



WORKPLACE SAFETY & HEALTH GUIDE

Safety and Health in Agricultural Field Operations



September 2024

This document is neither a substitute for, nor a legal interpretation of, the occupational safety and health regulations. Readers must refer directly to title 8 of the California Code of Regulations and the Labor Code for details regarding the regulations' scopes, specifications, and exceptions, and other requirements that may apply to their operations.

Workplace safety and health information is available online at:

- General information: www.dir.ca.gov/dosh
- Cal/OSHA regulations: www.dir.ca.gov/samples/search/query.htm
- Cal/OSHA safety and health publications: www.dir.ca.gov/dosh/puborder.asp
- Cal/OSHA etools: www.dir.ca.gov/dosh/etools/etools.htm

Cal/OSHA Consultation Services offers free telephone, email, and onsite assistance. Find a local office online (www.dir.ca.gov/dosh/consultation.html) or with the contact information listed in the back of this document.

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Why Safety and Health Are Important

Effective safety and health training and programs are important at agricultural worksites to protect farm workers from injuries and illnesses. Operations in agricultural fields expose workers to serious and even fatal hazards. These hazards include but are not limited to the following:

- Machinery-related hazards, such as driverless tractors, missing rollover protection and missing guards.
- Field sanitation hazards, such as the absence of toilet, handwashing, and drinking water facilities in the field.
- Heat-related hazards, such as strenuous work in high temperatures, and inadequate water and shade.
- Musculoskeletal hazards, such as hand weeding and the use of short-handled agricultural tools, and prolonged stooplabor and lifting.
- Skin-damaging hazards, such as lacerations from exposure to harvesting and pruning knives, thorns, and rashes from exposure to soil contaminants, such as fertilizers and pesticides.
- Electrical hazards, such as working with metal ladders, pipes, or poles near high voltage electrical power lines.

Cal/OSHA is committed to reducing the number of occupational safety and health hazards that farm workers are exposed to through enforcement of workplace safety and health regulations, phone and onsite consultation assistance to employers, and educational assistance to farm workers and employers on agricultural safety. This guide is intended to help employers and their employees avoid accidents like those described below.

Real Cases of Fatality and Injury

Tractor Driver's Head Crushed by Moving Tractor

A tractor driver fell to the ground when his tractor ran into a row of grapevines. As the tractor continued moving forward, a rear wheel crushed the tractor driver's head. He died instantly.

Fruit Picker Dies of Heat Illness

When fruit bags are full, they often weigh about 50 pounds. Workers carry them from the field to the truck, and crews paid piece rate work at a fast pace. One fruit picker collapsed and died of heat stroke after just four hours of work. He was on a bus to go to another field when he began to pant and get sick to his stomach. The foreman stopped the bus and called an ambulance. The worker was taken to the hospital and treated, but he died 36 hours later of heat stroke.

Employee Falls from Orchard Ladder

An employee was helping harvest an orchard. The employee fell approximately 8 ft. from an orchard ladder and suffered head trauma, requiring hospitalization.

How to Provide Safe Work Conditions

The California Occupational Safety and Health Act of 1973 requires employers of farm workers, like all other employers in California, to provide a safe and healthful workplace to their employees. Employers at farms, orchards, vineyards and other agricultural settings can accomplish this by following all of the Cal/OSHA regulations required for their specific operations, such as:

- Implement an effective safety and health program.
- Follow safety instructions from the manufacturers of machinery, equipment, tools, vehicles, materials, supplies and other items used in the operations.
- Provide effective employee training.

Having Effective Safety and Health Programs

Title 8 of the **California Code of Regulations** (T8CCR) contains several regulations that require employers to establish, implement, and maintain written safety and health programs that are extremely important for maintaining safety in agricultural field operations. Here is a list of some of those regulations:

- **3203** — Injury and Illness Prevention Program
- **3220** — Emergency Action Plan
- **3221** — Fire Prevention Plan
- **3395** — Heat Illness Prevention (Outdoors)
- **3396** — Heat Illness Prevention (Indoors)
- **5144** — Respiratory Protection
- **5157 & 5158** — Confined Space
- **5178** — Grain Handling Facilities
- **5194** — Hazard Communication
- **Labor Code 6401.9**—Workplace Violence Prevention, General Industry

When your employees see that you have effective safety and health programs-- and follow them-- they know you value their safety.

Successful safety programs in high-risk industries, such as agriculture, have the following in common:

- Management commitment—Active involvement of supervisors and managers who know safety is part of their job.
- Worker involvement—Remember that your workers are your “eyes” in the field for hazard identification, and they often have ideas for making a job safer. Worker involvement provides powerful motivation for improvement.
- Hazard elimination—Hazard identification and correction.
- Clear procedures and training — Employee and supervisor education on proper use and maintenance of equipment, including personal protective equipment, are critical elements of an effective safety and health program.

Effective safety and health programs help employers follow all the relevant title 8 requirements, which are designed to protect employees from work-related injuries and illnesses.

Employers need to promote safety and employee recognition for safe work practices. Employers also need to create a positive environment in which employees can report unsafe work practices and hazards without fear of reprisal.

Having an Effective Injury and Illness Prevention Program

Every employer in California is required to have a written IIPP that includes, among other things:

1. Management commitment to safety and assignment of responsibilities.
2. A safety communication system with employees, including how they can obtain a copy of the written IIPP.
3. A system for ensuring employee compliance with safe work practices.
4. Scheduled workplace inspections/hazard evaluation system.
5. Accident investigation.
6. Procedures for correcting unsafe or unhealthy conditions.
7. Safety and health training and instruction.
8. Recordkeeping and documentation.

The goal of the IIPP is to reduce workplace injuries and illnesses through the identification and control of hazards as well as through employee training.



Simply having a written IIPP does not fulfill the requirements. Employers must effectively implement and ensure that the IIPP:

- Fully involves all employees, supervisors, and management.
- Identifies the specific workplace hazards employees are exposed to.
- Corrects the hazards in an appropriate and timely manner.
- Ensures effective training of employees and supervisors.

Remember: How well the IIPP is put into practice will determine how effective it is. Employers must regularly review and update their IIPP in order for it to remain effective. Employers can use the following Cal/OSHA publications, etools and checklist to establish, implement, evaluate, and improve their IIPP.

Cal/OSHA Publications for the IIPP:

- **Model Injury & Illness Prevention Program for High-Hazard Employers**
- **Model Injury & Illness Prevention Program for Employers with Seasonal or Intermittent Workers**
- **Guide to Developing Your Workplace Injury & Illness Prevention Program**
Cal/OSHA

IIPP Checklist

Do You Have an Effective IIPP?

To prevent injuries, accidents, and illnesses, employers are required to implement and maintain an effective IIPP at their workplace. This checklist will help you determine whether your current program meets minimum requirements. Pay special attention to giving feedback to—and receiving it from—your workers. Make sure employees know how to obtain a copy of the written IIPP. Go over each of these questions with them.

If you answer “No” to one or more items, you will need to determine what information you are missing. You may need to seek further assistance or re-evaluate your existing IIPP.

| Topic | Yes | No |
|--|-----|----|
| 1. Have you designated a person with the authority and responsibility for implementing your Injury and Illness Prevention Program? | | |
| Responsible person's name: | | |
| Do workers know who that person is? | | |
| 2. Do you have a system that ensures all workers are following safe work practices (for example, incentives or rewards for following safe work procedures, and established policies for disciplining unsafe behaviors)? | | |
| What is it? | | |
| Do you motivate your workers to work safely? Describe how: | | |
| Do you discipline workers and supervisors who work unsafely and recognize those that work safely? Describe how: | | |
| Do you train and retrain your workers to ensure the work is performed safely? Describe how and when: | | |
| 3. Do you have a system of effectively communicating with your workers and supervisors? | | |
| Describe how (include how employees will be able to obtain a copy of the written IIPP): | | |
| Do workers report job hazards (such as damaged or defective equipment, broken ladders, tractors with defective brakes, or unguarded machinery) or any other unsafe work conditions? Describe how: | | |
| Are safety and health complaints and suggestions responded to in a timely manner? | | |
| Are rules clearly stated and written? | | |
| Do workers regularly submit safety suggestions and report hazards? Describe how: | | |

| | | |
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| Do you encourage employees to communicate with you? Describe how: | | |
| Can workers inform management anonymously—or without fear of reprisal—about workplace hazards? Describe how: | | |
| Do you encourage the reporting of safety violations, health hazards, or unsafe conditions? Describe how: | | |
| Do you provide safety and health orientations for new employees? Describe how: | | |
| Do you have frequent safety meetings for all employees? How often: | | |
| 4. Do you have an effective system for identifying job hazards and work practices, including conducting regular safety inspections? | | |
| Describe how: | | |
| Who is responsible for identifying hazards? | | |
| How often do you conduct these inspections? | | |
| Are additional inspections conducted if new substances, procedures, or equipment may present new hazards? | | |
| Do you inspect every new job site before work begins? | | |
| What role do your workers have in identifying hazards and suggesting solutions? | | |
| 5. Do you have a system of investigating all work-related accidents that result in injury or illness? | | |
| Who is responsible for investigating accidents? | | |
| Do you interview injured workers and witnesses? | | |
| Do you determine the main cause of the accident? | | |
| Do you include recommendations from employees to prevent such accidents from recurring? | | |
| Do you investigate “near misses” (situations that nearly result in an accident)? | | |
| Do you know about the requirement to report serious injuries to Cal/OSHA within 8 hours? | | |
| 6. Do you have a system for correcting job hazards and work practices? | | |
| What is it? | | |
| Who is responsible for correcting identified hazards? | | |
| Do you prioritize correction of hazards based on how serious they are? Describe how: | | |

| | | |
|---|--|--|
| If a hazard cannot be corrected immediately, do you keep track of correction progress and follow up to ensure correction occurs in a timely manner? Describe how: | | |
| During the time that a hazard is being corrected, do you keep workers—both those making the correction and those who may be affected—safe? Describe how: | | |
| 7. Do you provide training to all new supervisors and workers about safety and health issues that affect them and hazards that are specific to their job assignments? | | |
| Are workers trained about heat stress and high heat hazard procedures? | | |
| Do you teach workers about emergency procedures, available medical services, first aid, and how to report accidents and unsafe conditions? | | |
| Are workers trained in proper lifting techniques? | | |
| Do you document the safety and health topics you cover? | | |
| Do you teach workers about the use of appropriate clothing, including gloves, footwear, and personal protective equipment? | | |
| Are information and training for workers and supervisors provided in a language they understand? | | |
| Do you train your supervisors on the hazards faced by the employees they supervise, and their responsibilities to protect those employees from the hazards? | | |
| Do you teach workers about safe practices for operating or using any agricultural equipment, including procedures for cleaning, repairing, servicing and adjusting? | | |
| Do you train your supervisors about their responsibility to address reported hazards and not to discourage reporting or retaliate against workers who make safety complaints? | | |
| 8. Do you document your safety and health efforts? Describe how: | | |
| Are safety and health orientations for new workers documented? Describe how: | | |
| Are inspections and hazard corrections documented? | | |
| Are safety training sessions documented? | | |
| Are all investigations of accidents documented? | | |
| Do your reporting forms make clear that workers will not be retaliated against for filing a complaint? | | |

Following Instructions from the Manufacturers

Agricultural work is performed with a variety of machinery, equipment and tools. T8CCR section 3328(b) requires that machinery and equipment in service be inspected and maintained as recommended by the manufacturer where such recommendations are available. Many accidents and injuries occur because employees are not familiar with or are not following these instructions.

Manufacturers' instructions on how to use equipment or tools generally include warnings and information that are communicated with both words and pictures.

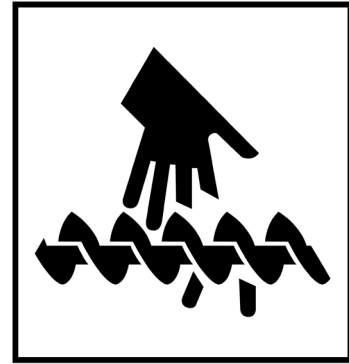
An example of a written warning is "WARNING, HAND ENTANGLEMENT IN AUGER." This instructs users not to place hands in the auger. The picture to the right conveys the same warning.

Failure to follow this instruction can cause very serious injuries.

Informational instructions are usually provided through user's guides and maintenance manuals.

