bones are suspected. If bleeding doesn't stop with direct pressure or bleeding site isn't accessible, apply pressure to nearby artery inside upper arm or on crease at front of hip. Avoid direct contact with blood.

Fractures/Broken Bones

Don't move the person unless he/she is in immediate danger. Call the EMS. Keep the injured limb immobilized. **Immediately call the EMS for injuries to the head, neck or back. Keep neck and back immobilized.**

Severed Limbs (PTO entanglements, etc.)

Turn off power if you can safely do so. Call the EMS. Administer CPR if person isn't breathing and you are trained in CPR. Stop external bleeding. Wrap severed body part in sterile gauze or clean cloth and place in plastic bag. Put bag inside bag of ice. Take to hospital with the injured person.

Frostbite (Stinging, aching, numbness; waxy, cold skin; red skin, then gray, white, yellow or blue skin)

Move person to warm place. Call the EMS. Loosely bandage frostbitten area. Don't rub frostbitten area or break any blisters. Do not try to rewarm with direct heat (from a space heater, fire, hair dryer). Wait for help to arrive.

This chart was prepared with the help of Dr. Steven Kirkhorn, medical director of Occupational Health Services for the Immanuel-St. Joseph's-Mayo Health System in Mankato, Minnesota.

ILLNESS/ INJURY

TREATMENT

Hypothermia (Increased shivering, slurred speech, impaired judgment, poor muscle coordination)

LIFE-THREATENING CONDITION

Move person to warm place. Immediately call the EMS. Remove person's wet clothing. Wrap in blankets or dress in dry clothing. Do not immerse person in water. Administer CPR if person isn't breathing and you are trained in CPR. Do not give fluids if person is unconscious.

Burns

Remove person from source of burn. Call the EMS. Cool burn with large amounts of cool water. Do not use ice or ice water. Apply soaked towel, sheet or other wet cloth to burned areas that can't be immersed in water. Cover burn with loose bandage or clean, dry cloth.

Burns – Electrical or Chemical

Immediately call the EMS. For electrical burns, be certain power is turned off before touching the person. Administer CPR if person isn't breathing and you are trained in CPR. Cover burn with dry bandage.

For chemical burns to the skin, immediately call the EMS. Check chemical label and MSDS. Don't touch burned area without wearing appropriate PPE. Remove excess powdered or dry chemicals from person's skin. Remove contaminated clothing if possible. Flush burned area with gentle stream of cool, running water for at least 15 minutes.

For chemical splashes to the eye, immediately flush the eye with eyewash solution or a gentle stream of cool, running water for at least 15 minutes (or submerge eyes in a container of clean water and blink for 15 minutes). Call the EMS as soon as possible. Get medical evaluation as soon as possible.

How to Handle Emergency Situations

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How To Handle Emergency Situations

KEY POINTS:

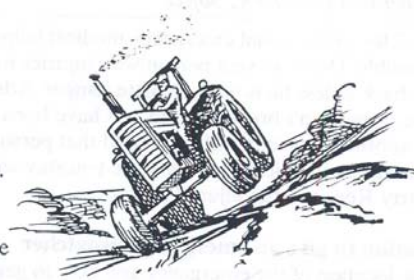
- Act quickly but calmly in an emergency.
- Know where our emergency phone numbers and first aid kits are located.
- Get professional emergency medical help as soon as possible when someone is seriously injured.
- Know what information to give a 911 dispatcher or other emergency telephone dispatcher.

Note to trainer: Follow this script or use it to help guide you through a 10- to 15-minute tailgate training session for your ag/hort workers. You may photocopy this sheet for your employees' personal use. However, it may not be published or sold.



Why your response is important

- Agricultural operations are often located some distance away from emergency medical services and other sources of professional medical help.
- In addition, many agricultural accidents occur in fields or other remote areas where they may go unnoticed for long periods of time.
- That's why it's important that you know what to do if you come across an emergency situation. Your quick actions can make the difference between life and death.



Agricultural accidents often occur some distance away from help.

How to recognize an emergency

- If you see, hear or smell something unusual, that may be your first indication that an emergency situation exists.
- Some examples of unusual noises include a person screaming or calling for help; sudden, loud voices; breaking glass; unusual machinery or equipment noise; screeching tires; or a loud crash.
- An emergency may also exist if you smell something unusual. Be especially alert to this if you work with pesticides or other chemicals.
- Some examples of unusual sights are spilled chemical containers, downed electrical wires, smoke or fire.
- An emergency may also exist if you see someone having trouble breathing or speaking, holding his throat or chest, sweating for no apparent reason, or suddenly appearing dizzy or confused.
- If you spot an emergency situation, get emergency help as soon as possible.



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How To Handle Emergency Situations

A few important tips

1. Know where our emergency telephone numbers are located.

Note to trainer: Tell trainees whether you have 911 in your area, and where that and other emergency numbers are posted.

2. Know where our first aid kits are located and what is in them.

Note to trainer: Show trainees a first aid kit and go through the contents with them.

3. Stay calm when you come across an emergency.
4. Quickly assess the situation. If someone is hurt, make sure both you and the injured person are out of immediate danger. For example, if someone is caught in a PTO, turn the power off if you can safely do so.

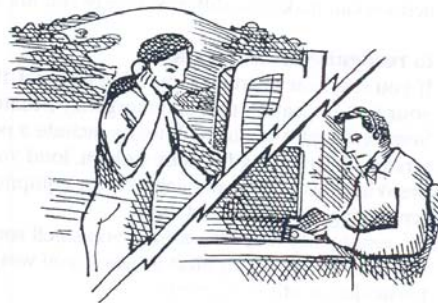


Warning: Never touch a downed power line. Don't touch a person who has come into contact with a power line until the power has been turned off. If you need to move the person, use a wooden pole or other non-conducting object.

5. Call for professional emergency medical help as soon as possible. Don't move a person with injuries to the head, neck or back unless he is in immediate danger. Administer CPR if the person isn't breathing and you have been trained in CPR.
6. If another person is with you, send that person to call the emergency medical services while you stay with the injured person. Reassure the injured person.

Information to give an emergency dispatcher

- the location of the emergency and how to get there
- what happened and how many people are injured
- what type of first aid is being given
- what additional hazards exist
- your name and the number you are calling from
- whether someone will meet the emergency medical services by the road or at a remote location



Are there any questions?

Note to trainer: Take time to answer trainees' questions. Then review the Emergency Response Do's and Don'ts.

EMERGENCY RESPONSE DO'S AND DON'TS

DO:

- Make sure someone knows where you are at all times, and have someone periodically check on you.
- Know who to call for professional emergency medical help and what information will be needed.

DON'T:

- Move a person with head, neck or back injuries unless he is in immediate danger.
- Forget to tell a supervisor if a first aid kit needs to be restocked.

Emergency Care for Burns

GEMPLER'S™ TAILGATE TRAINING TIP SHEET – No. 38

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Emergency Care For Burns

KEY POINTS:

- Burns can result in serious injury or even death.
- Call for emergency medical help if a co-worker is burned.
- Wear the appropriate personal protective equipment to protect yourself from burns.

Note to trainer: Follow this script or use it to help guide you through a 10- to 15-minute training session for your ag/hort workers. You may photocopy this sheet for your employees' personal use. However, it may not be published or sold.

Burns can be deadly

- Each year in the United States, more than two million people are injured and nearly 12,000 people die as a result of burns.
- The largest percentage of burns to adults occur in the workplace. These may result from:
 - contact with flames or hot objects such as machinery or pipes
 - contact with hot liquids or steam
 - splashes from chemicals to the skin or eyes
 - electricity
- You can protect yourself from burns by being careful, and by wearing the appropriate personal protective equipment (PPE) if you work with chemicals or other potential hazards.

Not all burns look the same

- Some burns, called first-degree burns, are less serious than others. They usually result in red, dry skin and mild swelling.
- Second-degree burns do more damage to the skin. They are usually quite painful, and result in blisters and swelling.
- Third-degree burns often result in white or charred skin. The burned skin may also be hard and dry. Third-degree burns of any size are extremely serious and require immediate medical attention. These burns destroy nerve endings, so they may not feel painful.
- If you or one of your co-workers is burned at work, immediately notify your supervisor and get emergency medical help.

Note to trainer: Tell trainees how to contact the emergency medical services in your area.

Warning: Immediately call the emergency medical services for chemical burns, electrical burns or burns to the head, neck, genitals, hands or feet. Also get immediate medical help for large burns, burns to more than one part of the body, or burns that result in trouble breathing.



Call for emergency medical help when a co-worker is seriously burned.

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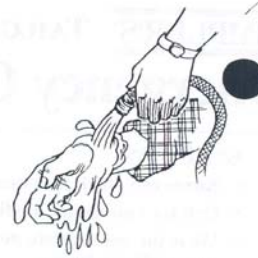
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Emergency Care For Burns

What to do for burns

- Here are some steps to take if a co-worker is seriously burned:
 1. Call for emergency medical help as soon as possible. Report minor burns to management, too.
 2. Remove the person from the heat or other source of the burn.
Warning: *Don't touch a person burned by electricity until the power has been turned off.*
 3. Use large amounts of cool water to cool the burn, unless it is an electrical burn or a burn due to freezing such as anhydrous ammonia. Don't use ice or ice water to cool a burn.
 4. Apply a soaked towel, sheet or other wet cloth to burned areas that can't be immersed in water.
 5. Cover the burn with a loose bandage or a clean, dry cloth.



Use large amounts of cool water to cool a burn.



Cover the burn with a loose bandage or clean, dry cloth.

Electrical burns or chemical burns

- Both of these types of burns are very serious. Immediately call the emergency medical services for help.
- Don't touch a person shocked by electricity until you are certain the power is off. Only turn the power off yourself if you can do so safely. If the person isn't breathing and you have been trained in CPR, administer CPR until professional help arrives. Then cover the electrical burn with a dry bandage.
- For a chemical splash to the eye, follow these steps:
 - Immediately flush the eye with eyewash solution or a gentle stream of cool, running water.
 - Continue to do this for at least 15 minutes.
- For chemical burns to the skin:
 - Check the chemical label and material safety data sheet (MSDS) for specific instructions.
 - Don't touch the area exposed to the chemical without wearing the appropriate PPE.
 - Remove any excess powdered or dry chemicals from the person's skin. Also remove any contaminated clothing if possible.
 - Flush the burned area with a gentle stream of cool, running water for at least 15 minutes.



Flush an eye that has been splashed with chemicals for at least 15 minutes.

Are there any questions?

Note to trainer: *Take time to answer trainees' questions. Then review the Emergency Burn Care Do's and Don'ts.*

EMERGENCY BURN CARE DO'S AND DON'TS

DO:

- Act quickly when a co-worker is burned.
- Use cool – not ice cold – water to cool burns.
- Know the location of our emergency showers and eyewash stations.

DON'T:

- Break blisters that result from a burn.
- Apply antiseptic sprays, ointments, grease or butter to a burn. Get professional medical advice.
- Try to remove clothing that is stuck to burned skin.

Be Wary of Insect Bites and Stings

GEMPLER'S TAILGATE TRAINING TIP SHEET – No. 63

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Be Wary of Insect Bites and Stings

Editor's note: Our Tailgate Training Tip Sheets can also be ordered in Spanish. Please call GEMPLER'S for availability.

KEY POINTS:

- Avoid rapid movements near bees. Don't slap at them or swat them.
- Wear a long-sleeved shirt, long pants and socks outdoors.
- Immediately get medical help if you or a co-worker have a severe reaction to an insect bite or sting.

Note to trainer: Follow this script or use it to help guide you through a 10- to 15-minute training session for your ag/hort workers. You may photocopy this sheet for your employees' personal use. However, it may not be published or sold.

Be on the alert for insects

- Summertime presents certain dangers, especially for workers who spend most of their time outdoors.
- Among these dangers are certain insects that bite or sting, including spiders, mosquitoes, ticks, bees, wasps and hornets.
- You can reduce your risk of insect bites by wearing long-sleeved shirts, long pants and socks when you're outside. Insect repellents will also help.

Bee stings

- Thousands of people are stung by bees each year. In most cases, a bee won't sting you unless it is provoked.
- If bees are nearby, avoid rapid movements. If a yellow jacket, wasp or hornet lands on you, don't slap it or swat at it. Instead, try to blow or gently brush it away.
- If you are stung, remove the stinger from your skin as quickly as possible. Don't grasp the stinger with your fingers or a tweezers. Instead, gently scrape the area with your fingernail or try to remove the stinger by scraping with the edge of a knife.
- In most people, a bee sting will result in localized pain, swelling and redness for about 48 hours. Wash the area with soap and water and apply a cold pack to reduce the swelling. See a doctor if your symptoms worsen or persist.
- Some people are severely allergic to bee stings, which can be life-threatening or even fatal.
- Immediately contact our local emergency medical services if you or a co-worker are stung and break out in hives, have trouble breathing, become dizzy, vomit, get stomach cramps or diarrhea, or have any other severe reaction.
- If you have had a severe reaction to an insect sting in the past, immediately notify your supervisor and seek medical attention.



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Be Wary of Insect Bites and Stings

Mosquito and spider bites

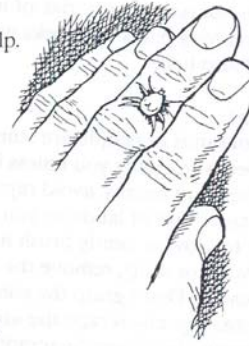
- Bites from mosquitoes and most spiders generally don't cause serious harm, unless you're allergic to spider venom.
- Avoid scratching bites. Instead, wash the area with soap and water and apply a cold pack if needed to reduce swelling. Ointments such as calamine lotion will also help reduce the itchiness.
- Immediately contact our local emergency medical services if you or a co-worker show signs of a severe reaction to a bite.



Avoid scratching insect bites.

Tick bites

- Ticks are small insects that feed on a person's blood. Tick bites are painless, so a tick may remain imbedded in your skin for days unnoticed.
- The best way to remove a tick is to use a small tweezers to grasp it where its mouthparts enter the skin. Tug gently but firmly until it releases its hold on your skin. If you can't get it out or if its mouthparts remain in your skin, seek medical care. Wash the bite area with soap and water.
- Some deer ticks carry Lyme disease, which can be very serious if untreated. Deer ticks are typically found in wooded and grassy areas. Wear a long-sleeved shirt, long pants with the cuffs tucked into your socks, and a hat when you're in these areas. Insect repellents may also help.
- If you have been bitten by a tick and show any of the following symptoms, be sure to see a doctor: a rash or red patch, especially one that slowly expands over several days; fatigue; a mild headache; pain and stiffness in your muscles and joints; a slight fever; or swollen glands.



Ticks are small insects that feed on a person's blood.

More tips

- Avoid bright-colored or floral print clothing, perfume, hair spray, floral-scented shampoos, soaps and deodorants.
- Pay close attention to open soda containers and glasses.
- Keep trash containers closed, and clean up after eating outdoors.
- Apply a cold pack to reduce discomfort if you have been bitten or stung.

Are there any questions?

Note to trainer: Take time to answer trainees' questions.

Then review the Stinging and Biting Insect Do's and Don'ts.

STINGING AND BITING INSECT DO'S AND DON'TS

DO:

- Check for stinging insects near flowering plants, trash cans and outdoor eating areas.
- Run away if you are attacked by several stinging insects at the same time. Try to get indoors.
- Immediately seek medical help if you have a severe reaction.

DON'T:

- Leave a co-worker who has been stung alone. The person could have an allergic reaction.
- Walk barefoot outdoors.
- Leave a stinger in your skin.

Protect Yourself from the Sun

GEMPLER'S TAILGATE TRAINING TIP SHEET – NO. 64

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Protect Yourself From The Sun

Editor's note: The information contained in this Tip Sheet has been updated from Tailgate Training Tip Sheet No. 27. Our Tailgate Tip Sheets can also be ordered in Spanish. Please call GEMPLER'S for availability.

KEY POINTS:

- The sun's rays are the strongest between 10 a.m. and 4 p.m.
- Wear sunglasses, sunscreen, a long-sleeved shirt, long pants and a protective hat when you are out in the sun.
- Choose a sunscreen with a sun protection factor (SPF) of 15 or greater.

Note to trainer: Follow this script or use it to help guide you through a 10- to 15-minute tailgate training session for your ag/hort workers. You may photocopy this sheet for your employees' personal use. However, it may not be published or sold.



Too much sun can be dangerous

- Being outdoors on a warm, sunny day can make you feel good.
- But repeated exposure to the sun day after day, year after year also increases your risk of problems.
- Among those problems are:
 - aging, wrinkling or drying out of the skin
 - skin cancer, which can develop from repeated exposure to the sun
 - lip cancer
 - damage to the eyes
- Too much exposure to the sun's ultraviolet rays can harm you, even if you have dark hair and dark skin.
- You can also get sunburned on a cloudy day – not just when the sun is bright.

Precautions you can take

- Limit the amount of time you spend in the sun. If you work outside all day, take breaks indoors if possible or in the shade.
- Use sunscreen lotion on your face, neck, hands, forearms and other unprotected areas of the skin. Be sure to choose a sunscreen with a sun protection factor (SPF) of 15 or greater. The SPF will be listed on the label.
- Apply the sunscreen before going out in the sun. It's best to put it on 20 to 30 minutes ahead of time. Then reapply it during the day.
- The sun's rays are the strongest between the hours of 10 a.m. and 4 p.m. Be especially careful to protect your skin from exposure during those hours.
- Always wear sunglasses to protect your eyes from the harmful rays of the sun. When choosing sunglasses, look for a label that indicates they filter at least 90 percent of the sun's ultraviolet rays.



Choose a sunscreen with an SPF of 15 or greater.

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Protect Yourself From The Sun

Wear the proper protective clothing

- If you can't avoid being outdoors in the sun, wear a lightweight, tightly-woven long-sleeved shirt and long pants. Light-colored clothing is a good choice. Gloves are also a good idea. Be sure your clothes are not too tight.
- Wear a hat that shades your ears, face, temples and the back of your neck from the sun. These come in many styles. Among them are wide-brimmed hats, pith helmets and straw hats with extra wide brims.

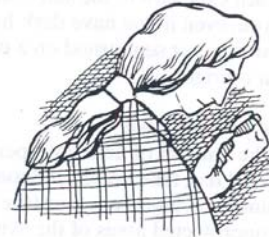
Warning: A baseball cap alone won't adequately protect you from the sun. If you do wear a baseball cap, wear it with a neck shade. Or look for a baseball-style cap that has a protective sun flap.



A baseball cap alone won't adequately protect you from the sun.

How to recognize a problem

- Regularly check your skin for any signs of damage from the sun. Be sure to check your head, face, lips and the tips of your ears.
- Look for changes in the size, shape or color of moles. Specifically look for irregular borders (ragged, notched or blurred edges), moles that aren't symmetrical (one half doesn't match the other), colors that aren't uniform throughout, or moles that are bigger than a pencil eraser.
- Also look for:
 - sores that bleed and don't heal
 - a change in sensation in a mole, such as itchiness or pain
 - red patches or lumps, including small bumps on the head
 - new moles
- Any of these might be an indication of skin cancer. Skin cancer can be treated if it is caught early. If you spot a problem, see a health professional. Report the problem to your supervisor if you don't have access to a doctor.



Are there any questions?

Note to trainer: Take time to answer trainees' questions. Then review the Sun Protection Do's and Don'ts.

SUN PROTECTION DO'S AND DON'TS

DO:

- Wear a hat in the sun that protects your ears, face and the back of your neck.
- Choose a sunscreen with a sun protection factor of 15 or greater.
- Regularly check your skin for red patches, lumps, or changes in the size, shape or color of moles.

DON'T:

- Think that a suntan is a sign of good health.
- Use sunlamps or other artificial means of getting a tan.
- Forget to wear sunglasses to protect your eyes from the sun.

Working Outdoors in Cold Weather

GEMPLER'S TAILGATE TRAINING TIP SHEET – NO. 55

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Working Outdoors In Cold Weather

KEY POINTS:

- Wear dry clothing when working outdoors.
- Wear several layers of clothing rather than a single heavy jacket.
- Drink plenty of water to keep from getting dehydrated.
- Dehydration is a major contributor to hypothermia.

Note to trainer: Follow this script or use it to help guide you through a 10- to 15-minute tailgate training session for your ag/hort workers. You may photocopy this sheet for your employees' personal use. However, it may not be published or sold.



Cold weather can be dangerous

- For many of us, winter is a welcome escape from working outdoors in hot, humid weather.
- But cold winter weather presents some serious risks. Among them are:
 - Frostbite, or the freezing of body parts exposed to the cold. Frostbite can be mild or it can be severe, resulting in the destruction of body tissue. The parts of the body most likely to be frostbitten are your nose, cheeks, ears, toes and fingers.
 - Hypothermia, or the loss of body heat due to prolonged exposure to the cold. Hypothermia is a life-threatening condition. You are more likely to rapidly lose body heat when your clothes are wet.
- It's important that you know what to do to reduce your risk of cold-related injuries.



Note to trainer: Our next Tailgate Training Tip Sheet will give you tips on recognizing and treating cold-related injuries.

Who is at risk?

- Cold-related injuries can result even if you're only outdoors for short periods of time.
- This is especially true if you work in a greenhouse or other environment where your clothing gets wet.
- Your risk of a cold-related injury also increases with:
 - high winds
 - inadequate or improper clothing
 - physical exhaustion
 - dehydration, or a loss of body fluids
 - alcohol or tobacco use, which can lead to increased heat loss
 - diabetes, circulatory problems and certain other medical conditions



Always dress appropriately in cold winter weather.

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Working Outdoors In Cold Weather

Wear the proper clothing

- One of the best ways to prevent cold-related injuries is to wear the right clothing outdoors.
- It's better to wear several layers of clothing than a single heavy coat or jacket. If possible, wear a thin layer next to your skin such as polyester or polypropylene. This will help keep the heat close to your body. Wear this under a warm layer of clothing such as wool under an outer jacket that repels water and cuts the wind.
- You should also wear a warm hat that covers your ears, gloves or mittens, dry socks, and dry shoes or boots that protect your feet against cold and dampness.
- A scarf or ski mask will also help protect your face.



More cold weather tips

1. Always dress properly for cold weather. Put on warm clothes before you go outside. Carry extra dry clothing if you're likely to get wet.
2. Keep your skin dry. Wet skin freezes quicker than dry skin.
3. Drink plenty of water to keep from getting dehydrated.
4. If possible, do some of your outdoor work during the warmest part of the day.
5. Avoid sitting still outdoors for long periods of time. And take adequate breaks from the cold.
6. Don't touch metal or wear metal jewelry outdoors in the cold. Metal conducts cold, thus increasing your chances of frostbite.
7. Avoid alcohol, cigarettes, coffee and other drinks with caffeine. Smoking decreases circulation; alcohol increases the rate at which your body cools.
8. Stay in good physical shape.



Avoid alcohol, cigarettes and coffee in cold outdoor weather.

Are there any questions?

Note to trainer: Take time to answer trainees' questions. Then review the Cold Weather Do's and Don'ts.

COLD WEATHER DO'S AND DON'TS

DO:

- Keep your energy level up when working outdoors in the cold. Sweet snacks will help.
- Immediately seek shelter and call for emergency medical help if you or a co-worker can't stop shivering, begin stumbling, or become confused or severely fatigued.

DON'T:

- Overestimate your ability to do strenuous work. Set a reasonable pace for yourself.
- Work outdoors in the cold if you are physically exhausted or in poor physical shape.
- Wear wet clothing outdoors in the cold.