Some important things to remember:

- Ask manufacturers for instructions in a language the workers understand.
- When manufacturers' instructions are not available, provide the employees with best practices on how to use the equipment/tool.
- Provide all the tools and safety equipment needed to follow the manufacturer's instructions.
- Have an experienced person demonstrate how to work safely with the equipment and tools.
- Provide training on each machine, tool, and piece of equipment.



Providing Effective Training

Training of employees is a key to providing a safe work environment and worker safety, and is required by Cal/OSHA. Manufacturers of machinery, equipment, and tools expect the users to be trained on them before use. Follow these steps to conduct effective training:

- Relate the training directly to the work being performed by the employees.
- Provide practical information about potential hazards.
- Communicate using a language and methods understandable to all employees.
- Establish a relationship with employees to improve trust and communication.
- Involve employees by drawing on their own real-life experiences.
- Practice group hazard identification and problem solving by means of demonstrations, asking questions, discussing ideas, etc.
- Provide opportunities to demonstrate best work practices and the safe use of machinery, tools, equipment, materials, etc.
- Provide training to employees when hired and rehired, and as often as necessary.
- Assure workers that they won't face retaliation for reporting hazards.

Effective workplace training involves the following steps:

- Identify topics to cover.
- Set training goals and objectives.
- Plan the trainings and organize materials.
- Conduct the training.
- Check for understanding and get feedback.

Selected Safety and Health Topics

Agricultural field operations include a large variety of equipment, such as the following:

- Farm machinery and equipment, including harvesters, cultivators, plows and discs, planters and transplanters, fertilizer and manure spreaders, produce sorters, and balers
- Power tools and hand tools
- Industrial tractors, aerial devices, and boom trucks
- Irrigation equipment used for surface irrigation, piped network, drip system, center pivot, and wheel line drop systems
- Water pumps, sumps, pits, and grain silos
- Ladders, including orchard ladders
- Truck-mounted tree shakers and other orchard equipment
- Tractor-mounted tree trimmers
- Chippers and chain saws

Farming machines typically have hazardous moving, cutting, and shearing parts that can cause serious injuries. Workers may also get caught in power transmissions, such as belts and pulleys, rollers, chains, and sprockets, because of inadequate guarding or lockout/tagout/blockout procedures, or when machinery starts up unexpectedly.



Common high-risk tasks include:

- Operating or assisting in the operation of farm machinery and equipment.
- Cleaning and unjamming a conveyor or other equipment.
- Adjusting and cleaning knives, scissors, hoes, and other cutting tools.
- Reaching for tools and other equipment components or dropped objects.
- Connecting and disconnecting farm equipment or trailers to tractors and trucks.
- Operating farm vehicles and equipment on sloped, uneven, or slippery surfaces.
- Operating heavy equipment with limited visibility of coworkers.

Employees need to be provided with proper training and instruction on the requirements, manufacturer's instructions, and safe practices for the particular equipment being operated. Due to the extensive variety of work operations, the requirements and safe work practices for only a selection of the safety topics in agricultural field operations are covered in the following pages.



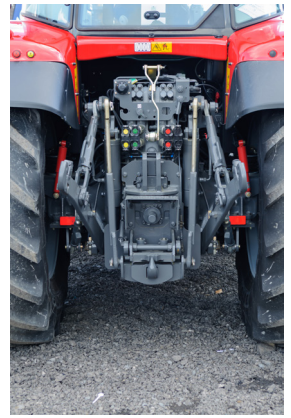
Not all Cal/OSHA requirements are addressed for each of the topics.

Refer to Title 8 for all regulatory requirements.

Power Take-Off (PTO) Safety

- Keep all PTO shafts guarded unless the driven equipment has guarding for the PTO shaft.
- Also have guards in place for gears, belts, chains, revolving shafts, etc. Ensure that guards do not interfere with the operation of the equipment, such as snapping or husking rolls, straw spreaders, cutter bars, flail rotors, rotary beaters, mixing augers, feed rolls, rotary tillers, and similar units.
- Keep access doors in place when the equipment is in operation.
- Do not use PTO drivelines when guards, shields, or access doors are damaged or missing.
- Stay away from unguarded moving parts.
- Watch your step when walking or working around a running machine.
- Do not wear jewelry and loose clothing that may get caught in the machinery. If you have long hair, keep it tied back or wear a cap so it does not get caught in the machinery.
- Keep non-workers out of the danger zone.
- Stop the PTO and wait for all components to stop moving before dismounting the tractor.
- Always disengage the PTO and turn off tractor ignition before approaching the driveline.
- Wait until the driveline and the whole machine stop moving before performing maintenance and repair or making adjustments. Use lockout/tagout/blockout to control sudden movement or operation.

Employer's instructions to stay away from unguarded moving parts are not sufficient to comply with Cal/OSHA's guarding requirements.



- Do not use parts of one brand of machine in another brand of machine.
- Always use the driveline or PTO shaft recommended for the particular machine you are using.
- Ensure the draw-bar is positioned properly for each type of implement used.

Tractor Safety

- An employee operating a tractor must first be authorized by the employer and trained on its safe operation. They must be instructed in the Employee Operating Instructions (see below) and in practices specific to the job. Such instruction is required to be provided at the time of initial assignment and at least annually thereafter.
- Use lockout/tagout/blockout to control sudden movement or operation of the equipment when you are doing maintenance or repair.
- All self-propelled equipment, including tractors, must have an operator at the controls when the vehicle is in motion and under its own power.
- No one must be allowed to stand, pass, or work under the elevated portion of any industrial truck, loaded or empty, unless it is effectively blocked.
- Prohibit employees from stunt driving or horseplay while operating the tractor.
- The tractor must be checked prior to operation each day for proper functioning of tires, horn, lights, battery, controller, brakes, steering mechanism, cooling system, etc.



- Tractors manufactured on or before October 25, 1976, are required to have a rollover protective structure (ROPS) installed to prevent serious injury and death in case the tractor overturns. A few exceptions are allowed by **T8CCR 3651**, such as when tractors are operated in a location where vertical clearance is insufficient.
- Display the slow-moving vehicle emblem on equipment driven on public roadways.
- The operator is prohibited from climbing onto or down from the equipment while it is operating or moving. The same prohibition exists for riders, who are allowed when appropriate seating is provided.
- Tractor-mounted personnel transport carriers (PTCs) may be used by employers to transport employees through the field while performing irrigation activities. Their use is common for row crops, such as carrots, lettuce, beets, celery, onions, barley, and potatoes. Falls from tractors and equipment attached to them are common causes of serious injuries. To reduce or prevent injuries related to the use of PTCs, employers are required to observe the requirements of **T8CCR 3441(i)**. These are only a few of the safe practices that must be followed for the safe use of PTCs:
 - Use of PTCs must only be allowed for employees who are installing, removing, or maintaining irrigation pipe for low-lying row crops.
 - Employees may ride in PTCs only in the furrowed area of fields while performing irrigation activities. Employees may not ride in PTCs on private farm roads.
 - The field must be relatively flat (< 5% grade).
 - PTCs must have seatbelts installed and used.
 - PTCs must be equipped with a shade cover or roof on the top of the unit.
 - PTCs may only be mounted on tractors that are equipped with ROPS.
 - PTCs must be inspected prior to daily use to ensure they are safe and in good repair.
 - Employees using PTCs, including tractor operators, must be trained annually in the requirements for safe use and operation of PTCs.

Employee Operating Instructions

- Securely fasten your seat belt when the tractor is in motion, especially if the tractor has a rollover protective structure.
- Where possible, avoid operating the tractor near ditches, embankments, and holes.
- Reduce speed when turning, crossing slopes, and on rough, slick, or muddy surfaces.
- Stay off slopes too steep for safe operation.
- Watch where you are going, especially at row ends, on roads, and around trees.
- Do not permit others to ride on agricultural equipment other than those required for machine operation.
- Operate the tractor smoothly (no jerky turns, starts, or stops).
- Hitch only to the draw-bar and hitch points recommended by the tractor manufacturer.
- When the tractor is stopped, set brakes securely and use park lock if available.



- Always stop the engine, disconnect the power source, and wait for all moving parts to stop before servicing, adjusting, cleaning, or unclogging equipment. Remember that agricultural machines may have several power sources: mechanical, hydraulic, and electrical. All power sources must be isolated to prevent accidental release of energy.
- Pay attention to warning signs or stickers you see on machinery.
- Be careful to avoid hitching accidents (“crush point injuries”).
- Follow “Secure Stop” before leaving the operating position when anyone else approaches and before anyone works on the machine.
- Allow the engine to cool before refueling.
- Make sure the machine has come to rest before making any adjustments. Allow for “run-down” time. Depending on the machine, run-down time can be anywhere from a few seconds to several minutes.
- Keep a fire extinguisher readily available, as fire is a common hazard in the field.
- Keep all guards, shields, and access doors in place when the equipment is in operation.
- Driverless self-propelled equipment must meet the following conditions:
 - Brake and throttle controls are within easy reach of the operator, and less than 10 feet from the operator, who can reach them without climbing onto or over the equipment.
 - Operator has a clear view of other employees and the course of travel.

Farm Machinery and Equipment

Farm machinery and equipment are major sources of accidents and injuries in agricultural field operations. Workers using them may become complacent regarding the potential dangers. Employers need to train the workers to understand the hazards of equipment they use and work around.

- Read and comply with the operator’s safety manual for each piece of farm equipment.
- Be aware of what you are doing and where you are going. When operating machinery, always keep an eye out for things that are beside and behind you, not just on what is in front of you.
- Adjust equipment speed to fit operating conditions.
- Limit employee access around machinery and equipment to those employees directly involved with the activity.

- Equipment does not travel faster than two miles per hour.
- Equipment is furrow-guided.
- Do not step in the area where grain is being fed out by an auger.
- Watch for overhead power lines, especially while transporting augers and other tall equipment.
- Do not wear jewelry and loose clothing that may be caught in the machinery. Wear a cap and tie back long hair.
- Do not allow riders on agricultural equipment other than persons required for instruction or assistance in machine operation, except when they are in tractor-mounted personnel carriers that meet all section 3441(i) requirements.
- Provide adequate means of access so that employees can safely reach the top of the load for manual loading or unloading of high loads.
- Never walk or work under a raised loader unless it is securely blocked and locked out.
- Before starting the equipment, engaging power, or operating the machine, make sure that everyone is clear of the machinery.
- Only work under well-lit conditions. See “Lighting and More” for additional information.
- Use hand signals when the noise level is high. When used properly and understood, hand signals make farm work easier and safer.

Aerial Device Safety

Aerial devices, such as orchard manlifts and bucket trucks, can be dangerous if not operated and maintained correctly. Some of the most common causes of accidents are overturns, falls from elevated positions, contact with power lines, and boom collapse. To work safely, operators need to take several precautions, including the following:

- Train operators in accordance with the manufacturer’s recommended operating procedures on the specific aerial device being used.
- Train operators on emergency procedures, including what to do when controls for

lowering the elevated platform fail.

- Do not support the aerial baskets or platforms on adjacent structures when workers are on the platform or in the basket and it is in an elevated position.
- Only allow authorized persons to operate an aerial device.
- Do not belt off to an adjacent pole, structure, or equipment while working from an aerial device.
- Do not sit or climb on the edge of the basket or use planks, ladders, or other devices to gain greater working height.
- Do not exceed operating load limits.
- Apply brakes when elevating a person with the vehicle stationary.
- When used, position outriggers on pads or a solid surface (where the outriggers will not sink).
- Do not move the aerial device when the boom is elevated with employees in the basket or platform except under specific conditions. See section [3648\(l\)](#).
- Do not operate the lower level controls unless you get permission from the employee in the device, except in case of emergency.
- Employees working in an aerial device must wear fall protection and be secured to the boom, basket, or tub except when they are on orchard man-lifts manufactured after September 1, 1991, with guardrails 42 inches or higher above the platform floor.
- Safety belts/body belts used as part of a positioning device system shall be rigged in such a way that an employee cannot free fall more than 2 feet.
- When operating near energized high-voltage power lines or equipment, aerial devices must stay at least 10 feet away (more for very high-voltage lines). If necessary, another



worker must be a spotter for the operator to ensure the minimum approach distance is maintained.

- Check the operator's manual for the greatest slope your equipment can be safely operated on.