How to Treat Cold-Related Injuries

GEMPLER'S™ TAILGATE TRAINING TIP SHEET – NO. 57

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How To Treat Cold-Related Injuries

Editor's note: Our Tailgate Training Tip Sheets can also be ordered in Spanish. Please call GEMPLER'S for availability.

KEY POINTS:

- Working outdoors in cold weather can result in serious injury.
- If you are frostbitten, you may not know it since the frostbitten area will become numb.
- Hypothermia is a life-threatening condition that requires immediate medical attention.



Note to trainer: Follow this script or use it to help guide you through a 10- to 15-minute tailgate training session for your ag/hort workers. You may photocopy this sheet for your employees' personal use. However, it may not be published or sold.

Also see Tailgate Training Tip Sheet No. 55, Working Outdoors In Cold Weather.

Cold weather can be fatal

- Working outdoors in the cold can result in serious injury – especially if you're outdoors for long periods of time.
- Your risk of injury varies, depending on such factors as the temperature, wind speed, your length of time outdoors, your age, physical condition, and whether your clothing is wet or dry.
- The effects of cold weather may include shivering, loss of coordination, confusion, mild frostbite, severe frostbite, or even hypothermia – a progressive loss of body heat that can result in death.



Warning: Immediately take a break and seek warm shelter if you are unable to stop shivering, notice a stinging sensation or numbness, or become disoriented.

Recognizing cold-related injuries

- Frostbite, or the freezing of body tissue exposed to the cold, is a common cold-related injury.
- Frostbite can be either mild or severe. Severe frostbite can result in the loss of such body parts as fingers, toes, hands, arms, feet or legs.
- Since frostbite has a numbing effect, you may not be aware you are frostbitten. Warning signs may include a stinging or aching feeling, followed by numbness; skin that feels waxy and cold; and skin that turns red, then gray, white, yellow or blue.
- Hypothermia occurs when your body loses heat faster than it can produce it. Heat loss occurs more rapidly when you are wet.
- Warning signs of hypothermia include increased shivering, slurred speech, impaired judgment, and poor muscle coordination.



Among the warning signs of hypothermia is poor muscle coordination.

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How To Treat Cold-Related Injuries

How to treat frostbite

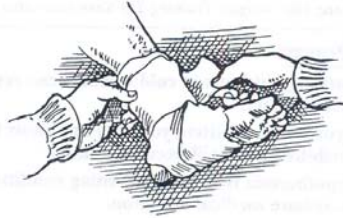
1. Move the person to a warm place and call for professional emergency medical help. Don't let the person walk if his or her feet are frostbitten.

Note to trainer: Tell trainees how to contact your local emergency medical services. If you have the emergency 911 number in your area, be sure it's posted at each telephone.

2. Handle the frostbitten area gently; never rub it.
3. Loosely bandage the frostbitten area. Make sure the bandage is clean and dry.

Note to trainer: Be sure trainees know where your first aid kits are located.

4. Avoid breaking any blisters.
5. Wait for professional emergency medical help to arrive. Do not try to rewarm the frostbitten area.



Loosely cover the frostbitten area to protect it from further injury.

How to treat hypothermia

- Hypothermia is a life-threatening condition. Follow these steps if you suspect a co-worker has hypothermia:

1. Gently move the person to a warm place and immediately call for professional emergency medical help.
2. Remove the person's wet clothing.
3. Slowly warm the person by wrapping him or her in blankets or putting on dry clothing. Don't immerse the person in water – warming will occur too quickly.
4. If the person is conscious, offer a warm, non-alcoholic drink.
5. Administer CPR if the person isn't breathing and you know how to perform CPR.

Warning: Severe hypothermia can result in death. Immediately seek professional emergency medical help if a co-worker exhibits any signs of hypothermia.



Wrapping blankets around a person showing signs of hypothermia will help in the warming process.

Are there any questions?

Note to trainer: Take time to answer trainees' questions. Then review the Cold-Related Injury Do's and Don'ts.

COLD-RELATED INJURY DO'S AND DON'TS

DO:

- Seek immediate shelter in a warm place if you can't stop shivering, notice numbness, or become disoriented.
- Handle any frostbitten area gently. Don't rub it.
- Contact your local emergency medical services for help with frostbite or hypothermia.

DON'T:

- Wear wet clothing outdoors in the cold.
- Place a person who is frostbitten next to a stove or fire.
- Ever rewarm frozen tissue. Seek emergency medical help immediately for any frozen tissue.

Proper Lifting to Prevent Back Injuries

GEMPLER'S TAILGATE TRAINING TIP SHEET – No. 40 Copyright 1997

Proper Lifting To Prevent Back Injuries

Editor's note: The information contained in this Tip Sheet originally appeared in Tailgate Training Tip Sheet No. 2.

KEY POINTS:

- Improper lifting can cause serious back injuries.
- Don't lift if you're in poor physical shape.
- Keep your back straight.
- Bend your knees. Don't bend from your waist.
- Ask for help if you need it.

Note to trainer: Follow this script or use it to help guide you through a 10- to 15-minute tailgate training session for your aglhort workers. You may photocopy this sheet for your employees' personal use. However, it may not be published or sold.

Before you begin, locate an object normally used in your operation to demonstrate proper lifting techniques. Look for an object that might present a challenge.

How many of you have ever had a serious back injury?

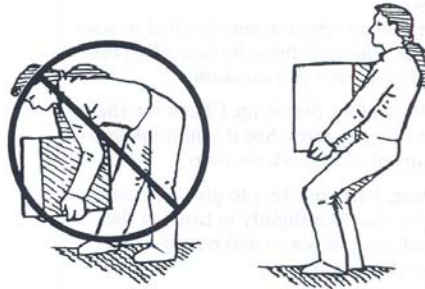
- Please raise your hands.
- Can you tell us about your experience? How did it happen?

Note to trainer: Allow a few moments for workers to relay their personal experiences.

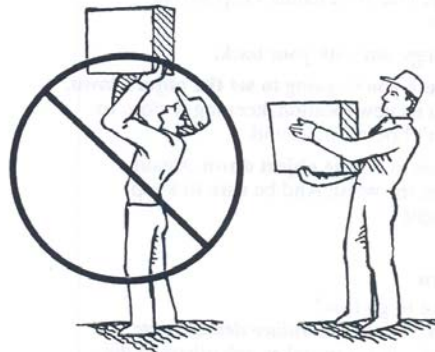
What causes serious back injuries?

- As you know, back injuries can be very painful.
- One cause of serious back injuries is improper lifting.
- Each pound of weight you lift puts close to 7¹/₂ pounds of pressure on your lower back.
- Here are some examples of improper lifting;

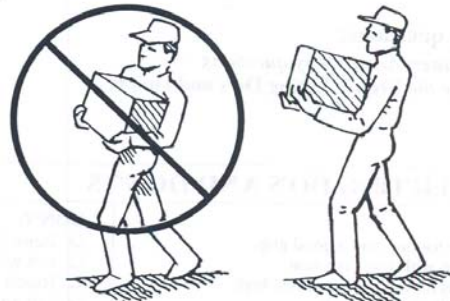
Note to trainer: Run through the examples on the right with trainees.



Bending from the waist to pick up an object.



Lifting an object higher than chest high.



Twisting your body while carrying a heavy object.

(Continued on back)

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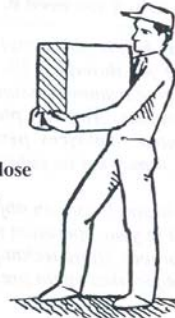
Proper Lifting To Prevent Back Injuries

What is the proper way to lift?

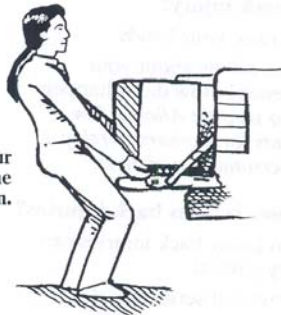
- Let's demonstrate proper lifting. I'll do it first. Then let's see how you do.
Note to trainer: Use an object normally lifted in your operation with the following steps. Be sure all of the trainees can easily see what you are doing.
- **Stand close to the object.** Size it up. Check for sharp edges, nails and other hazards. See if you think you can lift it by yourself. If not, ask for help.
- **Get a firm footing.** Part your feet to give you good balance. Then put one foot slightly in front of the other. Also, check your shoes to make sure they provide good traction.
- **Straighten your back.** Then bend your knees — but don't bend from the waist.
- **Get a good grip.** Use both hands. Grip gloves are very helpful.
- **Lift with your legs, not with your back.**
- **Plan ahead where you're going to set the object down.** Then carry it to its new location, keeping it close to your body. Don't bounce it around.
- **Bend your knees to set the object down.** Again, don't bend from the waist. And be sure to keep your back straight.



Get a firm footing. Part your feet to give you good balance.



Keep the object close to your body.



Bend your knees to set the object down.

Now, it's your turn

- Who would like to go first?
Note to trainer: Have each trainee demonstrate proper lifting. If you see mistakes, ask others in the group to point out the proper way to lift.

Are there any questions?

- *Note to trainer: Answer any questions. Then review the Proper Lifting Do's and Don'ts.*

PROPER LIFTING DO'S AND DON'TS

DO:

- Get a firm footing and a good grip.
- Wear shoes with good traction.
- Lift objects no higher than chest high.
- Ask for help if you need it.

DON'T:

- Bend from the waist.
- Lift when you're in poor physical shape.
- Reach below your feet to pick up an object.
- Lift an object you can't handle alone.

Proper Lifting for Awkward Loads

GEMPLER'S TAILGATE TRAINING TIP SHEET – NO. 66

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Proper Lifting For Awkward Loads

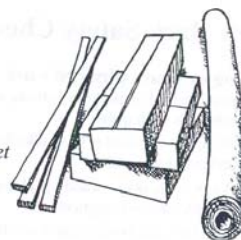
Editor's note: Our Tailgate Training Tip Sheets can also be ordered in Spanish. Please call GEMPLER'S for availability.

KEY POINTS:

- Establish a wide base of support before picking up a load.
- Use your shoulder to help support a lightweight, odd-sized load.
- Ask for help if you can't safely lift or move a load by yourself.

Note to trainer: Follow this script or use it to help guide you through a 10- to 15-minute training session for your ag/hort workers. You may photocopy this sheet for your employees' personal use. However, it may not be published or sold.

Bring to the training session a lightweight, odd-sized object your employees might be asked to lift.



Back injuries can be costly

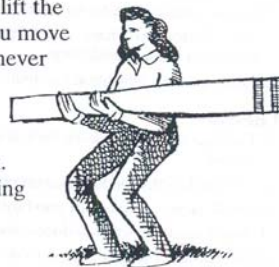
- If you've ever hurt your back, you know how painful it can be.
- Back injuries can result in lost work time, costly medical bills, long-term chronic pain, and decreased quality of life.
- Improper lifting is a common cause of back injuries. Each pound of weight you lift puts close to 7¹/₂ pounds of pressure on your lower back.
- While you may be familiar with some of the standard "safe lifting" tips, it's not always possible to follow them when you need to pick up a large but lightweight box of cotton, a piece of lumber, a long pipe, or another odd-sized load.



Never bend from the waist when picking up a load.

Lifting odd-sized loads

- The general rule of safe lifting is to carry the load as close to your body as you can. But this is not always possible, depending on the size and configuration of the load.
- An alternate way to lift odd-sized, lightweight objects is to carefully lift the object up to your shoulder and support it on your shoulder while you move it. If the object is long, keep the front end higher than the rear, and never block your field of vision.
- Before you pick up the load, be sure you:
 - Establish a wide base of support. Do this by parting your feet. Put one foot slightly in front of you and the other slightly in back.
 - Straighten your back. Then squat down to pick up the load, keeping your back straight. You'll know you have a good base of support if your front foot heel remains on the ground or floor.
- Remember to use your legs to help you lift.



Note to trainer: Repeat the previous instructions while a trainee demonstrates these techniques with the odd-sized object you brought to the training session.

(Continued on back)

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BACK SAFETY

Editor's note: The following are some tips you can give your employees to help reduce their risk of low back injuries. This checklist is from the American College of Occupational and

Environmental Medicine. See the October 1998 issue of ALERT for a Low Back Safety Checklist for Employers. We'll talk more about ergonomics in future issues.

Low Back Safety Checklist for Employees

Lifting or heavy physical work

- Keep lifted objects close to body at waist level. Evenly balance loads with both arms.
- Get help if the load is too bulky/heavy to lift alone, or split into smaller/lighter loads.
- Take rest breaks to stand up, change position and stretch. Break tasks into shorter segments.
- Avoid twisting, bending and reaching while lifting. Rotate entire body instead.
- If lifting or moving a load, bend with the knees, not the back.

Awkward postures

- Monitor habits to incorporate correct ways to sit/stand/move.
- Make sure work surface is at a comfortable height.
- Sit and walk with good posture, keeping head high, chin tucked in, toes straight ahead.
- Alternate between standing and sitting tasks. During long periods of standing, rest one foot on a low stool. When sitting, rest both feet flat on the ground or floor.

Whole-body vibration

- Keep machinery in good repair to eliminate extra vibration from poor alignment/function.
- When driving, move seat forward to keep knees level with hips. Sit straight; keep both hands on the wheel.

Environment

- Ensure lighting in work area causes no glare or excessive shadowing.
- Maintain firm footing and wear comfortable, low-heeled, non-slip shoes.
- Report and/or work to eliminate any potential hazards in the workplace.
- See a doctor if you have a back injury or other illness. Follow doctor's treatment recommendations.
- Learn and use relaxation techniques to manage stress on and off the job.

Lifestyle

- Exercise regularly to keep back and abdominal muscles strong and flexible.
- Choose healthy foods. Maintain proper weight.
- Drink plenty of water for good hydration.
- Avoid smoking, which reduces blood/fluid flow to the spine.
- Get sufficient sleep daily; go to sleep and awaken at the same time every day. Use a firm mattress.
- Sleep on side or back.

For more information, visit www.osha-slc.com

OSHA-107-100-11-001 • 11/06-01-000 • 2002 OSHA-100-11-001 • 11/06-01-000

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Know the Dangers of Pesticide Exposure

GEMPLER'S TAILGATE TRAINING TIP SHEET – NO. 58

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Know the Dangers of Pesticide Exposure

Editor's note: Our Tailgate Training Tip Sheets can also be ordered in Spanish. Please call GEMPLER'S for availability.

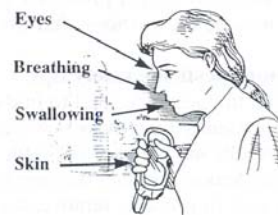
KEY POINTS:

- Always wear personal protective equipment when handling pesticides.
- Read the emergency first aid section on the pesticide label.
- Know where to get emergency help in case of pesticide exposure.

Note to trainer: Follow this script or use it to help guide you through a 10- to 15-minute tailgate training session for your ag/hort workers. You may photocopy this sheet for your employees' personal use. However, it may not be published or sold.

Pesticides can harm you

- Pesticides are chemicals used to destroy pests on plants and crops. They can also harm you if you do not handle them carefully.
- It's important to always wear personal protective equipment such as chemical-resistant gloves or coveralls when working with pesticides.
- Pesticides can harm you immediately or over time if you:
 - get them on your skin
 - get them in your eyes
 - breathe (or inhale) them
 - swallow them
- Pesticides can enter your body even more easily through cuts and wounds.



Symptoms of pesticide exposure

- The symptoms of pesticide exposure may vary, depending on the type of pesticide, the amount you are exposed to, the length of time you are exposed, and other factors.
- Sometimes, a person who is exposed to pesticides will immediately become ill. Other times, there may be no symptoms and it may take years for the effects of pesticide exposure to show up.
- Symptoms of pesticide poisoning may include:
 - skin rashes, burns or irritation
 - headaches, blurred vision or eye irritation
 - dizziness
 - excessive sweating
 - chest pains or trouble breathing
 - nausea or vomiting
 - stomach cramps or diarrhea
 - convulsions
- Immediately stop working and call for help if you inhale pesticides, or are splashed or sprayed with a pesticide.



(Continued on back)

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Know the Dangers of Pesticide Exposure

First aid for pesticide exposure

- Be sure you've reviewed the entire pesticide label before you begin working with a pesticide.
 - In case of accidental exposure, the label will tell you how to give emergency first aid.
 - Here are some other tips:
 - If a pesticide gets on your skin, immediately remove your contaminated clothing and personal protective equipment. Thoroughly wash your skin with soap and water for 15 to 20 minutes. Then seek medical help.
 - If a pesticide gets in your eyes, immediately rinse them with an eye flush kit or let a gentle stream of water flow across them. Hold your eyelids open and keep rinsing your eyes for 15 to 20 minutes. Then seek medical help.
 - If you inhale a pesticide, get to fresh air immediately. If you are having trouble breathing, call for help, then sit down. Seek medical help.
 - Get professional emergency medical help as soon as possible. Have the pesticide label with you when you call the emergency medical services or see a doctor.
- Note to trainer: Tell trainees where to find the information on who to call.*
- Wear the proper protective gear if you have to rescue someone who may be unconscious after breathing in pesticides.



Thoroughly wash your skin with soap and water if a pesticide gets on it.

A few more pesticide safety tips

1. Read the pesticide label to find out what personal protective equipment you must wear when handling the pesticide.
2. Carefully inspect your coveralls, gloves and other protective gear for tears, holes, leaks and other damage to keep pesticides away from your body.
3. Be sure to properly remove, store or dispose of pesticide-contaminated clothing.
4. Wash your hands with soap and water each time you take a break from working with pesticides.
5. Always let someone know where you are when you are working with pesticides.



Are there any questions?

Note to trainer: Take time to answer trainees' questions. Then review the Pesticide Dangers Do's and Don'ts.

PESTICIDE DANGERS DO'S AND DON'TS	
DO: <ul style="list-style-type: none"><input type="checkbox"/> Always use personal protective equipment when working with pesticides.<input type="checkbox"/> Read the label before you handle pesticides.<input type="checkbox"/> Immediately seek professional emergency medical help if you or a co-worker are exposed to pesticides.	DON'T: <ul style="list-style-type: none"><input type="checkbox"/> Touch the contaminated clothing or skin of a person who has been exposed to pesticides without wearing protective gloves.<input type="checkbox"/> Wear damaged gloves or protective clothing.<input type="checkbox"/> Hesitate to ask your supervisor for help if you don't understand the instructions on a pesticide label.

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How to Clean Up a Pesticide Spill

GEMPLER'S™ TAILGATE TRAINING TIP SHEET – No. 62

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How to Clean Up a Pesticide Spill

Editor's note: The information contained in this Tip Sheet originally appeared in Tailgate Tip Sheet No.12. Our Tailgate Training Tip Sheets can also be ordered in Spanish. Please call GEMPLER'S for availability.

KEY POINTS:

- Pesticide spills should be cleaned up right away.
- Be sure to wear the proper PPE when cleaning up a spill.
- Do not use water to clean up a pesticide spill.

Note to trainer: Follow this script or use it to help guide you through a 10- to 15-minute tailgate training session for your ag/hort workers. You may photocopy this sheet for your employees' personal use. However, it may not be published or sold.

Pesticide spills can be dangerous

- Pesticides are hazardous materials. A spill could result in a fire, an explosion, or the release of a toxic chemical into the water, soil or air.
- If you see a chemical spill – no matter how small – report it to a supervisor right away.
- Don't leave the spill unattended unless you believe you're in immediate danger.

Here's what you should do

- Call for help if you think you will need it.
- See if any workers in the area need medical attention. Get them help if needed.
- Warn all other nearby workers, and have them leave the area. If the spill is outside, don't evacuate people to an area downwind from the spill.
- Put on PPE. Check the pesticide label for personal protective equipment requirements for handlers. You must wear at least that much PPE.
- Check for any immediate hazards such as electrical cords or flames.

Warning: If a fire or explosion seems imminent, leave the area immediately. Warn others as you go. Then call the local fire department.

Control the spill

- Be sure you're wearing PPE. Then stop the spill.
 - Turn off mixing or application equipment if it is leaking.
 - Turn a tipped container upright.
 - Place a broken or leaking container into a larger chemical resistant container.
- In some situations, you may be able to patch holes in a leaking tank to reduce the amount of flow.

Warning: If a spray tank or other heavy container has burst or tipped over, you will not be able to stop the source of the spill.



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How to Clean Up a Pesticide Spill

Contain the spill

- Work quickly but carefully to keep the spill from spreading.
- Surround the spill with absorbent pads, or build a dike around the edge of the spill, using soil, sod, clay or other materials.

Note to trainer: Tell trainees what materials you have and where they are located.

- Dry pesticides that may blow around should be moistened slightly with water or covered with a tarp.
- Rope off and placard the area if necessary to keep people out.



Clean up the spill

- We use certain materials for cleaning up pesticide spills.
- Note to trainer:* Show trainees examples of your spill cleanup materials.
- We also keep material safety data sheets or MSDSs for each pesticide we use. Be sure to check the MSDS for specific spill cleanup instructions.
- In addition to the MSDS instructions, follow these steps for a liquid pesticide spill:
 1. Soak up the spill with absorbent materials such as fine sand, sawdust, clay, cat litter, shredded newspaper or absorbent pads.
 2. Sweep the absorbent materials with the spilled pesticide into a heavy duty plastic container.
 3. Use a plastic dustpan to sweep up spills. Metal dustpans can spark and ignite flammable pesticides.
- Dry pesticide spills should also be swept into a heavy duty plastic container.
- See your supervisor for the proper disposal of contaminated materials.

Warning: Do not use water to clean up a pesticide spill. If the MSDS or pesticide label says the pesticide is an oxidizer, don't use sawdust, shredded newspaper or sweeping compounds. They could burst into flames.



Thoroughly clean yourself

- Take off your PPE.
- Discard leather shoes, jeans or other porous materials that may have been saturated with the pesticide. Check with your supervisor for the proper disposal procedures.
- Use detergent and water to wash your hands, face, neck and forearms. Then take a shower.

Are there any questions?

Note to trainer: Take time to answer trainees' questions. Then review the Pesticide Spill Cleanup Do's and Don'ts.

PESTICIDE SPILL CLEANUP DO'S AND DON'TS

DO:

- Always wear personal protective equipment.
- Let your supervisor know if you cleaned up a spill by yourself.

DON'T:

- Leave a spill unattended unless you're in immediate danger.
- Use water to clean up a pesticide spill.

How to Properly Care for Your Respirator

GEMPLER'S™ TAILGATE TRAINING TIP SHEET – No. 48 Copyright 1997

How to Properly Care for Your Respirator

Editor's note: The information contained in this Tip Sheet originally appeared in Tailgate Tip Sheet No. 8.

KEY POINTS:

- Keep your respirator clean and in good operating condition.
- Check for dirt, cracks, tears or other damage before and after each use.
- Disassemble your respirator before cleaning it.
- Store your respirator in a cool, dry place away from chemicals and engine exhaust.

Note to trainer: Follow this script or use it to help guide you through a 10- to 15-minute tailgate training session for your ag/hort workers. You may photocopy this sheet for your employees' personal use. However, it may not be published or sold.

Why take care of your respirator?

- Your respirator is an important piece of safety equipment. It helps protect you from breathing in harmful contaminants.
- But in order to be effective each time you use it, your respirator must be in good condition.

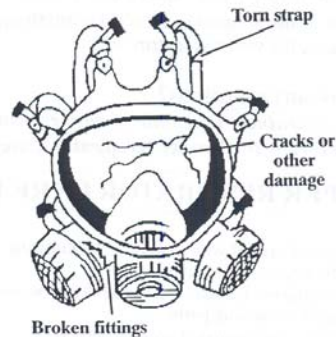
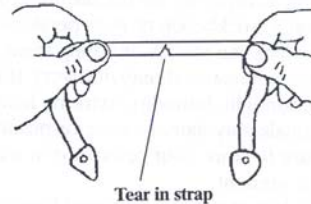
How to inspect your respirator

- Some respirators are disposable, and can be thrown away after they are worn.
- Non-disposable respirators should be checked before and after each use. Here's how to do that:

Note to trainer: Demonstrate each of the following steps to trainees.