Power and Hand Tool Safety

- Keep both power and hand tools maintained in good operating condition.
- Use the correct tool for the job.
- Keep the handles of the tools tight and free from defects.
- Keep cutting tools sharp.
- Use and maintain power tools according to their manufacturer's recommendations.
- Make sure power tools are properly grounded or are double insulated. Do not alter a three-prong plug or use a two-prong adapter.
- Turn off and unplug power tools before changing blades, servicing, or repairing.
- Do not wear loose clothing or jewelry that may catch on things. Tie back long hair or tuck into a cap.
- Wear appropriate personal protective equipment (PPE), such as approved safety glasses, goggles, dust masks, face shields, hearing protection, etc.
- Keep all guards and shields in place. Unplug the tools after use.

Chain Saw Safety

Chain saws are very powerful tools used to trim, prune, and fell trees. Chain saws are also used for bucking firewood as well as performing clean-up work, such as clearing branches and brush. Due to the magnitude of their power, chain saws can cause severe and fatal injuries, so they must be used with care and caution.



To promote safe work, employers must do the following:

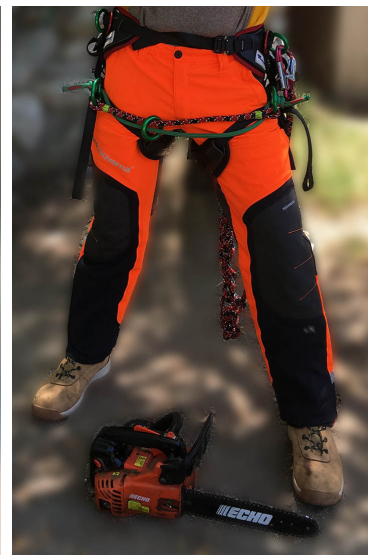
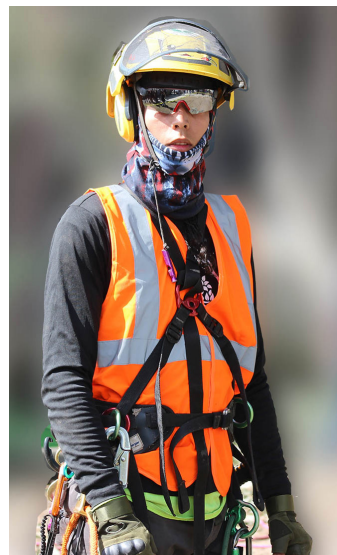
- Provide supervision.
- Provide effective training.
- Ensure that employees do the following:
 - Read and understand the manufacturer's instruction manual.
 - Observe all safety rules.
 - Follow operating instructions.

Hazards

- Mechanical hazards cause serious injuries, such as cuts, broken bones, amputations, and death.
- Ergonomic hazards cause musculoskeletal disorders, such as back and shoulder strains.
- Flammable liquids cause burns due to unsafe fueling practices or the use of unapproved gasoline containers.
- Loud noise levels cause hearing loss due to inadequate or complete lack of hearing protection.

Personal protective equipment (PPE)

The correct use of PPE helps to prevent or reduce the extent of the injuries. For this reason, it is important that employers provide and require their employees to wear hard hats, eye and hearing protection, gloves, cut-resistant leg chaps, steel toe boots, and reflective safety vests while using chain saws.



Training

Before personnel are assigned to work with a chain saw, employers must provide employees with effective safety training. Topics should include:

- Hazards involving chain saws.
- Proper use and importance of always wearing PPE.
- How to safely operate and maintain the chain saw following manufacturer's instructions, including safe work practices, and tips to prevent accidents and injuries.
- Emergency and first aid procedures and supplies.
- Operator safety:
 - Be in good physical condition (not sick, fatigued, or taking medication or other substances).
 - Do not wear loose clothing or anything that could snag the chain saw.
 - Keep body parts away from a running chain saw blade at all times.
 - Take periodic rest breaks and drink sufficient water.
 - Control the saw firmly with a two-handed control grip and straight wrists.
 - Know the symptoms of musculoskeletal disorders, such as pain, swelling of the fingers, numbness, and lack of grip strength.
 - Work with a "buddy" or team and communicate using two-way radios, cell phones, or walkie-talkies.
 - Work only with adequate lighting and at a safe distance from other workers.
 - Always be alert to the entire work environment.
 - Always start a chain saw on the ground or where it is firmly supported and never drop start them.
 - Prevent kickback by not cutting with the tip of the saw.
 - Do not use a chain saw with defective or broken parts.

Wood Chipper Safety



Wood chippers and shredders are powerful and efficient machines designed to quickly perform yard cleanup by reducing woody material to mulch. As tree branches and pruned brush are fed by hand into the chipper, they are pulled in and sharp rotating blades — spinning at a high speed — chop and grind this material into tiny chips, which are discharged. Chippers can be very dangerous and have caused eye injuries, cuts, amputations, crushing injuries, and death. To maximize safety, employers must provide effective training and supervision, and ensure that employees read and understand the manufacturer's instruction manual. Employees must always follow safe work practices and procedures.

Hazards

- Chippers' moving parts can pull in, cut, crush, and amputate hands, feet, etc.
- Missing, unsecured, or damaged guards may expose employees to moving parts and cause injury or death.
- Employees can sustain serious injury if they try to unjam the chipper without locking out the chipper and waiting for it to come to a complete stop first.
- The chipper may kick back debris that strikes the operator.
- Chippers can cause hearing loss when employees do not have adequate hearing protection.

Personal protective equipment (PPE)

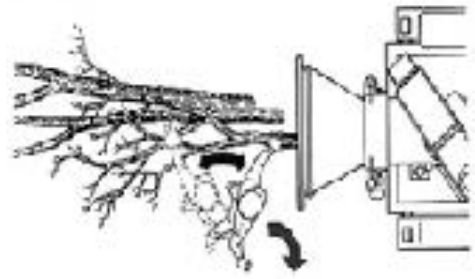
Ensure that employees who are using the chipper wear hard hats, eye and hearing protection, snug leather gloves, steel toe shoes with nonslip soles, and reflective safety vests.

Training

Train in the language employees understand. Demonstrate the safe use of a wood chipper, allowing employees to practice and ask questions. Provide refresher training if employees are seen using the chipper unsafely.

Training topics should include:

- Recognition of all chipper hazards, such as nip, crush, and shear points.
- Use of warning signs and keeping the public away from the work area, if needed.
- Clearance of potential tripping hazards from the work area around the chipper.
- The importance of wearing PPE and not wearing dangling clothing, jewelry, belt, ropes, etc.
- The safe operation, care, and maintenance of the chipper according to the manufacturer's instructions, with special attention to the operation of safety devices and controls and the emergency shut-off switch.
- Additional safe work practices and procedures to help workers develop safe work habits, such as using a long, sturdy push stick to shove short branches to the rollers.
- Emergency and first aid procedures and supplies.
- Operator safety including:
 - Be in good physical condition (not sick, fatigued, impaired by medication or other substances).
 - Never lean or stand directly in front of the feed area or place any part of the body near rotating parts when the chipper is in operation.
 - Be attentive and concentrate on working safely.



- Use a “buddy system” or team to communicate and watch for each other so that in an emergency, at least one person has immediate access to the shut off switch.

Avoiding Field Sanitation Hazards

According to California and federal law, employers must provide toilet facilities and potable water for drinking and hand washing for their workers in the field. Non-potable water systems or systems carrying any other non-potable substance must be installed in a way that prevents back-flow or back-siphonage into a potable water system. Outlets for non-potable water, such as water for industrial or fire-fighting purposes, must have a sign posted on it to warn that the water is unsafe and must not be used for drinking, washing, cooking or other personal service purposes. The sign must be written in a manner understandable to all employees.

Title 8 CCR section **3457** also requires employers to notify each worker of the location of drinking water and toilet facilities and to allow the workers reasonable opportunities during the workday to use the facilities.

Drinking water

Drinking water must be:

- Potable, fresh, pure, and suitably cool.
- Refilled through the workday so it never runs out.

- Located as close as practicable to all workers and access permitted at all times.
- In dispensers that are kept clean.
- Not located in toilet rooms.
- Either in dispensers equipped with faucets supplied with single-use/disposable drinking cups, or supplied by fountains. **Dippers may NOT be used.**

Note that additional requirements are found in section **3395** when it comes to heat stress issues.

Hand-washing facilities

Hand-washing facilities must be:

- Furnished with adequate supplies of potable water.
- Supplied with soap and single-use towels.
- Kept clean, sanitary and near the toilet.

Signs must be posted at hand-washing facilities stating that the water is only for hand-washing and not safe for drinking or personal use.

Toilet facilities

Toilet facilities must be:

- Separate for females and males, private, with 1 toilet per 20 employees of each sex (except if fewer than 5 employees, separate toilet rooms may not be required if they can be locked from the inside).
- Maintained clean and in good working order with written records of service and maintenance going back 2 years.
- Supplied with adequate toilet paper in a suitable holder.
- Accessible to employees at all times and located no more than 1/4 mile away (1,320 feet) or a 5-minute walk, whichever is shorter.
- Located near handwashing facilities.



- *The water level must not be allowed to get too low.*
- *A dipper must not be used.*

Protecting Workers from Heat Illness

Heat illness is a serious medical condition resulting from the body's inability to cope with a particular heat load. People suffer from heat illness when their bodies are not able to get rid of excess heat and cool down. The severity of heat illness can vary from heat rash (the mildest form) to heat stroke (the most severe form).

Common signs and symptoms of the various forms of heat illness are described below. It is important to know that not all the listed symptoms will appear in every case of heat illness.



Heat Kills

Workers can die or suffer serious health problems from heat illness. The good news is that heat illness is preventable.

Heat rash

Heat rash is a skin irritation caused by excessive sweating and clogged pores during hot, humid weather. The rash may:

- Cover large parts of the body.
- Look like a red cluster of pimples or small blisters.
- Frequently occur on the neck, chest, groin, under the breasts, or in elbow creases.
- Be uncomfortable and disrupt sleep and work performance.
- Be complicated by infections.

Heat cramps

Heat cramps are painful spasms of the muscles that usually occur during heavy work. Sweating makes the body lose salts, fluids, and minerals. If fluids are replaced but the salts and minerals are not, painful muscle cramps may occur.

Fainting

Fainting is caused by inadequate blood supply to the brain. Dehydration and lack of acclimatization to working in warm or hot environments can increase the likelihood of fainting. People normally regain consciousness soon after they faint.

Heat exhaustion

Heat exhaustion results from loss of fluid through sweating and not drinking enough replacement fluids. It can quickly progress to heat stroke.

General symptoms include:

- Heavy sweating.
- Painful muscle cramps.
- Extreme weakness and/or fatigue.
- Nausea and/or vomiting.
- Dizziness, headache, or light-headedness.
- Body temperature normal or slightly high.
- Fainting.
- Fast, weak pulse.
- Fast, shallow breathing.
- Clammy, pale, cool, and/or moist skin.

Heat stroke

Heat stroke is a serious health problem caused by the body's failure to regulate its core temperature. Sweating stops and the body can no longer release excess heat.

General symptoms include:

- Body temperature of 104°F or higher.
- No sweating.
- Hot, dry skin that may be red, bluish, or mottled (having spots of different colors).
- Uncontrollable muscle twitching.
- Fast, weak pulse.
- Fast, shallow breathing.
- Throbbing headache.
- Mental confusion, seizures, dizziness, unconsciousness, and coma.



Heat stroke is a medical emergency because people usually die unless treated promptly.



How can employers prevent heat illness?

Employers are required to take certain measures to prevent heat illness in their employees. Requirements vary depending on whether their employees work indoors or outdoors, but most requirements are the same. Title 8 section 3395 sets requirements for employees working outdoors, while section 3396 sets them for employees working indoors where it is at least 82°F. An employer may have to follow both requirements if the workplace involves indoor and outdoor heat.

Both regulations require employers to establish, implement, and maintain written heat illness prevention plans. Employers may include the procedures in their injury and illness prevention program or as a standalone plan. Employers with both indoor and outdoor employees have the option to maintain two separate plans or combine them into one plan.

See the following table for preventive measures you can take to prevent heat illness in workers indoors and outdoors.