1. Stretch the elastic on the straps. Be sure the elastic isn't becoming loose. Also check the straps for tears.
2. Check the facepiece for cracks or other damage.
3. Inspect the face seal. Make sure nothing interferes with the fittings. Check for dirt, cracks or tears.
4. When you perform fit tests on your respirator, you will be able to tell if the valves are working properly.
5. Look for any other worn, damaged or missing parts. If you spot a problem, get a different respirator. Report the problem to your supervisor so the respirator can be repaired.

Warning: Cartridges can break down and become ineffective with use. Leave the contaminated area you are in and change cartridges when you detect any tastes, odors or irritation, or when your senses indicate any abnormal condition.



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How to Properly Care for Your Respirator

Cleaning your respirator

- Follow these steps to clean your non-disposable respirator:
 1. Wash your hands.
 2. Disassemble your respirator before cleaning it. Check the written instructions that come with the respirator.
 3. Hand wash the facepiece in warm water. Use a disinfecting soap recommended by the manufacturer. Then thoroughly rinse the facepiece off.
 4. Clean the inhalation and exhalation valves with the disinfecting soap.
 5. Cartridges and filters cannot be cleaned. They may be reused or disposed of, depending on their condition.
 6. Let all the parts you have cleaned air dry before you put the respirator back together.
- You can use disposable wipe pads to wipe off your respirator in between uses during the workday. The wipe pads come in small packets and can be taken with you where you work.



Where to store your respirator

- Storing a respirator on the dashboard of a truck, in an enclosed cab, on a workbench or near pesticide containers is dangerous. Cartridges can absorb anything from cigarette smoke to engine exhaust, and may not work the next time around.
- Dust, sunlight, humidity, extreme heat, extreme cold or chemicals may damage your respirator.
- Be sure to store your respirator in a cool, dry place out of the sunlight.
- Cartridges should be removed from the respirator and stored in a standard zipper lock plastic bag.

Note to trainer: Tell trainees where to store their respirators.

- One more reminder: Don't put anything on top of the respirator when you store it.



Are there any questions?

Note to trainer: Take time to answer trainees' questions.

Then review the Proper Respirator Care Do's and Don'ts.

PROPER RESPIRATOR CARE DO'S AND DON'TS	
DO: <ul style="list-style-type: none"><input type="checkbox"/> Take good care of your respirator by knowing how to inspect and clean it.<input type="checkbox"/> Use a different respirator if you spot any worn, damaged or missing parts.<input type="checkbox"/> Leave the contaminated area and change cartridges when you detect any odors or irritation.	DON'T: <ul style="list-style-type: none"><input type="checkbox"/> Handle your respirator with dirty hands.<input type="checkbox"/> Forget to disassemble your respirator before you clean it.<input type="checkbox"/> Store respirators on the dashboard of a truck, in an enclosed cab, on a workbench or near pesticide containers.

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Proper Use of Dual Cartridge Respirators

GEMPLER'S™ TAILGATE TRAINING TIP SHEET – NO. 46

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Proper Use of Dual Cartridge Respirators

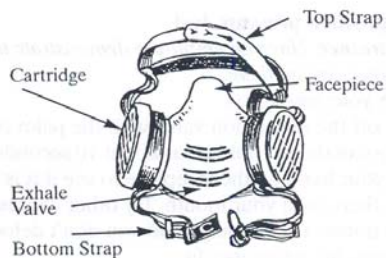
Editor's note: The information contained in this Tip Sheet originally appeared in Tailgate Tip Sheet No. 6.

KEY POINTS:

- Dual cartridge respirators will protect you from a variety of different hazards.
- Be sure to choose the right cartridges for the contaminant you are protecting yourself against.
- Check your respirator for the proper fit each time you put it on.

Note to trainer: Follow this script or use it to help guide you through a 10- to 15-minute tailgate training session for your ag/hort workers. You may photocopy this sheet for your employees' personal use. However, it may not be published or sold.

Bring enough dual cartridge respirators to the training session for each of your trainees.



What is a dual cartridge respirator?

- This is an example of a dual cartridge respirator we use in our operation.

Note to trainer: Hold up a dual cartridge respirator so trainees can see it.

- Some dual cartridge respirators cover your full face. Others cover just your nose and mouth. Check with your supervisor if you're uncertain which type of respirator to use for a specific hazard.

- Depending on the cartridge, these respirators will protect you from breathing in pesticides, anhydrous ammonia, grain dust, paint sprays or other contaminants.

Note to trainer: Give trainees specific examples of where dual cartridge respirators are used in your operation.

- Cartridges are color-coded. Your supervisor will supply you with the right color cartridges for your respirator.



Place mask to face

How to put on a dual cartridge respirator

Note to trainer: Have an employee demonstrate these steps for your trainees as you talk.

- Place the respirator under your chin with the nosepiece facing up.
- Pull the top strap up to the top of your head so it rests there.
- Attach the bottom straps behind your neck.
- Adjust the facepiece and straps for a comfortable fit. Tighten the straps by pulling on the ends. Loosen them by pushing on the buckle tab.
- Check the written material that comes with your respirator.



Adjust strap

(Continued on back)

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Proper Use of Dual Cartridge Respirators

How to check your respirator for the proper fit

- It's important to check your respirator for leaks each time you put it on. Here's how to do that:

Perform a positive pressure test

Note to trainer: Have an employee demonstrate the following steps as you explain them.

1. Put on your respirator.
2. Block off the exhalation valve with the palm of your hand.
3. Gently exhale and hold it for about 10 seconds.
4. Place your hand on the facepiece to see if it is bulging slightly.
5. Smile, then open your mouth. Try other expressions.
6. If you notice a slight bulge and you don't detect any air leaks, you have a proper fit.
7. If the respirator isn't fitting properly, readjust the facepiece and perform the test again.



Positive pressure test

Perform a negative pressure test

1. Place the palms of your hands over the cartridge openings.
2. Gently inhale, then hold your breath for five to 10 seconds.
3. You will notice that the facepiece is collapsing slightly.
4. Smile, then open your mouth. Try other expressions.
5. If the facepiece is collapsing slightly and you don't detect any air leaks, you have a proper fit.
6. If the respirator isn't fitting properly, readjust the facepiece and perform the test again.



Negative pressure test

Warning: Be sure to leave the contaminated area you're in and change cartridges when you detect any tastes, odors or irritation, or your senses indicate any abnormal condition.

Are there any questions?

Note to trainer: Take time to answer trainees' questions.

- Now, each of you can try on your dual cartridge respirator and check it for the proper fit.

Note to trainer: Help any trainees who are having problems. Then review the **Dual Cartridge Respirator Do's and Don'ts**.

DUAL CARTRIDGE RESPIRATOR DO'S AND DON'TS

DO:

- Perform positive and negative pressure tests each time you put on a dual cartridge respirator.
- Readjust the facepiece and perform the tests again if you think you have an air leak.
- Get a doctor's opinion on using a respirator if you have lung disease, heart trouble, or breathing problems.

DON'T:

- Wear a dual cartridge respirator if you have a beard, mustache, long sideburns, deep facial scar or deformity.
- Neglect to check with your supervisor for the correct color cartridges.
- Forget to check the manufacturer's literature for additional fitting instructions.

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Tips on Choosing the Right Protective Gloves

PPE

Tips on choosing the right protective gloves

What is "Category C?" Where do I find this information on my pesticide label?

These are just two of the questions *ALERT* readers continue to ask when trying to determine which chemical resistant gloves to choose for a specific task.

"Category C" is one of the categories listed on EPA's Chemical Resistance Category Selection Chart. Unfortunately, this chart is often hard to find – and while your pesticide label may list two or three appropriate glove materials, it may then merely refer you to "Category C" or "Category F" for more options.

We are reprinting the EPA chart below. In addition, we'll try to answer some of your commonly asked questions about choosing the right protective gloves.

Q: Where do I find protective glove requirements on the pesticide label?

A: Look in the Personal Protective

Equipment section of the label and in the (WPS) Agricultural Use Requirements box. Be aware, though, that your label may only list a couple of appropriate glove materials, then refer you to the EPA Chemical Resistance Category Selection Chart.

Once you find the chart, locate the category that's listed on the label. Then look under each material listed at the top of the chart to find out its chemical resistance rating for the pesticide you are using.



Q: I've looked at Category C, after being referred there by the pesticide label, but am still uncertain which glove material to choose. How do I know which is the best?

A: Factors such as personal preference

and cost will undoubtedly enter into your choice. But you also need to consider how long you'll be performing the task.

Example: Six different glove materials listed in Category C have a "high" chemical resistance. This means they are designed to provide at least eight hours of protection before breakthrough. If you'll be mixing, loading or applying the pesticide all day, you'll want to choose a glove material with a "high" resistance.

Q: When might I choose a glove material with a "moderate" or "slight" resistance?

A: Materials that are listed as "moderately" chemically resistant should be replaced within an hour or two of contact with the pesticide. One instance in which you could choose a glove with moderate chemical resistance is if you were only going to spend 15 minutes cleaning a nozzle.

"Slightly" chemically resistant glove materials should be replaced within 10 minutes of contact, while materials categorized as "none" means they offer no chemical resistance to the pesticide you are using.

EPA CHEMICAL RESISTANCE CATEGORY SELECTION CHART

Selection Category Listed On Pesticide Label	TYPE OF PERSONAL PROTECTIVE MATERIAL							
	Barrier Laminate	Butyl Rubber ≥ 14 mils	Nitrile Rubber ≥ 14 mils	Neoprene Rubber ≥ 14 mils	Natural Rubber* ≥ 14 mils	Polyethylene	Polyvinyl Chloride (PVC) ≥ 14 mils	Viton ≥ 14 mils
A <i>(dry and water-based formulations)</i>	high	high	high	high	high	high	high	high
B	high	high	slight	slight	none	slight	slight	slight
C	high	high	high	high	moderate	moderate	high	high
D	high	high	moderate	moderate	none	none	none	slight
E	high	slight	high	high	slight	none	moderate	high
F	high	high	high	moderate	slight	none	slight	high
G	high	slight	slight	slight	none	none	none	high
H	high	slight	slight	slight	none	none	none	high

*includes natural rubber blends and laminates

HIGH: Highly chemical resistant. Clean or replace PPE at end of each day's work period. Rinse off pesticides at rest breaks.
MODERATE: Moderately chemical resistant. Clean or replace PPE within an hour or two of contact.
SLIGHT: Slightly chemical resistant. Clean or replace PPE within 10 minutes of contact.
NONE: Not chemical resistant. Do not wear this type of material as PPE when contact is possible.

Caring for Your Protective Clothing

Caring for Your Protective Clothing

KEY POINTS:

- Always wear protective clothing when working with pesticides.
- Keep pesticide-contaminated clothing separate from your other clothing and from the family wash.
- Inspect personal protective clothing for damage each time you prepare to put it on.

Note to trainer: Follow this script or use it to help guide you through a 10- to 15-minute tailgate training session for your ag/hort workers. You may photocopy this sheet for your employees' personal use. However, it may not be published or sold.

Bring to your training session samples of the personal protective clothing used in your operation.

Why wear protective clothing?

- Personal protective clothing helps protect you from exposure to pesticides or other harmful chemicals. That's why it's important to keep your protective clothing in good condition.
- When working with pesticides, carefully read the product label to find out which protective clothing to wear. The law says you must wear at least the amount of protective clothing specified on the label.
- Some examples of personal protective clothing are coveralls, chemical-resistant gloves, chemical-resistant aprons, and chemical-resistant boots.
- The pesticide label may also require you to wear long-sleeved shirts and long pants.
- This is some of the protective clothing we use in our operation.

Note to trainer: Show trainees some personal protective clothing and tell them when it should be worn.

Inspecting protective clothing

- Carefully inspect personal protective clothing each time you prepare to put it on.
- When inspecting protective clothing, look for small holes, tears, cracks, changes in color, or any other damage.
- Never wear damaged protective clothing. If you notice any damage while you are working, immediately stop working and notify your supervisor.
- Thoroughly wash or shower before putting on replacement clothing.
- Be sure your protective clothing is clean and free of pesticides.
- Properly store your clean personal protective clothing after you have finished for the day.



Always read the pesticide label.

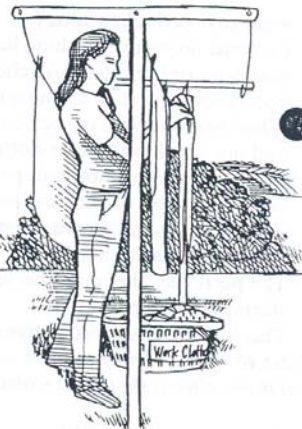


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Caring for Your Protective Clothing

Cleaning pesticide-contaminated clothing

- Even when you wear coveralls over regular work clothes, your work clothes can pick up small amounts of pesticides.
- That's why it's important to know how to properly clean contaminated work clothing.
- Here are a few tips:
 1. At the end of each workday, put your used work clothes in a container until they can be washed. Don't ride home in the clothes you wore while applying pesticides.
 2. Keep used work clothing away from family members and pets.
 3. Keep your work clothes separate from the other family wash. Wash them separately from any other laundry.
 4. Be sure to wear gloves when handling pesticide-contaminated clothing.
 5. Wash only a few items at a time.
 6. Use the highest water level setting on your washing machine.
 7. Use a heavy-duty laundry detergent. And use hot water for the wash cycle.
 8. Rinse your clothes twice in warm water after the wash cycle is completed. Using two rinse cycles helps remove pesticide residues.
 9. If your clothes have a moderate to heavy amount of pesticides on them, run them through two complete washing machine cycles. However, if they are saturated with pesticides, don't wash them. Instead, see your supervisor for proper disposal instructions.
 10. If possible, hang your work clothes outside on a clothesline for 24 hours to dry. Don't put heavily contaminated clothing in a dryer because pesticide residues can build up in the dryer over time.
 11. Clean out your washing machine when you are done by running it through at least one complete cycle without any clothing in it. Use detergent and hot water.



Are there any questions?

Note to trainer: Take time to answer trainees' questions. Then review the Protective Clothing Do's and Don'ts.

PROTECTIVE CLOTHING DO'S AND DON'TS	
DO: <ul style="list-style-type: none"><input type="checkbox"/> Wear clean protective clothing each day.<input type="checkbox"/> Keep contaminated clothing separate from your other clothing and from the family wash.<input type="checkbox"/> Stop working and notify your supervisor if you notice a tear or other damage to your personal protective clothing. Replace damaged clothing immediately.	DON'T: <ul style="list-style-type: none"><input type="checkbox"/> Wash protective clothing that has been saturated with pesticides. Instead, see your supervisor for proper disposal instructions.<input type="checkbox"/> Touch pesticide-contaminated clothing with your hands or any other bare skin.<input type="checkbox"/> Store clean protective clothing with contaminated clothing, near pesticides, or in a dirty area such as on a workbench.

Protect Your Hearing on the Job

GEMPLER'S TAILGATE TRAINING TIP SHEET – No. 67

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Protect Your Hearing On the Job

Editor's note: The information contained in this Tip Sheet originally appeared in Tailgate Training Tip Sheet No. 11. Our Tailgate Tip Sheets can also be ordered in Spanish. Please call GEMPLER'S for availability.

KEY POINTS:

- Prolonged exposure to loud noise can lead to permanent hearing loss.
- Earplugs and earmuffs will help protect your hearing.

Note to trainer: Follow this script or use it to help guide you through a 10- to 15-minute tailgate training session for your ag/hort workers. You may photocopy this sheet for your employees' personal use. However, it may not be published or sold. Bring some samples of earplugs or earmuffs used in your operation to the training session.

How noise can hurt you

- We all work in noisy conditions at times. But too much exposure to loud noise can:
 - cause you to miss important safety instructions
 - result in stress from constantly straining to listen and be heard
 - lead to hearing loss
- Prolonged exposure to loud noise can result in permanent hearing loss.
- Even if you are exposed to loud noise for a short time, you may temporarily lose your hearing.

Some examples of loud noise

- Noise is measured in a term called "decibels."
- Noise that is 85 decibels or greater can affect your hearing if you work around it more than eight hours a day.
- Some examples of 85 decibels of noise are an idling tractor or combine, a grain dryer, a barn cleaner, and a conveyor.
- Using an old chain saw, power tools, or working on a tractor without an enclosed cab exposes you to even more dangerous noise levels.

Note to trainer: Give trainees some examples of loud noise in their work areas.

How to tell if noise is hurting you

- You may have a problem if you:
 - hear ringing or other noises in your ears
 - can't hear people when they talk to you
 - can't hear high pitched or soft sounds
- If you experience any of these problems, tell your supervisor. You may need to have your hearing tested.



Idling tractor: 85 decibels

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Work Safely with Hand Tools

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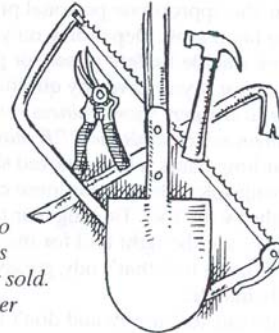
Work Safely With Hand Tools

KEY POINTS:

- Most hand tool injuries can be prevented.
- Always use the right tool for the job.
- Wear the appropriate personal protective equipment when using hand tools.
- Return all tools to their proper location.

Note to trainer: Follow this script or use it to help guide you through a 10- to 15-minute training session for your ag/hort workers. You may photocopy this sheet for your employees' personal use. However, it may not be published or sold.

Bring to your training session samples of the gloves, safety glasses or other personal protective equipment you provide workers who use hand tools.



Hand tools can be dangerous

- Hand tools such as chisels, shovels, handsaws, hammers, knives, cutters and pruning shears may seem pretty easy to use.
- But they can also be very dangerous if you're not careful.
- Injuries from hand tools are generally due to:
 - using the wrong tool for the job,
 - using a broken or damaged tool,
 - improperly using a tool,
 - not wearing personal protective equipment,
 - not paying attention to what you're doing, or
 - being in too big of a hurry.
- Hand tool injuries may include:
 - cuts, bruises or puncture wounds
 - eye injuries from flying chips or other debris
 - damage to the nerve in the wrist from repeated use of a tool while bending your wrist
- Other serious injuries may include:
 - broken bones, resulting from a tool that slips, falls, or is thrown
 - severed fingers from knife or saw blade cuts



Pay attention when you are using hand tools.

Before you use a tool

1. Check the area to make sure anyone who could get hurt is out of the way.
2. Be sure your lighting is sufficient.
3. Carefully inspect the tool for cracks, rust, wear or other damage. Make sure handles are secure and free of oil and grease. See that hinges move freely and that blades are sharp.
4. Don't use a damaged or broken tool. Report any problems to your supervisor and get a different tool.



Don't use damaged tools.

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Work Safely With Hand Tools

Safe use of hand tools

- Wear the appropriate personal protective equipment (PPE) when using hand tools. Depending on your specific task, this may include gloves, shielded safety glasses or goggles, or other PPE. See your supervisor if you have any questions.
Note to trainer: Show trainees samples of the PPE you provide and tell them which tools the PPE may be used with.
- Wear long pants, a long-sleeved shirt, socks, and sturdy shoes with non-slip soles. Don't wear loose clothing or jewelry that could get caught by the tool. Tie long hair back, and keep your shirt tucked in.
- Always use the right tool for the job.
- Don't use a tool that's oily, greasy, or too heavy for you to safely handle.
- Plant your feet firmly, and don't lose your grip.
- Be sure to cut or chip away from your body.
- Keep your wrist straight, and don't use a tool while you're in an awkward position.
- Take breaks, and avoid repetitive tasks over prolonged periods of time.



Carrying and storing tools

1. Never carry sharp tools or tools with pointed edges in your pockets.
2. Carry tools in a tool belt or a tool box.
3. Don't carry a tool so it obstructs your vision.
4. Pass tools to other people by their handles.
5. Clean off tools before putting them away. Be sure any guards or safety devices are in place when you carry tools and when you put them away.
6. Store tools in a dry, secure location. Don't pile them in a drawer, leave them on a bench, or place them where someone could get hurt.
7. Store tools with sharp points separately from other tools.



Are there any questions?

Note to trainer: Take time to answer trainees' questions. Then review the Hand Tool Safety Do's and Don'ts.

HAND TOOL SAFETY DO'S AND DON'TS

DO:

- Stay alert when using hand tools.
- Make sure you have enough light.
- Talk to your supervisor if you are uncertain how to safely use a tool.

DON'T:

- Carry tools in your hands when going up or down a ladder or steep stairs.
- Ever throw a tool or engage in horseplay when using a tool.
- Expose a tool to extreme heat or place it near moving machinery.

Be Safe Around Agricultural Machinery

GEMPLER'S TAILGATE TRAINING TIP SHEET – No. 74

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Be Safe Around Agricultural Machinery

Editor's note: Our Tailgate Training Tip Sheets can also be ordered in Spanish. Please call GEMPLER'S for availability.

KEY POINTS:

- Agricultural machinery has many hazards.
- Guards are there for your protection. Never bypass or remove a guard.
- Dress properly when working around agricultural machinery.

Note to trainer: Follow this script or use it to help guide you through a 10-15 minute tailgate training session for your ag/hort workers. You may photocopy this sheet for your employees' personal use. However, it may not be published or sold.

Agricultural machinery can be very hazardous

- The machinery we use in our operation makes it easier to get our jobs done. But it can also be very dangerous.
- Moving parts are especially hazardous, because a finger, hand, arm, your hair or a loose piece of clothing can get caught by a moving part before you even know it.
- This is why you'll see warning signs and "guards" on various parts of the machinery we use. The guards are designed to keep you away from danger areas.
- Unfortunately, not all hazardous parts can be guarded. Because of this, it's important for you to be extremely careful when working around agricultural machinery.

How workers are injured

- Any number of injuries can result from working around agricultural machinery. These include the loss of fingers, a hand, an arm or feet; entanglement in a rotating shaft; blindness or other eye injuries from flying sparks or fragments of material; or crushed limbs.
- These injuries and others occur for many reasons, including:
 - workers operate machinery when they are overtired or ill
 - operators take shortcuts (such as bypass starting a tractor, driving too fast, or jumping on or off)
 - improper clothing is worn (such as loose clothing, a sweatshirt with drawstrings, or jewelry around a PTO shaft)
 - workers operate equipment under the influence of alcohol or other drugs
 - machinery is not completely shut off and isolated from its energy sources before it is cleaned, serviced or repaired
 - safety decals or guards are worn, damaged or removed
 - personal protective equipment (such as safety glasses, hearing protection or gloves) is not used

Note to trainer: Give trainees some examples of the type of PPE you require when operating such equipment as tractors, combines or forklifts.

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Stay clear of hazardous moving parts.



Tie back and tuck in long hair when working near a PTO shaft.

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Know the Dangers of Powered Machinery

GEMPLER'S TAILGATE TRAINING TIP SHEET – No. 60

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Know The Dangers of Powered Machinery

Editor's note: Our Tailgate Training Tip Sheets can also be ordered in Spanish. Please call GEMPLER'S for availability.

KEY POINTS:

- Powered machinery can be dangerous even when it appears to be shut off.
- Never remove special locks and tags from powered equipment unless you have been authorized to do so.
- Never restart powered machinery that has been locked or tagged out.