Preventing Heat Illness Indoors and Outdoors

| Outdoor Workers | Indoor Workers |
|--|---|
| Create a written heat illness prevention plan (HIPP) that includes: <ul style="list-style-type: none">• Employer’s procedures for providing water• Employer’s procedures for providing shade• High-heat procedures• Emergency response procedures• Methods and procedures for acclimatization (allowing the body to get used to working in the heat) | Create a written heat illness prevention plan (HIPP) that includes: <ul style="list-style-type: none">• Employer’s procedures for providing water• Employer’s procedures for providing cool-down areas• Assessment and control measures• Emergency response procedures• Methods and procedures for acclimatization (allowing the body to get used to working in the heat) |
| Train all their employees and supervisors on their HIPP. Initial training must be provided when an employee is hired, and refresher training provided as needed. The training must be in a language employees understand and allow for questions and answers. | Train all their employees and supervisors on their HIPP. Initial training must be provided when an employee is hired, and refresher training provided as needed. The training must be in a language employees understand and allow for questions and answers. |

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Acclimatization means temporary adaptation of the body to work in hot environments and occurs gradually over the course of several days while working in hot environments. Acclimatization occurs in most people within 4 to 14 days of regular work for at least 2 hours per day in hot environments.

| Outdoor Workers | Indoor Workers |
|---|---|
| <p>Training topics must include:</p> <ul style="list-style-type: none"> • Drinking water more often so the body can sweat and get rid of heat. • The right to access shade (or cool-down areas) at all times and to take cool-down rest breaks to allow the body to cool. • Signs and symptoms of the various types of heat illness. • The importance of immediately reporting the signs and symptoms of heat illness. • Importance of acclimatization and risk factors for heat illness. • How employees will communicate with their supervisors when they are in remote areas. • Procedures for contacting emergency medical services and transporting victims to a location where they can be reached by emergency medical providers. | <p>Training topics must include:</p> <ul style="list-style-type: none"> • Drinking water more often so the body can sweat and get rid of heat. • The right to access shade (or cool-down areas) at all times and to take cool-down rest breaks to allow the body to cool. • Signs and symptoms of the various types of heat illness. • The importance of immediately reporting the signs and symptoms of heat illness. • Importance of acclimatization and risk factors for heat illness. • How employees will communicate with their supervisors when they are in remote areas. • Procedures for contacting emergency medical services and transporting victims to a location where they can be reached by emergency medical providers. |
| <p>Provide supervisors with additional training on:</p> <ul style="list-style-type: none"> • The procedures to follow to implement the HIPP. • The procedures to follow when an employee exhibits signs or reports heat stress symptoms. • How to monitor weather reports and respond to weather advisories. | <p>Provide supervisors with additional training on:</p> <ul style="list-style-type: none"> • The procedures to follow to implement the HIPP. • The procedures to follow when an employee exhibits signs or reports heat stress symptoms. • How to monitor weather reports and respond to weather advisories. |
| <p>Check the weather forecast ahead of time for the area their employees will be working in and take all appropriate precautionary measures.</p> | <p>Check the weather forecast ahead of time if indoor temperatures could be affected by the weather, and take all appropriate precautionary measures.</p> |
| <p>Provide all employees information about the work site address or location for the work shift in case they need to inform emergency medical services.</p> | <p>Provide all employees information about the work site address or location for the work shift in case they need to inform emergency medical services.</p> |
| <p>Provide at no cost to employees fresh, pure, and suitably cool potable water (at least one quart per employee per hour) for the entire work shift and encourage them to drink. Have enough water for the workday or refill the supply of cool, fresh water before it runs out.</p> | <p>Provide at no cost to employees fresh, pure, and suitably cool potable water (at least one quart per employee per hour) for the entire work shift and encourage them to drink. Have enough water for the workday or refill the supply of cool, fresh water before it runs out.</p> |
| <p>Place water containers as close to employees as possible.</p> | <p>Place water containers as close as possible to where employees work and in indoor cool-down areas.</p> |

(table continues on next page)

| Outdoor Workers | Indoor Workers |
|---|---|
| Make sure shade structures are always available, and set up when the temperature exceeds 80°F. Employers must provide shade, or timely access to shade, upon an employee's request when temperatures are less than 80°F. | Make sure cool-down areas are available at all times while employees are at the workplace. |
| Create shade so that there will always be room for all employees who want to rest in the shade or take a meal break (sitting in normal posture fully in the shade without making physical contact with one another), and for handling emergency situations. | Make sure cool-down areas are at least large enough to fit all employees who want to take a cool-down rest or a meal break, while sitting in a normal posture fully in the cool-down areas without making physical contact with one another. |
| Locate shade as close to employees as practicable. | Locate cool-down areas indoors or outdoors, as close as practicable to where employees are working. |
| Provide shade that does not expose employees to unsafe or unhealthy conditions and does not deter or discourage access or use (for example, placing next to a toilet). | Make sure cool-down areas are blocked from direct sunlight and shielded from radiant heat sources as much as you can. Also make sure the cool-down area does not expose employees to unsafe or unhealthy conditions, environmental risk factors that defeat the purpose of allowing the body to cool, or other conditions that deter or discourage its use. |
| Have shade in locations either open to the air or provided with ventilation or cooling. | Provide cool-down areas in locations open to the air or provide them with ventilation or cooling. Maintain the temperature in indoor cool-down areas at less than 82°F. |
| Encourage employees to rest in the shade. Monitor resting employees and ask if they are having heat illness symptoms. Make sure they do not return to work with symptoms, and provide appropriate first aid and emergency response. | Encourage employees to take cool-down breaks. Monitor resting employees and ask if they are having heat illness symptoms. Make sure they do not return to work with symptoms, and provide appropriate first aid and emergency response. |

(table continues on next page)



"Shade" means blockage of direct sunlight, and is not adequate when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool.

| Outdoor Workers | Indoor Workers |
|--|---|
| Find out if any of your newly hired employees need to be acclimatized. You need to allow a two-week break-in period for employees who are not used to working in hot conditions. During this time, employees must be observed by a supervisor or other employer designee. | Find out if any of your newly hired employees need to be acclimatized. You need to allow a two-week break-in period for employees who are not used to working in hot conditions. During this time, employees must be observed by a supervisor or other employer designee. |
| Observe all employees during a heat wave. Remember that during a heat wave, even previously acclimatized employees will be at risk of heat illness, since they will not yet have adjusted to this sudden increase in temperature. | During a heat wave, observe all employees during a heat wave in areas where no effective engineering controls, such as air conditioning, are in use. Remember that during a heat wave, even previously acclimatized employees will be at risk of heat illness, since they will not yet have adjusted to this sudden increase in temperature. |
| <p>On hot days, monitor the temperature at the work site with a thermometer, and take measures such as modifying work schedules, increasing the number of water and rest breaks, or stopping work early, as needed.</p> <p>See the sidebar on the next page for procedures that must be taken during high-heat conditions.</p> | <p>On hot days, monitor the temperature and heat index at the work site by measuring the temperature and either the heat index or relative humidity. Under the following conditions, take additional measures:</p> <ul style="list-style-type: none"> • Temperature or heat index reaches at least 87 °F. • Temperature reaches at least 82°F and employees wear clothing, such as protective clothing, that prevents the body from cooling down. • Temperature reaches at least 82°F and employees work in a high radiant heat area. <p>In these conditions, keep a record of the temperature or heat index—whichever is higher—and take steps to cool the workplace, such as using air conditioning or swamp coolers. If needed, add measures such as modifying work schedules, increasing the number of water and rest breaks, stopping work early, or providing cooling vests or other personal heat-protective equipment.</p> |
| Ensure that employees will be able to communicate with a supervisor or emergency medical services when needed. An electronic device, such as a cell phone, is only allowed if it has a good signal in the area. | Ensure that employees will be able to communicate with a supervisor or emergency medical services when needed. An electronic device, such as a cell phone, is only allowed if it has a good signal in the area. |

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| Outdoor Workers | Indoor Workers |
|---|---|
| Have a designated person, trained in first aid, watch over any employee with possible symptoms of heat illness and provide appropriate first aid or emergency response. | Have a designated person, trained in first aid, watch over any employee with possible symptoms of heat illness and provide appropriate first aid or emergency response. |
| Make sure to account for all your employees at the end of your work shift. | Account for all your employees at the end of your work shift. |



High-Heat — Outdoor Workers

During high-heat episodes (temperatures reach 95°F or higher) heat illness can develop even faster. Be sure to do the following:

- Ensure effective communication with field staff by voice, observation, or electronic means. Communicate more frequently than usual.
- Implement an effective system to observe employees for signs or symptoms of heat illness by:
 - Supervisor or designee observation of 20 or fewer employees.
 - Mandatory buddy system.
 - Regular communication with sole employee.
 - Other effective means.
- Designate one or more employee on each work site as authorized to call for emergency medical services, and allow other employees to also do so in case a designated person is not available.
- Supervise the newly hired employees even more closely.
- Ensure employees take a minimum 10-minute preventative cool-down rest every 2 hours to prevent overheating
- Ensure breaks are taken, not just offered.
- Encourage employees to drink water more frequently.
- Hold pre-shift meetings to:
 - Review high heat procedures.
 - Encourage water drinking.
 - Remind of the employee right to take cool-down rest when necessary.
 - Ensure effective communication will be maintained (voice, observation, or electronic).
- Start the work shift earlier or work in the cooler evening hours.
- Avoid working overtime.

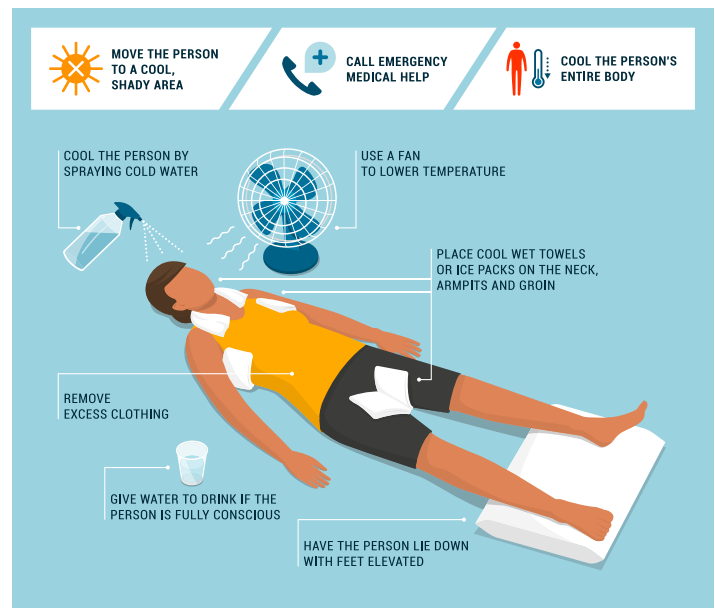


No employee with symptoms should be left unattended or sent home without medical assessment.

Heat Wave means any day in which the predicted high temperature for the day will be at least 80 degrees Fahrenheit and at least ten degrees Fahrenheit higher than the average high daily temperature in the preceding five days.

How can employees help prevent heat illness?

- Let the employer know if you are not acclimatized (that is, if you worked in a cooler environment just prior to arriving, if you have been out of work, or if you have never done this type of work before). Your body may need about two weeks to get used to working in the heat.
- Employees who are pregnant, older, obese, have other medical conditions, or are on certain medications (including “over-the-counter” drugs) should consult with a doctor before working in the heat.
- Get trained on heat illness prevention before beginning work in the heat and know the following:
 - The location of the work site (e.g., field, packing shed) where you are working in case you need to direct emergency services to a particular location.
 - The locations of drinking water, shade or cool-down areas, and toilet facilities.
 - To drink water often and not wait until you are thirsty. Avoid alcohol, sodas, and caffeinated drinks because they can increase dehydration.
 - You are allowed to request access to shade even when temperatures are below 80°F when working outdoors.
 - You are allowed to take a preventative cool-down rest for at least five minutes whenever you need it to prevent overheating.
 - The signs and symptoms of heat illness.
 - The importance of acclimatization and risk factors for heat illness.
 - Your employer’s emergency procedures, including who is the first aid or designated person to contact in case of emergency.
 - When the designated person is not available in an emergency, you are allowed to call for emergency services.
- Wear a broad-brimmed hat and light-colored long-sleeved cotton clothing that allows sweat to evaporate.



- Be aware that you are at greater risk for heat illness, even during mild temperatures, if you wear personal protective clothing.