Note to trainer: Follow this script or use it to help guide you through a 10- to 15-minute tailgate training session for your ag/hort workers. You may photocopy this sheet for your employees' personal use. However, it may not be published or sold.

Bring to your training session a sample of the locks and tags you use for lockout/tagout of powered equipment.

This tailgate training session is not a substitute for OSHA-required training for employees authorized to perform lockout/tagout procedures. For more information, see OSHA Standard 29 CFR 1910.147.

Powered equipment can be dangerous

- Each year, hundreds of people are seriously injured or killed by powered machinery. Many of these injuries and deaths are preventable.
- If you work with powered machinery, you undoubtedly know how dangerous it can be. Yet often, even people who regularly work with machinery fail to think about what can happen if:
 - a piece of equipment is not completely shut off before it is cleaned, serviced or repaired
 - the machinery is turned on accidentally
 - the equipment isn't isolated from all of its energy sources before servicing or repair begins
- Even if you don't operate powered machinery, you could get hurt if one of your co-workers failed to take the proper steps to shut down or lock out equipment.

We have certain safety procedures

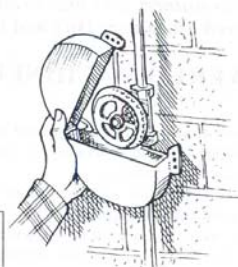
- Because we're concerned about your safety, we have special procedures to reduce the risk of injury from machinery that is being adjusted, cleaned or repaired.
- These procedures include isolating the equipment from its energy sources, then applying special locks and tags.
- Only certain authorized employees who have received special training may apply or remove these locks and tags.

Note to trainer: Show trainees the special locks and tags used for this purpose.

Warning: Never remove these locks or tags from equipment or try to restart equipment that has these locks and tags on it.



Equipment should be completely shut off before it is cleaned or repaired.



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Know The Dangers of Powered Machinery

Our lockout/tagout procedures

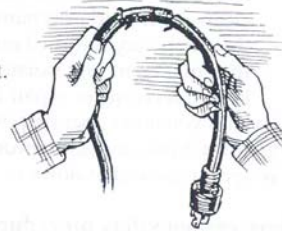
- Here are the procedures our authorized employees follow when locking and tagging out powered machinery.
- 1. The authorized employee must notify you before the locks and tags are applied.
- 2. The authorized employee must use the equipment's normal operating controls to shut it down.
- 3. The authorized employee must isolate the equipment from all of its energy sources.
- 4. Each authorized employee in the work crew must apply his or her own individually assigned locks and tags to all energy controls.
- 5. The authorized employee must make sure you and other workers are out of the area.
- 6. The employee must then test the equipment to be sure it has been isolated from all of its energy sources before any adjustments, cleaning or repairs begin.
- 7. Except in an emergency, only the employee who applied the lock and tag is authorized to remove it from the equipment. Immediately notify a supervisor if there is an emergency that requires another person to remove a lock or tag.



Unauthorized workers should leave the area before cleaning or repairs begin.

A few more safety tips

- Know the dangers of powered machinery. This includes knowing that a piece of equipment that looks safe may not be completely turned off.
- Stay away from powered equipment unless you are authorized to be near it.
- Never ask a co-worker to borrow a lock or tag that is used for lockout/tagout purposes. These special devices are only to be used for that purpose.
- Immediately notify your supervisor if a machine has frayed cords or doesn't seem to be working properly. Don't operate that machine.
- Never remove machine guards or other safety devices from equipment.
- Notify your supervisor if a machine guard or safety device is missing or damaged. Don't operate that machine.
- Don't try to adjust, repair or clean powered equipment unless you have specifically been trained in these duties.



Always check powered machinery for frayed electrical cords.

Are there any questions?

Note to trainer: Take time to answer trainees' questions. Then review the Powered Machinery Do's and Don'ts.

POWERED MACHINERY DO'S AND DON'TS	
DO: <ul style="list-style-type: none"><input type="checkbox"/> Know that powered equipment must be completely shut off and isolated from all of its energy sources before it can be adjusted, cleaned or repaired.<input type="checkbox"/> Become familiar with the special locks and tags we use for lockout/tagout purposes.<input type="checkbox"/> Get out of the area if an authorized employee tells you that he or she will be locking and tagging out powered equipment.	DON'T: <ul style="list-style-type: none"><input type="checkbox"/> Ask a co-worker to borrow the specialized locks and tags we use on powered equipment.<input type="checkbox"/> Remove another worker's lock or tag from a piece of powered machinery.<input type="checkbox"/> Try to restart equipment that has been locked out and tagged out.

Be Safe When Operating a Tractor

GEMPLER'S TAILGATE TRAINING TIP SHEET – NO. 61

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Be Safe When Operating a Tractor

Editor's note: Our Tailgate Training Tip Sheets can also be ordered in Spanish. Please call GEMPLER'S for availability.

KEY POINTS:

- Be sure your tractor has all of the recommended safety equipment.
- Don't operate a tractor if you are overtired or ill.
- Never allow extra riders – including children.

Note to trainer: Follow this script or use it to help guide you through a 10- to 15-minute tailgate training session for your ag/hort workers. You may photocopy this sheet for your employees' personal use. However, it may not be published or sold.



Tractors can injure you or others

- Tractors are useful pieces of farm machinery, but they can also injure you or others if not used with enough care.
- The National Safety Council says that more than 430 tractor-related deaths occurred on farms in the United States in 1995.
- In addition to these deaths, many serious injuries result from tractor-related accidents. Among the major reasons are:
 - human error, including inattentive driving, poor judgment, or operating a tractor while fatigued or ill
 - failure to have proper, working safety equipment, including an SMV (slow-moving vehicle emblem), PTO driveline guarding, and a ROPS (rollover protective structure) with a seat belt
 - failure to use the tractor's safety equipment or to follow safety rules



Before operating a tractor

1. Never operate a tractor unless you have been trained.
2. Review the operator's manual, including all of the safety rules, safety signs, and safety features for your tractor.
3. Inspect the tractor before you turn it on. Make sure all shields, guards and warning labels are undamaged and in place. Check the condition of the tires, steps, handholds, railings and brakes. Make sure the exhaust systems and hydraulic systems are free of leaks and debris that could catch fire.
4. Check for the presence of important safety equipment, including a properly mounted, unfaded SMV; a PTO master shield; working lights; and a ROPS with a seat belt.
5. Check the hitch connections, including locking devices, if you plan to pull a load. Also, make sure the load is secure, balanced and light enough for your tractor to safely handle.
6. Be sure the tractor contains a fire extinguisher and a first aid kit.
7. Carefully check the area for the presence of animals, children and any other bystanders. Keep them out of the way.



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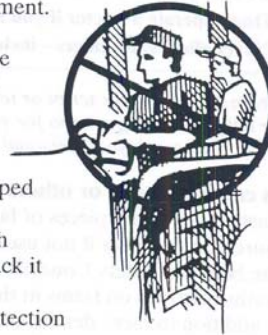
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Be Safe When Operating a Tractor

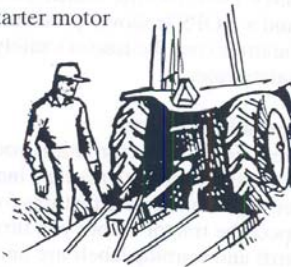
While you are operating a tractor

- Drive slowly, especially when operating a tractor on public roads, when turning, and when driving on a slope.
- Drive defensively. Be on the lookout for potential hazards. These may include other drivers, rough or slippery terrain, or children playing in the area.
- Avoid driving near the edge of a gully, irrigation ditch or steep embankment. Also, avoid driving across steep slopes.
- Use all safety equipment. This includes wearing a seat belt when you are operating a tractor with a ROPS, and keeping the ROPS in the upright position whenever you're out of a low-clearance area.
- Never allow extra riders on the tractor – including children.
- Never climb on or off the tractor while it is still moving.
- Turn off the PTO before getting off a tractor. Be sure the shaft has stopped rotating. Take the key and stop the tractor.
- Dress appropriately. Avoid wearing loose clothing, jewelry, or shirts with drawstrings that could get caught on a PTO shaft. Put up long hair or tuck it under a hat. Wear sunglasses on bright days.
- Use hearing protection when around loud noise. Wear a hat for sun protection when you are in the sun.
- Follow all state and local traffic laws when driving a tractor on public roads.



Other important safety tips

1. Follow all safety rules.
2. Never “bypass start” a tractor by placing a metal object across the starter motor or solenoid terminals or turn the key while standing on the ground.
3. Only hitch to the drawbar or other hitch points recommended by the tractor manufacturer.
4. Drive with a raised load low in a front-end loader. This improves the tractor's stability and your view of the road.
5. Stay a safe distance away from PTO-powered equipment. Don't check, adjust, unplug or grease any equipment with the tractor running or while the PTO shaft is rotating.
6. Don't smoke when refueling a tractor. Shut the tractor off before refueling.



Stay a safe distance away from PTO-powered equipment.

Are there any questions?

Note to trainer: Take time to answer trainees' questions. Then review the Tractor Safety Do's and Don'ts.

TRACTOR SAFETY DO'S AND DON'TS	
DO: <ul style="list-style-type: none"><input type="checkbox"/> Inspect your tractor before you operate it. Be sure all guards, shields and warning decals are in place.<input type="checkbox"/> Dress properly and keep hearing protection handy.<input type="checkbox"/> Drive defensively. Be on the alert for hazards and bystanders.	DON'T: <ul style="list-style-type: none"><input type="checkbox"/> Ever allow extra riders on a tractor.<input type="checkbox"/> Get too close to a rotating PTO shaft.<input type="checkbox"/> Operate a tractor if you are overtired, ill or have been drinking alcohol.

Be Wary of Skid-Steer Loaders

GEMPLER'S™ TAILGATE TRAINING TIP SHEET – NO. 73

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Be Wary of Skid-Steer Loaders

Editor's note: Our Tailgate Training Tip Sheets can also be ordered in Spanish. Please call GEMPLER'S for availability.

KEY POINTS:

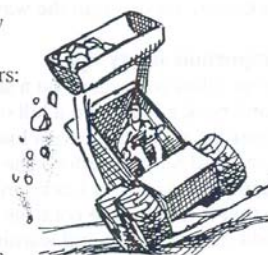
- Skid-steer loaders are useful but can be very dangerous.
- Never operate a loader unless you have been authorized and are properly trained.
- Don't allow passengers – including children – on a skid-steer loader.

Note to trainer: Follow this script or use it to help guide you through a training 10- to 15-minute session for your ag/hort workers. You may photocopy this sheet for your employees' personal use. However, it may not be published or sold.



Skid-steer loaders can be very dangerous

- Skid-steer loaders are useful machines, but they can also be very dangerous.
- It's important that you never operate a loader unless you have been authorized and are properly trained. See your supervisor if you have any questions about the safe operation of a skid-steer loader.
- Serious injuries or deaths have occurred when skid-steer loader operators:
 - are pinned between the bucket and the frame
 - are pinned between the lift arms and the frame
 - are pinned between the loader and another object
 - lose control of the loader and it overturns
 - allow passengers to ride on the bucket
 - allow children to operate the machine
- Serious injuries also occur when operators either take off or modify such safety equipment as the rollover protective structure or ROPS, the seat belt, restraint bars, side screens or overhead shield.



Warning: Never remove, modify or bypass skid-steer loader safety devices.

Getting on and off a skid-steer loader

- Before getting on a skid-steer loader, walk completely around the machine. Check to see that no one is under it or close to it.
- Be sure the lift arms are lowered and the bucket is flat on the ground. The only time you should get on a loader when the lift arms are up is if they are being held up by a mechanical restraining device. The hydraulic system alone isn't enough. See your supervisor if you have any questions.
- When getting on a loader, face the seat and grab the handholds on the machine. Don't use control levers in place of handholds.
- Never jump on or off the machine. Use both hands when getting on or off.
- Before leaving the operator's seat, lower the bucket flat to the ground, put the controls in neutral, set the parking brake, and turn off the engine. Face the machine when you are getting off.



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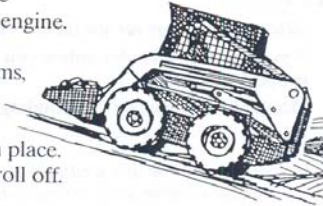
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Be Wary of Skid-Steer Loaders

Operating a skid-steer loader

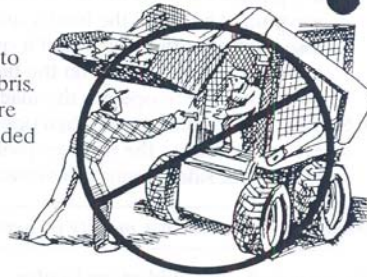
- Carefully review the manufacturer's instructions before operating a loader. Ask your supervisor for help if you don't understand the instructions. The instructions will help you become familiar with the parts of the machine and its safety equipment. They'll also explain how to properly start the engine.
- Be sure you are in the operator's seat when you start the engine.
- Stay completely inside the cab. That means making sure your hands, arms, feet, legs and head remain inside.
- Stay seated when you operate the controls.
- Wear your seat belt and keep it fastened. Also, keep the restraint bar in place.
- Carry your load low. And don't carry items that could easily fall off or roll off.
- Avoid sudden stops, starts or turns.
- Load, unload and turn on level ground whenever possible.
- Don't drive across steep slopes. Drive straight up or down the slope, with the heavy end of the loader pointed uphill and the bucket lowered to the ground.
- Always look back when you're operating the skid-steer loader in reverse. Make sure no one is in the way.



Drive straight up a slope with the heavy end of the loader pointed uphill and the bucket lowered.

Other important safety tips

- Never allow passengers on a skid-steer loader – including children.
- Don't park a loader on a hill or slope.
- Never lift, swing or move a load over another person.
- Be careful not to overload the bucket.
- Keep your skid-steer loader in safe operating condition. One way to do that is to keep the controls free of mud, ice, snow and other debris.
- Make sure all lights and warning signs are clean and visible. Be sure the loader has a slow-moving vehicle or SMV emblem that is unfaded and can easily be seen if you take the loader on the road.
- Always be on the lookout for hazards. These include cables, branches, rocks, stumps, ditches and sudden drop-offs.
- Stay away from the banks of rivers and the edges of gullies.
- Don't wear torn or ripped clothing or clothing with drawstrings.



Are there any questions?

Note to trainer: Take time to answer trainees' questions. Then review the Skid-Steer Loader Do's and Don'ts.

SKID STEER LOADER DO'S AND DON'TS

DO:

- Make sure you are properly trained to operate a skid-steer loader.
- Be on the lookout for such potential hazards as cables, branches or unexpected drop-offs.
- Operate a loader on stable surfaces whenever possible.

DON'T:

- Operate a skid-steer loader if you are overtired, ill, or under the influence of alcohol or other drugs.
- Ever allow extra riders on a skid-steer loader.
- Remove safety devices from a loader.
- Wear torn clothing when operating a loader.

Know the Dangers of a PTO

GEMPLER'S TAILGATE TRAINING TIP SHEET – No. 43

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Know the Dangers of a PTO

Editor's note: The information contained in this Tip Sheet originally appeared in Tailgate Tip Sheet No. 9.

KEY POINTS:

- PTOs are dangerous because the shafts rotate at a high speed.
- Guarding for PTO drivelines helps prevent PTO entanglement.

Note to trainer: Follow this script or use it to help guide you through a 10- to 15-minute tailgate training session for your ag/hort workers. You may photocopy this sheet for your employees' personal use. However, it may not be published or sold.

Hold your training session in an area with enough room to gather around a tractor and a PTO-driven machine.

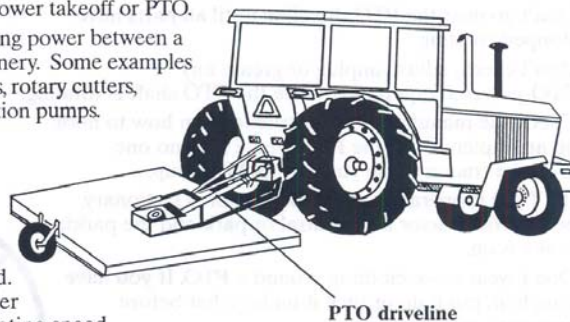
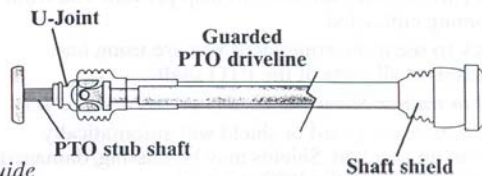
What is a power takeoff?

- An important part of the tractor is the power takeoff or PTO.
- The PTO provides a means of transmitting power between a tractor and another piece of farm machinery. Some examples of PTO-driven equipment are hay balers, rotary cutters, weed mowers, forage blowers and irrigation pumps.
- This is a PTO.

Note to trainer: Show trainees a PTO and tell them which equipment is powered by it on your operation.

Why PTOs are dangerous

- PTO shafts rotate at a very high speed. They make 540 or 1,000 revolutions per minute when they are at normal operating speed.
- Most PTO accidents happen when people get too close to the rotating shaft, especially if guarding has been removed or is damaged.
- Hair, loose clothing such as a pant leg, or the drawstrings from hooded sweatshirts or jackets can get caught on the shaft and wrap around it.
- The chances of that happening increase if the shaft has small nicks, dried mud or manure on it.
- Your hair or clothing could also catch in the U-joints or other fastening devices and wrap you around the PTO shaft.
- Once your hair or clothing is caught on a PTO shaft, it is nearly impossible to escape. The more you pull away, the tighter the wrap becomes.
- Within fractions of a second, your hair or clothing may be torn off. Or your body may wrap around the spinning shaft.



(Continued on back)

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Know the Dangers of a PTO

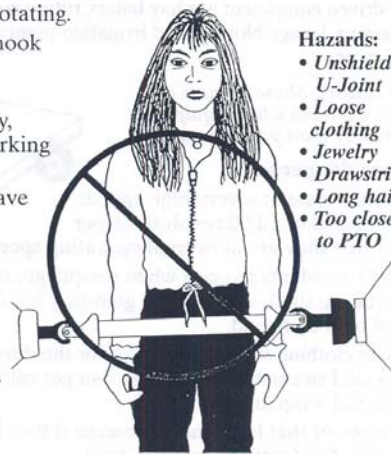
Safety devices will help

- PTO shields cover the shaft to help prevent you from becoming entangled.
 - Check to see if the equipment you are using has shields over all parts of the PTO shaft.
- Note to trainer: Show trainees any shields on the PTO.*
- Don't assume a guard or shield will automatically prevent an accident. Shields may be missing, damaged or cover only part of the PTO driveline.
 - Immediately report any problems to your supervisor, and do not operate the machinery without proper guarding in place.



How you can protect yourself

1. When you finish your task, turn off the PTO before getting off the tractor. Take the key and stop the tractor.
2. Don't go near the PTO driveline until all parts have stopped rotating.
3. Don't check, adjust, unplug or grease any PTO-powered equipment while the PTO shaft is rotating.
4. Check the manufacturer's instructions on how to hook up an implement to the PTO. Make sure no one is on the tractor while you are hooking it up.
5. If a PTO is operating while the tractor is stationary, be sure the tractor is in neutral or park and the parking brake is on.
6. Don't wear loose clothing around a PTO. If you have long hair, put it up or tuck it under a hat before operating the machinery.
7. Every time you hook up an implement to your tractor's PTO, check to make sure the shields are in place and are properly functioning.
8. If someone is working alone with PTO-powered machinery, check on the person from time to time.



- Hazards:**
- Unshielded U-Joint
 - Loose clothing
 - Jewelry
 - Drawstring
 - Long hair
 - Too close to PTO

Are there any questions?

Note to trainer: Take time to answer trainees' questions. Then review the PTO Do's and Don'ts.

PTO DO'S AND DON'TS

DO:

- Stay a safe distance away from PTO-powered equipment.
- Keep PTO shields on at all times.
- Check for missing or damaged shields before hooking up the PTO.

DON'T:

- Wear loose clothing or jewelry when operating a PTO.
- Lean over, step across or crawl under a PTO when it is operating.
- Unplug or adjust any PTO-powered machinery while the PTO shaft is rotating.

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The newsletter of Ag/Hort safety and employment law compliance

Be wary of CO illness from tractor exhaust

An incident involving a Kentucky farmer who became seriously ill from carbon monoxide (CO) poisoning in an open field points out the need for you and your workers to be aware of this potentially deadly hazard.

Over the past three years, *ALERT* has reported on several incidents of CO poisoning involving ag/hort workers – primarily in cold storage buildings. Although rare, the Kentucky case reinforces the need to also be wary of potential CO poisoning from tractor exhaust.

Last summer, a 37-year-old female farmer and two family members began planting tobacco. It was 90-plus degrees, humid, and there was little breeze. The farmer and a co-worker rode on a two-seat tobacco transplanter/setter, with the female farmer sitting on the side closest to the tractor exhaust pipe.

Within three hours, both the woman and her co-worker reported headaches. The woman continued to work despite an

increasingly severe headache, drowsiness and dizziness. Two and one-half hours later, she collapsed.

A co-worker called the local emergency medical services, and the woman was transported to a hospital. By that time, she was also nauseous, wheezing, and reported that her heart was pounding. The woman, who had smoked four to five cigarettes that day, was administered oxygen and treated for CO poisoning. She was discharged several hours later.

Follow-up carbon monoxide sampling was conducted. With the tractor stationary and its engine running, a CO monitor was placed where someone working on the transplanter would sit. During a 15 minute period, CO levels averaging 477 parts per million were detected. Additional sampling using the woman's equipment and simulating planting procedures detected CO levels of 384 parts per million in 15 minutes.

Note: The National Institute for Occupational Safety and Health (NIOSH)-recommended ceiling limit for CO exposure – which should not be exceeded at any time – is 200 parts per million.

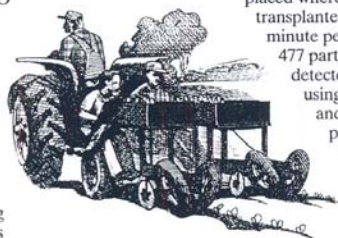
What to do

NIOSH has these tips on what to do to reduce your workers' risk:

1. Use a tractor equipped with an

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upward-directed exhaust or modify existing rearward-directed exhaust systems to vent upward.

2. Inform your workers of the potential hazards of CO poisoning, and make them aware of the symptoms. These include severe headaches, dizziness, blurred vision, nausea, vomiting, disorientation, loss of muscle control, fatigue, rapid heartbeat or pulse, tightening of the chest, fainting and loss of consciousness.

3. Encourage workers to take frequent breaks.

4. Rotate workers' positions to limit potential exposure.

5. Promptly remove workers from exposure if any symptoms appear.

Note: NIOSH also notes that engine emissions may be reduced by keeping the engine properly tuned.

Carbon monoxide checklist

- Educate your workers. Be sure they know that carbon monoxide is a colorless, odorless, tasteless gas that can overcome a person without warning and result in death.
- Become familiar with some of the common sources of CO. These include improperly maintained propane- or gasoline-powered forklifts, malfunctioning heaters, and the use of gasoline-powered engines and tools indoors.
- Survey your workplace to identify all potential sources of CO exposure.
- Regularly test the atmosphere in areas where CO may be generated. CO detector tubes or CO monitors can be used.
- Never enter an area with high levels of CO without the proper respiratory protection (such as a self-contained breathing apparatus (SCBA) respirator).
- Only operate propane-powered forklifts and similar equipment in well-ventilated areas. Substitute less hazardous equipment if possible.
- Keep all internal combustion engine-powered vehicles well tuned.

New agricultural guestworker measure introduced in U.S. Senate. See Page 3 for more information.

Map of Nursery Research Center Main Building