Additional Resources

Refer to these websites for more information, including training materials, webpages for checking weather, and more:

- [Cal/OSHA's heat-related illness prevention and information website](#)
- [Cal/OSHA Heat Illness Prevention eTool](#)
- [Heat illness prevention educational resources](#)

Using Long-Handled Tools and Preventing Prolonged Stoop Labor

Agricultural work involves a great deal of manual labor. Farm workers lift and carry heavy boxes and other loads, often using awkward postures as they try to keep up a fast work pace. Workers may experience pain and injury in their backs, hands, arms, and shoulders from these activities. In these situations, using proper equipment or changing work practices can help to reduce the number and severity of these musculoskeletal disorders.



Farm workers commonly perform work on ground crops, including weeding, thinning, hot-capping, and harvesting. These tasks can require bending forward from the waist. When done repeatedly, these actions weaken the stability of the lower back, leaving workers at higher risk of back injuries.

The more pronounced the forward bending and the longer the time spent in a stooped posture, the greater the likelihood for back injury. Employers that follow all of the requirements and safe practices described below will improve the safety and health of their farm workers.

Some Cal/OSHA requirements for using handheld tools

- Workers must not hand-weed, hand-thin, or hot-cap by hand with short-handled tools (less than four feet in length) while in a stooped, squatting, or kneeling position.
- Workers must not perform these tasks using a long-handled tool as if it were a short-handled tool in stooped, squatting, or kneeling position.
- Such hand operations are only allowed when there is no reasonable alternative and the employer provides:
 - Justification to Cal/OSHA if there is an inquiry.
 - An extra 5 minutes of rest with pay to employees for a total of 15 minutes per 4 hours of work or fraction thereof.
- Occasional or intermittent hand weeding, hand



Warning

Unsafe work practices that cause repetitive motion injuries and/or back injuries may result in Cal/OSHA citations and civil penalties under T8CCR section **5110**.

thinning, or hand hot-capping in a stooped, squatting, or kneeling position is permitted as long as this work takes no more than 20% of the employee's weekly work time.

- Hand weeding may be permitted:
 - In fields or greenhouses that have been registered as organic.
 - For high-density plants spaced less than 2" apart.
 - For all agricultural and horticultural commodities when they are seedlings.
 - Horticultural commodities grown in containers with an opening 15" or smaller in size.
- Employers must provide kneepads and gloves free of charge and make sure that employees use protective equipment to prevent injury while performing any of the permitted hand weeding activities.

Safe practices for coping with and preventing prolonged stoop labor

In addition to complying with the regulatory requirements, you may consider using one or more of the following measures to cope with any necessary stoop labor:

- Establish daily group stretching exercises at the start of the work shift.
- Train workers on the importance of exercising to strengthen their abdominal muscles to prevent back injury.

Hand weeding, hand thinning, and hot-capping by hand are permitted without justification in certain situations. See T8CCR section **3456(d)**.

- Train employees on the proper use of long-handled tools. These tools reduce the degree of forward bending necessary to accomplish the task and, therefore, reduce the risk of back injury.
- Provide extra rest periods.
- Encourage intermittent mini-stretch breaks (less than two minutes) throughout the work shift.
- Add workers during peak season to share the work and reduce the amount of time spent in stooped posture.
- Use job rotation so that workers will not be working in stooped posture all the time.
- Make sure that employees are provided kneepads and use them while working on their knees.



(Top to bottom): Spraying pesticides; Poison oak, an example of a plant that causes itchy red rashes; Rattlesnake.

Preventing Skin Diseases and Other Injuries

Besides the daily demands of the work and limited access to health care, prolonged exposure to extreme weather conditions and contact with harmful substances also contribute to skin problems.

Sunburn; dermatitis; superficial wounds, such as cuts, punctures, insect bites, and nail lesions; and other conditions are common among farm workers. If not treated properly, skin disorders and injuries may evolve and often worsen over the course of the growing season.

Some of the hazards affecting farm workers' skin:

- Intense solar radiation and high temperatures can cause sunburn, skin cancer, and heat rash.
- Plants and trees can scratch, cut, and puncture the skin as well as injure the eyes. Some plants can cause an itchy red rash called contact dermatitis.
- Insects, spiders, and snakes can sting and bite, causing pain, itching, swelling, and secondary infections as well as allergic reactions.

- Chemical exposure to herbicides, pesticides, fertilizers, petroleum products, and other chemicals can also cause dermatitis.

Common skin diseases affecting farm workers:

- **Irritant contact dermatitis** appears as a red rash where the irritant (plant or the chemicals on the plant) contacts the skin. It may be swollen with blisters and itching. The severity of the condition can vary depending on many factors, such as amount and strength of the irritant, length of exposure, and condition of the skin (e.g., thick, thin, dry, damaged).
- **Allergic contact dermatitis** appears the same but occurs due to an allergic reaction to exposure to a substance to which the body is sensitized. After initial exposure, subsequent contact to even a small amount of the same substance causes dermatitis to reappear within hours or days.

What can workers do to protect themselves?

- Seek shade during the hottest hours of the day and wear sun protection:
 - UV-protective sunglasses that wrap around to protect eyes and prevent cataracts.
 - Sunscreen to protect from sunburn and skin cancer. Reapply frequently.
 - Long-sleeved shirts and long pants.
 - A wide-brimmed hat.
 - Gloves to shield the skin from chemicals and other hazards.
- After work, take off all potentially contaminated clothing and footwear to prevent absorption of chemicals into the skin. Even if you are not applying pesticides, your clothing may become contaminated due to direct contact with treated plants or soil or drift from nearby fields.
- Use good personal hygiene such as showering daily and using mild soap to remove any residual chemicals.
- Don't wear work shoes inside the home.
- Wash work clothes before wearing them again.
- Wash clothes with hot water and detergent separately from the family wash to avoid cross-contamination.
- Follow the employer's safety and health training, including using personal protective equipment (PPE), and seek first aid and medical attention when a serious condition develops.

What can employers do to protect their workers from skin disorders and injuries?

- Train workers so they understand the chemicals they use and how to protect themselves.
- Provide farm workers with the right tools and ensure that the tools are maintained in good condition.

- Provide PPE free of charge and make sure that employees wear the appropriate PPE for the job. Periodically remind the employees:
 - Even the chemical-resistant PPE protects the skin only for a limited amount of time.
 - Different chemicals may require PPE made of different materials or with different levels of protection.
- Provide ready access to washing facilities with soap and paper towels for employees to wash before eating, drinking, smoking, etc.
- Make sure workers get proper medical attention to control and treat skin diseases.

Electrocution by Contact with High-Voltage Lines

Accidental contact with high-voltage power lines usually results in death or serious injury. Eliminate the risk of electrocution by such contact by following these guidelines and the applicable **Electrical Safety Orders**.

Farm workers may be electrocuted while pruning trees, harvesting, or moving irrigation pipes if a pipe, pole, or other conductive object comes in direct contact or in close proximity to an overhead high-voltage power line.

Employers must ensure that all necessary pre-cautions are taken to avoid any possibility of accidental contact with high-voltage lines.



- Remember the “10-foot rule.” Keep all vehicles, equipment, tools, and people at least 10 feet away from power lines. That minimum distance may be greater depending on the voltages encountered.
- Instruct workers to always check for overhead high-voltage lines before operating, lifting, or moving any equipment or machinery.
- Train all workers to treat all overhead high-voltage lines as if they are energized unless they are verified to be de-energized and visibly grounded.
- Prohibit the operation, erection, or handling of machinery, supplies, or materials over energized lines.
- Make sure that workers operating boom-type and hoisting equipment maintain the required minimum clearance distance at all times.
- Ensure that trees are pruned well before they get close to the power lines. If the overhead lines are close to the pruning work or the lines are sagging, stop work and contact your nearest electrical utility for assistance.
- Instruct workers to keep irrigation pipes horizontal on the ground and not to stand the pipes in an upright position before verifying the required clearance above.
- Do not allow storage of irrigation pipe or long metal poles near or underneath overhead high-voltage lines.
- Do not operate or store machinery or equipment near overhead high-voltage lines if the machinery or equipment may come within the minimum clearance distance.
- Ensure all workers and supervisors follow safe work practices when working near overhead high-voltage lines.

Using Ladders Safely

A wide variety of ladders are used in agricultural field operations. Types of ladders include portable step, extension, fixed, and orchard ladders. Common operations using ladders include orchards, confined spaces (pits, sumps, wells, storage bins, bunkers, hoppers, tanks, etc.), and trenches.

Remember! Train your employees before they start working on ladders.

Causes of ladder accidents

Accidents from ladders are very common, and consequences include serious injuries and fatalities. Causes of most ladder accidents include:

- Inadequate training of workers on ladder safety.
- Improper selection, care, or use of ladders, including incorrect positioning and other unsafe work practices.
- Use of defective ladders that are bent, broken, or have missing parts.

Some of the more common hazards involving ladders, such as instability, accidental electrical shock, and falls, can be predicted and prevented. Prevention requires proper training, planning, correct ladder selection, good work procedures, and proper ladder maintenance. Injuries from ladders can be avoided by following Cal/OSHA regulations and safe work practices.

Some safe practices for working with ladders:

- Select a ladder of proper length to reach working heights.
- Visually inspect a ladder before using it. Make sure all rivets, joints, nuts, and bolts are tightened, and that feet, steps, and rungs are present and secure.
- Never climb a bent or broken ladder.
- Make sure the ladder has a secure footing before climbing.
- Use the 1:4 ratio to lean a ladder, where the bottom of the ladder is 1 foot away from vertical for every 4 feet of ladder length to where it rests against a surface (working length of the ladder).
- Face the ladder when climbing up or down. Center your body between the side rails.



- Maintain a firm grip. Use both hands while climbing and descending ladders.
- Never place a metal ladder near electrical wires. Stay at least 10 feet from high-voltage lines (up to 345,000 volts).
- Check the weight limit and make sure that you are not overloading the ladder.
- Maintain the minimum overlap when using extension ladders.
- When accessing upper landing surfaces, the side rails need to extend 36 inches or more above the landing surface.
- Do not overreach. Instead, move the ladder as needed. Never walk (or jog) the ladder while standing on it.
- Do not stand on the top-cap or the step below the top-cap on a stepladder.
- Do not stand or work on the top three rungs of a single or extension ladder.
- Limit one person to a ladder at a time.
- Avoid pushing or pulling off the side of the ladder.
- Never jump from a ladder.

Farms typically have pits, sumps, or other sunken locations where machinery and equipment are operated and maintained. These locations can have portable or fixed ladders for access. All ladders need to be inspected regularly at intervals determined by use and exposure of the ladder to the hazardous environment.

Orchard Ladders

Orchard ladders are widely used in California and have been involved in serious and fatal accidents. Most injuries from orchard ladders are caused by falls due to ladders toppling, employees slipping or catching their feet on ladder steps, and employees being poked or hit by branches.

Orchard ladders are designed specifically for use with orchard trees, generally range in size from 5 to 20 feet, and are made of wood, plastic, or aluminum. Two basic types of orchard ladders are available:

- The straight orchard ladder is typically a flared-bottom dual-rail ladder. This type of ladder should only be used with mature orchard trees because it needs a strong tree trunk or branch for support and balance.
- The tripod orchard ladder provides more versatility for use with all types of trees. It has a three-point stance for stability on uneven ground, providing a safer work position than straight ladders. The ladder's third leg can be positioned over or inside bushes and small trees for better access.
 - However, because tripod orchard ladders are designed to be used on soft or uneven terrain, they lack spreaders, locking devices, steel points, and safety shoes. Therefore, they can collapse when used on firm, smooth ground. These ladders are

not general-purpose ladders and should only be used in orchards for pruning and harvesting operations.

General orchard ladder safety

- Employees must be properly trained before using a ladder.
- Prior to use, always inspect orchard ladders for defects, including missing, loose, or sheared rivets, broken steps, and bent rails and tripod legs.
- Never use a metal ladder near energized electrical equipment, such as power lines.
- When possible, position the ladder on level dirt with legs penetrating slightly into the ground. Never use on a hard surface, such as concrete.
- Position the ladder so that the steps are level.
- Where required, always wear appropriate personal protective equipment (PPE), including a hard hat, eye protection, long-sleeve shirt, long pants, and gloves. Have workers wear non-slip shoes with stiff soles when using orchard ladders.
- Avoid reaching too high above your head or too far to the side while standing on an orchard ladder. Climb to a higher step or move the ladder closer to the tree fruit if you are beginning to reach above your head or lean out past the ladder rails.
- Position the straps of the fruit sack or bucket to evenly distribute the weight of the picked crop and maintain a stable posture on the orchard ladder. Do not overfill the container.
- Carefully remove fruit from the tree to prevent being poked by branches or hit by rebounding branches.
- Do not let anyone else climb or stand on the ladder while you are on it.
- Keep both feet on the ladder at all times while pruning or harvesting.
- Never sit on the ladder and do not stand on the top three steps.
- Do not step off a ladder onto tree branches.
- Never use single rail ladders.

Working safely with straight orchard ladders

To work safely with straight orchard ladders, you need to follow the general safe practices for orchard ladders given above and take these additional precautions specific to straight orchard ladders:

- When positioning a straight orchard ladder against a tree trunk, the top of the ladder should be placed firmly against it so that the ladder steps are level.
- When leaning against a strong branch on mature trees, the back of a straight orchard ladder should face toward the tree center, allowing for additional support in case a worker slips.
- Straight orchard ladders are not stable on sloped or uneven ground. Therefore, make sure that you always position these types of ladders facing the slope, uphill or downhill.

Working safely with tripod orchard ladders

To work safely with tripod orchard ladders, you need to follow the general safe practices for orchard ladders given above and take the following additional precautions:

- Never lean a tripod orchard ladder on tree branches for support.
- Place the side rails firmly in the soil, making sure there are no rocks or debris that would make the ladder unstable. The tripod leg should also sink slightly into the soil.
- When positioning a tripod orchard ladder, the steps should be level and the tripod leg should extend straight from the centerline of the ladder.
- Place the tripod leg on level ground as much as possible.
- On sloping ground, position the tripod leg of the ladder up the slope from the side rails. When a cross slope position is needed, the tripod leg should be slightly down slope from the center for increased stability.
- When moving a ladder, pick it up and move it. Do not stay on the ladder to try to walk the ladder. Secure the tripod leg into the notch and handle it carefully to prevent it from swinging.

Working Safely in Confined Spaces

Agricultural workplaces, including dairies and grain handling facilities, have a variety of different confined spaces. Workers often have to enter confined spaces to clean, move product, or do other work. If safety precautions are not taken, fatal or serious injuries will be likely. Emergency response procedures are important because workers can also become injured when they see or respond to a confined space incident or try to rescue a coworker.

Agricultural operations where employees are exposed to confined spaces must follow the requirements of T8CCR **5158**.



What is a confined space in agriculture?

A confined space is defined in T8CCR section 5158 as any space that meets both of the following conditions:

- The space has poor ventilation which may lead to the existence or development of dangerous air contamination, too little oxygen, or too much oxygen. Dangerous air contamination may be due to flammable and/or explosive, toxic, or otherwise injurious or incapacitating substances in the air that could cause death, injury, acute illness, or disablement.
- Access to the space to remove a suddenly disabled employee is difficult due to the location and/or size of the openings.

More confined space regulations

- Employers may satisfy all of the requirements of section 5158 by implementing a confined space program in accordance with section **5157**.

- Employers operating grain handling facilities (including grain elevators; outdoor flat storage and flat storage structures; feed, flour, and rice mills; dust pelletizing plants; dry corn mills; soybean flaking operations; and the dry grinding operations of soy cake) must comply with the requirements of section 5178 in addition to section 5158.
- Other employers involved in maintenance operations in confined spaces who fall under the general industry safety order must comply with requirements of section 5157.

Examples of confined spaces at a farm include:

- Grain and feed bins
- Manure pits
- Pumping stations
- Silos
- Grain storage rooms
- Sumps
- Bulk tanks (milk, fermentation, chemicals, fertilizer, etc.)
- Water pipes
- Water reservoirs
- Well shafts
- Other enclosed or partly enclosed structures that can kill a person with materials, gases or vapors, dust, or oxygen- deficient or enriched environments

What fatal mistakes do workers make when entering confined spaces?

- Fail to recognize the hazards.
- Do not implement safe work practices that address all of the hazards.
- Do not implement appropriate emergency response procedures.
- Become complacent as the threat may not have been apparent on previous occasions.

What are some of the hazards of confined spaces in agricultural field operations?

- Insufficient oxygen and/or the presence of hazardous gases in confined spaces such as manure pits and silos can quickly kill the entrant or an untrained person attempting a rescue. It is important to know that when pits are agitated, even more deadly gas can be suddenly released.
- Water or other materials contained in or flowing into the space, such as grain, flour, fertilizer, or sugar can drown, engulf, and asphyxiate the entrant.
- Sufficient airborne or accumulated dust, such as grain dust on floors and other exposed surfaces, that comes in contact with an ignition source can burn or explode, causing catastrophic accidents with loss of life and property.
- Working in grain bins filled with dust without adequate respiratory protection increases the chances of developing respiratory diseases, such as Farmer's Lung.
- Sloping floors, converging walls, or piping and other obstacles can trap a person inside the space.
- Energy sources from mechanical, electrical, hydraulic, or pneumatic equipment, steam, or heat can cause serious injuries and death.
- Work or tools, such as welding, inside a previously safe confined space can create new toxic or explosive environments that can lead to serious accidents.



Warning

Two-thirds of all confined space fatalities occur among would-be rescuers who were improperly trained or equipped.

What should you do if you have confined spaces in your workplace?

- Identify and label all the confined spaces.
- If possible, have employees perform the work from outside the confined space. If necessary, prevent employees from entering the space by:
 - Moving the system or equipment to a new location that is not a confined space.
 - Modifying an existing system by relocating serviceable parts so that they can be serviced from the outside.
- If employees must enter the confined space, establish and train employees on written work and rescue procedures before the employees are allowed to work inside the space.
- Provide all necessary equipment and tools for entry, including air testing and monitoring devices and ventilation, personal protective, and rescue equipment.
- Train all employees prior to entry on:
 - Hazards of working in confined spaces, including refresher training and opportunities for workers to ask questions if necessary.
 - Safe work procedures employees are to follow to effectively perform duties as an entrant, attendant, additional standby employee, supervisor, or rescuer.
 - Being constantly alert for any changing conditions within the confined space.
 - Effective hazard control including the importance of:
 - Testing the atmosphere in confined spaces and providing sufficient ventilation.
 - Using intrinsically safe (will not cause a spark) tools and lighting if a potentially flammable/explosive atmosphere could develop.
 - Addressing all safety hazards within the space ahead of time.
- Ensure that:
 - All pre-entry preparations are completed.
 - Specific work requirements are strictly

followed.

- The space remains safe during the entire duration of the entry.

Requirements and best practices

The following list highlights the regulatory requirements and safe work practices for working in confined spaces:

- Pre-entry procedures include the following:
 - Blind or block off lines that may bring hazardous gases or substances into the space.
 - Flush the space of any existing flammable or hazardous substances and ventilate the space to get rid of any hazardous atmosphere.
 - Assess the risks in the space prior to and frequently during each entry, including atmospheric testing and monitoring.
 - Determine the controls and PPE necessary for safe entry into and work inside the confined space.
- Controls and operating procedures may include the following, depending on circumstances:
 - Continue to ventilate the oxygen-deficient or contaminated atmosphere with clean, fresh air and test the atmosphere in the space for the entire duration of the entry.
 - Use respiratory protection if ventilation

Ventilating and testing the atmosphere in the confined space.



cannot control all atmospheric hazards or if unsafe conditions are likely to return.

- Lock or block out all equipment and energy sources to prevent equipment from starting up unintentionally or accidentally releasing energy.
- Use a dust control program, including hazardous dust inspection, and appropriate housekeeping, to minimize accumulation of dust and the potential for explosion.
- Control all potential ignition sources, such as smoking, sparks, static electricity, mechanical friction, and use special electrical equipment that will not cause sparks.
- Ensure that equipment used for air testing/monitoring is properly calibrated before each use and that employees operate and maintain these devices according to manufacturer's recommendations.
- Ensure that if the confined space may contain or develop an explosive atmosphere, the air testing/monitoring equipment is approved for use in such atmospheres (intrinsically safe).
- Have effective rescue procedures in place, including having employees who enter the space wear a safety belt with a line that is attached to a mechanical rescue device, such as a tripod and winch.
- Prepare for emergencies, including training at least one employee in first aid and CPR and ensuring effective communication between the employees inside the confined space and the standby employee outside whenever employees have to wear respiratory protection in the confined space.
- Continue to review the confined space program regularly and update it as needed.

Lighting and More

Harvest is an extremely busy time when many work activities are done at once and with greater pressure to complete tasks within a limited period of time. Work may continue nonstop, 24 hours a day, 7 days a week. Night work is also used to protect employees and produce from daytime heat.

This means that the employer must supply lighting so employees can see at night and during twilight and early dawn hours.

“Bad lighting,” whether too dim, too bright, too much glare, improperly placed lights, etc., contributes to unsafe conditions because it prevents employees from seeing safety hazards. Poor lighting has also been associated with high rates of human error, reduced mental alertness, and lower productivity.

Appropriate lighting makes tasks easier to accomplish and increases productivity. It is important to know that over 85% of the information workers get comes through what they see, and when lighting is inappropriate, they may process that information incorrectly. Therefore, employers who have workers on duty in the evening, at night, in some rotating or otherwise irregular schedule, and in places where there is poor lighting must learn about the additional risks involved and must implement appropriate controls to help eliminate or reduce these risks.

Dangers of bad lighting

Some of the dangers faced by employees who work with inappropriate lighting include the following:

- **Health hazards.** Workers are forced to strain their eyes, causing eye fatigue and irritation as well as dry or burning eyes, blurred vision, and headaches.
- **Poor body posture.** Workers assume awkward body postures to be able to see the work more clearly. Maintaining awkward positions for long periods of time can lead to discomfort, pain, and eventually

musculoskeletal disorders.

- **Poor visibility.** Low visibility can lead to trips, slips, falls, or being struck by or bumping into objects, which may lead to cuts, punctures, and other injuries. Low visibility may also lead workers—whether working on foot or operating equipment—to misjudge the shape of an object, its position, or the speed at which an object or a vehicle (such as a harvester or tractor) is moving. This could cause employees to accidentally strike other employees or cause other accidents, potentially with life-threatening consequences.
- **Accumulated condensation** (due to cooler nighttime temperatures). Condensation causes surfaces to become more slippery. Activities such as climbing, mounting, and dismounting equipment become riskier at night when the weather is cooler.
- **Deficient work quality.** When precision work is required, such as when performing emergency repairs of machinery, bad visibility can cause inaccuracy, which can lead to other hazards.
- **Fatigue and drowsiness.** Poor lighting conditions may increase worker fatigue, which correlates with reduced safety, health, and productivity:
 - Fatigue may carry over from day to day and build up over time.
 - Drowsiness can be dangerous as well, since it takes more effort to stay awake and perform work when one is drowsy.
- **Stress.** Rotating work schedules can become a source of stress for workers, as they often have a hard time adjusting to constantly changing work shifts.

What can employers do to make work safer?

- Have experienced and knowledgeable foremen/supervisors oversee and guide the activities of the crew.
- Check the local weather forecast and prepare ahead of time for any potential weather problems that may interfere with the lighting (fog, for example).



- Check lights before the start of the shift to ensure that they are all working properly. Have replacement bulbs available in case lights go out during the shift.
- Be sure that all tractors or self-propelled farm equipment used between an hour after sunset to an hour before sunrise are equipped with at least one headlight that will illuminate the area in front of the equipment at least 50 feet. There must be at least one rear light to illuminate equipment at the rear.
- Make sure that at the beginning of each shift, foremen/supervisors communicate clearly with employees the scope of the work, where facilities and known hazards are located, and answer any questions employees may have.
- Provide additional lighting for operations or equipment that require field adjustment or the operator's close attention. Position lighting and move it, if necessary, so there is good visibility for employees to be able to do the work safely.
- Perform routine maintenance of machinery and other farm equipment per manufacturer's instructions to help reduce the chances of breakdown during conditions of low visibility.
- Make sure that all employees who work in conditions of low visibility, especially those who operate field equipment, are trained on safe work practices, including procedures for the safe operation of machinery and other equipment.
- Provide employees with fluorescent high-visibility vests, and encourage employees to

wear light-colored clothing.

- Provide personal hand-held or body- or head-mounted lighting when appropriate.
- Use a buddy system for night shifts because it increases both safety and security for employees. Where employees work alone, provide communication devices, such as cell phones and radios, or ensure that employees check in periodically.
- To combat fatigue and drowsiness, train employees on the importance of getting enough sleep during the day so that they can work at night. Provide periodic rest breaks. Several short breaks are better than fewer longer breaks for jobs requiring heavy physical labor.
- Identify hazards that are worse in conditions of low visibility such as open ditches, nearby bodies of water, unstable or uneven surfaces, or exposure to pests. Make workers aware of these conditions and provide warnings through reflectors or additional lighting.

Slips, Trips, and Falls

Slips, trips, and falls are the most common causes of injury in agricultural work. Injuries range from minor bruises to deaths. Slips happen when there is too little friction or traction between the footwear and the walking surface. Trips occur when the foot hits an object, causing loss of balance and then a fall. There are many reasons for slips, trips, and falls. Here are some of the common ones:

- Workers not being adequately trained on safety precautions, such as the proper use of orchard ladders.
- Using wrong-sized or defective footwear, clothing, or personal protective equipment.
- Not taking enough precautions on slippery or uneven ground or with equipment, vehicles, and machinery.
- Not taking enough precautions while walking or working on unstable surfaces, such as loose gravel, straw, grass, and wet surfaces within animal pens and corrals.
- Not keeping work areas organized and free of

slip, trip, and fall hazards.

- Not taking enough precautions when climbing off of or onto equipment or over obstacles such as small ditches and fallen tree limbs.
- Not working under proper lighting conditions (also see “Lighting and More” on page 34).

Employers can help prevent injuries from slip, trip, and fall hazards by conducting periodic inspections of the agricultural fields and work areas, facilities, farm machinery, and equipment to identify and correct such hazards; having employees wear appropriate footwear; and taking other safety precautions.

Injuries can be prevented if employees follow Cal/OSHA regulations and use safe work practices, including the following:

- Remove clutter and obstructions in work areas. Do not store items on the ground where someone could trip over them.
- Report hazardous work areas or conditions to the supervisor/employer.
- Wear closed-toe shoes with slip-resistant soles and low heels. Do not wear leather soles, open-toe, platform, high-heeled, or canvas shoes.
- Do not walk too quickly or run. Walking too quickly or running makes you less stable, especially when you are carrying a load. This reduced stability increases the chance for slips, trips, and falls.
- Always work with appropriate lighting.
- Watch out for unanticipated obstacles such as containers, harvest bins, carts, and boxes, especially if you are carrying a load.
- Do not carry items too tall or wide for you to see over or around.
- Do not overfill harvest bins and other work containers because items may fall out and cause a trip hazard.
- Do not wear clothing that is over-sized, baggy, or extends below shoe level, causing a potential trip hazard.
- Whenever possible, plan walking routes to avoid wet surfaces or surfaces covered with loose materials or obstacles, such as waste baskets, branches, rocks, tools, and



equipment.

- Look carefully where you will be stepping when exiting a tractor, vehicle, or other farm machinery. Use handholds as provided, and carefully place your feet onto steps or footholds when stepping off of or onto the equipment.
- When walking across uneven surfaces such as fields, look out for holes, furrows, large dirt clods, or other ground obstacles that could cause a trip hazard.
- When working on an orchard ladder, keep both feet on the ladder at all times and avoid reaching too high above your head or too far to the sides. Keep rungs and steps of the orchard ladder free of slippery materials. Be extra cautious on the ladders used in pits, sumps, or other sunken locations because they have a greater chance of being slippery. When climbing or descending the ladder, maintain three points of contact.
- Never jump from an elevated area. Carefully climb up to or down from elevated areas using handholds and footholds. When getting off the bed of a truck or wagon or any similar level, face the vehicle, step down backward, and never jump or fall down forward.
- Keep the steps of tractors, machinery, wagons, trailers, and truck beds clean and dry. Metal steps are naturally slick, and they become even more slippery if they are wet, muddy, or oily.
- Unless the operation requires riders, such as



on certain planting and harvesting equipment where seats or protected work areas are provided, extra riders must never be permitted on agricultural equipment. Death or serious injury can result when riders fall off tractors, equipment, or truck beds.


Providing First-Aid and Medical Services

An important part of providing a safe workplace is being prepared for accidents and emergencies. Employers are required to develop and implement an effective emergency medical response plan that includes appropriate first aid and when to call emergency medical services. When planning, consider information such as the total number of workers, the size and location of the farm, and the distance from the field to the nearest emergency medical provider.

Agricultural field operations in remote areas are required to have at least one worker trained in first aid, but ensuring someone is first aid-trained at all work sites benefits all workers. Immediate first aid can help save lives, reduce the pain of an injured worker, and allow the worker to recover more quickly.

Important tips

Important tips for your emergency medical response plan include the following:

- Establish an emergency medical response procedure that delivers a rapid response and is appropriate for your operation and job site.
 - Prearrange with medical treatment facilities or other locations where emergency medical services will be provided, and train all employees on the locations of the facilities and how to call for emergency medical assistance.
 - Train and encourage farm workers to call for help and report work-related injuries and illnesses to crew leaders/foremen/ supervisors so medical assistance can be provided.
 - When working at remote locations, have at least one employee trained in emergency first aid for every 20 employees at the location.
 - Provide first aid kits containing all the supplies that may be needed to treat all injuries that may potentially occur in your agricultural operation.
 - Frequently inspect and replenish all first aid materials, and make sure they are readily accessible to all workers, including those employees working in remote areas, by placing them at the farm headquarters or on worker transportation buses or both.
 - If workers are widely scattered in small crews supervised by a traveling foreman, have a first aid kit in the foreman's car or vehicle.
 - Keep first aid materials in a sanitary and usable condition.
 - Make effective provisions in advance for prompt medical attention in case of serious injuries at remote locations. This may be accomplished by:
 - On-the-site facilities.
 - Proper equipment for prompt transportation of the injured person to a physician.
 - A communication system for contacting a doctor.
 - A combination of these options that will avoid unnecessary delay in treatment.
 - Instruct all personnel on the location of the first aid kits (e.g., on tractors, transportation buses, supervisors' trucks, shade or cool-down areas).
- 
- Make emergency eyewashes and showers available at the work site in case of exposure to corrosive or severely irritating chemicals.
 - Provide a rest area for employees who become sick at work.
 - Designate a person to remain with injured workers so they are not left alone.
 - Train a person to be the emergency coordinator to call local ambulance services, hospitals, clinics, or medical centers. This person must be able to speak English because language barriers could cause misunderstandings or delays. Employees involved must be able to direct emergency services to the location of the injured or ill employee.
 - For employees working in a remote location, designate one of the workers to meet the ambulance and direct it to the location of the victim.
 - Only use mobile telephones, radios, or other means of communication that provide reliable service even in isolated areas.
 - Make all emergency telephone numbers readily accessible to employees.
 - Train all personnel, including seasonal/ temporary workers, on your emergency medical response procedures and provide practical refreshers so that everyone knows what to do in case of an accident or sudden illness (e.g., who to report to, the location of first aid kits).

Workplace Violence

Workplace violence is a leading cause of workplace fatalities, including in agricultural operations. Workplace violence incidents may be committed by employees, supervisors, customers, people who have no legitimate reason for being at the worksite, or people who have or used to have a personal relationship with an employee.

Employers are required to establish, implement, and maintain an effective written workplace violence prevention plan to reduce the risk of workplace violence. The plan must be specific to the hazards and corrective measures for each work area and operation. Employers must cover work areas and any employer-provided housing under their plan. They must also make the plan available to employees and their authorized representatives at all times.

The written plan needs to include the following:

- The names of persons responsible for its implementation.
- Effective procedures for employee involvement in developing and implementing the plan.
- Methods to coordinate implementation of the plan with other employers, when applicable.
- Procedures for employers to take and respond to reports of workplace violence, while ensuring no retaliation against the reporting employee.
- Procedures to ensure compliance from employees, including supervisors.
- Procedures to communicate with employees regarding workplace violence matters, including:
 - How an employee can report a violent incident or threat to the employer or law enforcement.
 - How their report will be investigated.
 - How they will be informed of the corrective action the employer takes.
- Emergency response procedures, including:
 - Methods to alert employees of an emergency.
 - Evacuation or sheltering plans.
 - How employees can seek help.
- Training.
- Procedures to identify and evaluate workplace violence hazards that include inspections with the following frequency:
 - When the plan is first set up.
 - Periodically scheduled.
 - After violent incidents.
 - Whenever a new hazard becomes known.
- Procedures to timely correct workplace violence hazards identified and evaluated.
- Procedures for post-incident response and investigation.
- Procedures that allow for plan review:
 - Annually.
 - When a deficiency is observed or becomes apparent.
 - After a workplace violence incident.
- Any other procedure necessary for employee health and safety as required by Cal/OSHA and the Standards Board.

Employers are also required to keep a Violence Incident Log for workplace violence incidents, including incidents that did not result in injury. This log must include information on every workplace violence incident, based on employee statements, witness statements, and investigation findings. It must not include any personal identifying information of anyone involved in a violent incident.

Incident information must include:

- Incident date, time, location.
- Workplace violence "Type" (1, 2, 3, and/or 4).
- Detailed description of the incident.
- Classification of who committed the violence.
- The circumstances at the time of the incident.
- Where the incident occurred.
- Specific incident characteristics, such as physical attacks, weapon involvement, threats, sexual assault or threat, animal incidents, or other events.
- What the consequences of the incident were, including any law enforcement involvement.
- Steps that were taken to protect employees from further threats or hazards.

- Who completed the log, including their name, job title, and the date completed.

A workplace violence prevention plan cannot be effective if it does not include participation by and training of employees, who will often be aware of incidents first. Therefore, employers must allow employees to report workplace violence incidents without retaliation. They must also train employees on the following:

- Familiarizing employees with the employer's workplace violence prevention plan, how to obtain a copy at no cost, and how to participate in the development and implementation of the plan.
- The definitions and requirements of Labor Code section [6401.9](#), which requires employers to implement the workplace violence prevention plan, including this training.
- How to report workplace violence incidents without fear of retaliation.
- Understanding of job-specific violence hazards and preventive measures, including how to seek help to prevent or respond to violence and how to avoid physical harm.
- The violent incident log and how to obtain records of:
 - Workplace violence hazard identification, evaluation, and correction.
 - Training.
 - Violent incident logs.
- Opportunities for interactive discussions with someone knowledgeable about the employer's plan.

Training must be provided in a language and vocabulary level employees can understand, with the following frequency:

- Initially when the plan is first established.
- Annually.
- Whenever new or previously unidentified workplace hazards are discovered or changes are made to the plan.

Employee Training Topics

Employers need to provide training to their employees on how to perform their job safely. Training should focus on hazard recognition and exposure prevention in addition to Cal/OSHA regulations, manufacturers' instructions, and best safety practices. In agricultural field operations, there are many hazards and many topics for employee training. Below is a list of the most common training areas and the key topics to cover.

Injury and Illness Prevention Program (IIPP)

- Provide safety training and instruction to all new employees and employees recently reassigned to the job.
- Provide training whenever there are changes to the workplace that introduce a new hazard and whenever you are made aware of a new or previously unrecognized hazard.
- Train supervisors on the safety and health hazards most common in their areas.



Heat Illness Prevention

Employee training

Training in the following areas needs to be provided to employees who are at risk of heat illness:

- The environmental risk factors, such as air temperature, relative humidity, air movement, and radiant heat.
- Personal risk factors such as an employee's age, degree of acclimatization, health, and consumption of water, alcohol, and caffeine.
- Added burden of heat load on the body caused by exertion, clothing, and personal protective equipment (PPE).
- The importance of water, shade, cool-down rests, and acclimatization, and the employer's procedures for providing these to the employees.
- Signs and symptoms of heat illness.
- The importance and method of reporting any signs or symptoms of heat illness in themselves or in co-workers to a supervisor.
- Employers' procedures for responding to symptoms of possible heat illness, including procedures for first aid, contacting emergency medical services, and transporting employees to a location they can be reached by emergency responders.
- Employer's procedures for ensuring that in an emergency, employees will be able to provide clear and precise directions to the worksite.
- Employer's high-heat procedures (outdoor

work) or control measures (indoor work).

Supervisor training

In addition to the training requirements for employees described above, supervisors need to be trained on the following:

- The procedures to follow when an employee exhibits symptoms of heat illness.
- How to monitor weather reports.
- How to respond to hot weather advisories.
- Their duties in providing water, shade or cool-down areas, communication, etc., to employees.

Hazard Communication (chemical awareness)

Train employees on hazardous chemicals in their work area and provide additional training whenever a new chemical hazard is introduced. The training must include:

- The type of hazardous chemicals present at the work site.
- The location and availability of the employer's written hazard communication program.
- The chemical labeling system.
- The information on and location of safety data sheets.
- How to detect the presence or release of hazardous chemicals in the work area.
- Physical and health hazards of the chemicals in the work area.
- The measures employees can take to protect themselves from the chemical hazards in their work area, such as proper work practices, emergency procedures, and PPE.

Personal Protective Equipment (PPE)

All employers must evaluate the hazards at their workplace and select the appropriate PPE to protect their employees. The employer must then provide training to each employee required to use the selected PPE. The training needs to cover topics such as what PPE to use; when



to use it; how to use it properly; any limitations that the PPE may have; and the proper care, maintenance, useful life, and disposal of the PPE.

First-aid and CPR

- At any remote location, employers need to make sure at least 1 employee for every 20 employees has training in emergency first aid.
- For entry into and work within confined spaces, at least one person trained in first aid and CPR must be immediately available whenever the use of respiratory protective equipment is required.
- Employees who perform tree work need to be provided with training in first aid and CPR, as required by T8CCR [3421\(m\)](#).

Emergency Action and Fire Prevention Plans

Train employees on the employer's emergency action plan and fire prevention plan. Employers may provide this training to all employees or only to those who are exposed to hazards and those who carry out emergency and fire prevention responsibilities.

Farm Machinery and Equipment, Forklifts, Tractors, and Aerial Devices

Train employees who operate farm equipment, such as forklifts, tractors, and aerial devices, on how to work with the equipment safely. Ensure that the training meets all the relevant training requirements in title 8 and aligns with the manufacturer's instructions.

Employees will also need training on safety features, load capacity, controls/instrumentation, and other specifics of the equipment. Also, provide training on all possible environmental hazards that could arise while driving and using the equipment. In addition, the training should be specific to the type of work performed and the hazards of that work.

Ladders

Before an employee uses a portable ladder, employers need to provide training to the employee and the employee's supervisor on the safe use of ladders. Include the following topics in the training: best practices for the selection, inspection, use, care, and maintenance of ladders, as well as factors contributing to falls from ladders, such as the prohibited uses of ladders.

Grain Handling Facility

Train employees who work in a grain handling facility, such as grain elevators, feed mills, flour mills, and rice mills, on general safety precautions, including the recognition and prevention of hazards related to dust accumulations and ignition sources. Employees must also receive instruction on job-specific procedures and safety practices related to tasks such as cleaning equipment and clearing jams. Employees who perform specialized tasks such as grain bin entry require additional training.

Confined Spaces

- Train employees on operating and rescue procedures, including how to deal with the hazards they may encounter inside the confined space.
- Training needs to be provided ahead of time to each affected employee and must be documented.

Lockout/Blockout/Tagout

Identify all energy sources that require lockout/blockout/tagout procedures, including electrical circuits, hydraulic and pneumatic systems, and spring energy. Then train employees who work with these systems on proper lockout/blockout/tagout procedures.

Also train employees on the hazards related to performing activities required for cleaning, repairing, servicing, setting up, and adjusting prime movers, machinery, and equipment.

Retrain employees and train contractors as needed:

- Employees reassigned to different equipment must be retrained.
- Contractors must ensure that their employees understand and follow the employer's lockout/tagout procedures as required.

Field Sanitation

Train your employees on the importance of good hygiene practices, including the importance of drinking enough water, handwashing, and proper sanitation.

Tree Work and Tree Removal

Employees need to be trained on tree work safety including:

- Hazard identification and preventive measures related to the specific job, such as fall hazards, high-voltage power line hazards, poisonous plants, harmful animals, harmful pesticides, and fertilizer applications.
- Proper and safe use of all equipment, including aerial devices, ladders, chain saws, chippers, and PPE.

Fall Protection for Date Palm Operations

If employees work on date palm trees, train them on the hazards they may encounter and safe work procedures, including safe and proper use of ladders, elevating work platforms, aerial devices, and fall protection, as applicable.

Workplace Violence Prevention

Train employees when the plan is established and annually on the following:

- Your workplace violence prevention plan, how to obtain a copy, and how to participate in developing the plan and putting it into action.
- Definitions and requirements of Labor Code section **6401.9**.
- How to report workplace violence incidents without fear of retaliation.
- Job-specific violence hazards and preventive and corrective measures taken by the employer, including how to seek assistance to prevent or respond to violence, and how to avoid physical harm.
- Use of the violent incident log and how to obtain related records.

Training must include opportunities for interactive discussions with someone knowledgeable about the employer's plan. Provide additional training when new or previously unrecognized hazards are discovered or if changes are made to the plan.

The topics and contents for the topics above are not all-inclusive. Employers need to provide training to their employees on other topics and contents as needed for the job performed. Go to [title 8 California Code of Regulations](#) to see all of the Cal/OSHA requirements for each topic.

Using a Field Checklist

Employers can use a field checklist to help evaluate safety and health in the workplace. The following Sample Field Checklist is provided as an example. However, it does not cover all the Cal/OSHA requirements and safe work practices. Employers will need to develop their own checklist that reflects their actual operations and lists their requirements and safe work practices.

Sample Field Checklist

| Section | Yes | No | Comments |
|---|-----|----|--|
| Drinking Water <ul style="list-style-type: none"> • Potable • Cool • Single-use cups • Located as close as practicable at all times • Sufficient quantity and/or replenishment procedures | | | Note: 1) May need to measure water temperature. 2) May need to move water as the crew moves. 3) Refer to section 3395 for additional requirements. |
| Toilets <ul style="list-style-type: none"> • Separate (male/female) • Located within ¼-mile distance and less than 5 minutes away • Sanitary • Toilet paper provided • Locks • Correct number of toilets for male employees • Correct number of toilets for female employees • Toilets have vents with screens | | | Note: Separate toilet facilities for each sex shall be provided for each 20 employees or fraction thereof. |
| Handwashing Facilities <ul style="list-style-type: none"> • Provided close to toilet facilities • Potable water 15-gallon minimum • Soap • Hand towels • Sanitary • Signage (i.e., “hand washing only”) | | | |

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| Section | Yes | No | Comments |
|--|-----|----|--|
| Medical Aid <ul style="list-style-type: none"> First-aid kit replenished and available Plan for prompt medical attention in remote areas | | | Note: In remote locations, one employee should be trained in first-aid for every 20 employees. |
| Evaluate Workplace for Potential Hazards, Including Past Injuries and Illnesses <ul style="list-style-type: none"> Pesticides use Wildfire smoke Dermatitis Lacerations Repeated motion injury (RMI) Strains and sprains Slips, trips, and falls Others (e.g., sunburn, low back injuries) | | | |
| Heat Illness Prevention <ul style="list-style-type: none"> Training for all outdoor employees and employees who work indoors in areas where it may reach 82 degrees F Water available Shade (outdoors) or cool-down areas (indoors) available Written acclimatization procedures Written emergency response procedures Written high-heat procedures (outdoors) Written procedures to evaluate environmental risk factors and use controls when needed to decrease the temperature or employee exposure to heat (indoors) Employees encouraged to take suitably frequent preventative cool-down rest periods | | | Note: Measure work site temperature with an adequate thermometer. For indoor work, also measure heat index or relative humidity and determine the heat index. |

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| Section | Yes | No | Comments |
|---|-----|----|--|
| Agricultural Equipment <ul style="list-style-type: none"> • Power-Take-Offs (PTOs) <ul style="list-style-type: none"> ◦ PTO shaft and drive line guarded • Fenders or 64-inch distance between centerlines of driving wheels • Positive brake-locking • Signs in place • Guards in place, such as on gears, belts, chains, and revolving shafts • Shields, doors in place • Readily visible or audible warning of rotating parts • Tractors <ul style="list-style-type: none"> ◦ Guarding ◦ ROPS ◦ Seat belts • Forklifts <ul style="list-style-type: none"> ◦ Load capacity ◦ Warning devices ◦ Poster ◦ Training | | | Note: Will need to know the make, model, and any modifications. |
| Handheld Tools <ul style="list-style-type: none"> • In good condition • Short-handled tools NOT used for weeding, thinning, and hot-capping • Long-handled tools NOT used as short-handled tools | | | |
| Health and Safety Programs <ul style="list-style-type: none"> • Written Injury and Illness Prevention Program (IIPP) • Written Hazard Communication Program for chemical safety • Records for injuries and illnesses (Log 300) maintained • Safety training provided and documented | | | |
| Communication <ul style="list-style-type: none"> • Training and instruction given in a language employees understand | | | |

Applicable California Code of Regulations

Title 8 (T8CCR) Standards

There are many safety and health regulations in title 8 that apply to agricultural field operations. For complete scope, specifications, expectations, and requirements of the regulations, employers should refer directly to the applicable **title 8 sections**. Below are some of the most commonly applied standards:

| Topic | T8CCR Sections |
|---|--|
| Having Effective Injury and Illness Prevention Program (IIPP) | 3203 |
| Preventing Machinery or Tractor-Related Accidents | 3203, 3300-3341, 3425, 3427, 3440-3447, 3641, 3648-3668 |
| Avoiding Field Sanitation Hazards | 3360-3368, 3457 |
| Protecting Workers from Heat Illness | 3203, 3438, 3439, 3457, 3395, 3396 |
| Using Long-Handled Tools and Preventing Prolonged Stoop Labor | 3384, 3437, 3456, 5110 |
| Preventing Skin Injuries | 3203, 3380, 3383, 3384, 3385, 3438, 3439, 3456, 3457 |
| Preventing Electrocution by Contact with High-Voltage Line | 2946, 2947, 2948, 3203, 3455, 3641, 3648 |
| Using Ladders Safely | 1675, 3203, 3270, 3276, 3277, 3458.1 |
| Working Safely in Confined Spaces | 3203, 3220, 3314, 5156, 5157, 5158, 5178 |
| Lighting and More | 3317, 3441, 3449, 3650 |
| Preventing Slips, Trips, and Falls | 3203, 3276 |
| Providing First-Aid and Medical Services | 3421, 3439 |
| Effective Employee Training | 3203, 3220, 3221, 3314, 3380, 3395, 3396, 3400, 3421, 3427, 3438, 3439, 3441, 3456, 3458, 3648, 3650, 3664, 3668, 4640, 5110, 5157, 5158, 5178, 5194, LC 6401.9 |
| Workplace Violence | Labor Code Section 6401.9 |

Most title 8 standards can be found online by typing www.dir.ca.gov/Title8/xxxx.html and replacing “xxxx” with the section number of the desired title 8 standard.

Safety and Health Resources for Agricultural Field Operations

The following websites provide helpful information on various topics related to safety and health in agricultural field operations, including the URLs for links used throughout this guide:

Cal/OSHA

Title 8 regulations

Title 8 Table of Contents:

www.dir.ca.gov/samples/search/query.htm

Electrical Safety Orders:

www.dir.ca.gov/Title8/sub5.html

Section 342. Reporting Serious Injuries and Illnesses:

www.dir.ca.gov/title8/342.html

Section 3203. Injury and Illness Prevention Program:

www.dir.ca.gov/Title8/3203.html

Section 3220. Emergency Action Plan:

www.dir.ca.gov/Title8/3220.html

Section 3221. Fire Prevention Plan:

www.dir.ca.gov/Title8/3221.html

Section 3395. Heat Illness Prevention (Outdoors):

www.dir.ca.gov/Title8/3395.html

Section 3396. Heat Illness Prevention in Indoor Places of Employment:

www.dir.ca.gov/Title8/3396.html

Section 3441. Operation of Agricultural Equipment:

www.dir.ca.gov/title8/3441.html

Section 3456. Handheld Tools:

www.dir.ca.gov/Title8/3456.html

Section 3457. Field Sanitation:

www.dir.ca.gov/title8/3457.html

Section 3648. Operating Instructions (Aerial Devices):

www.dir.ca.gov/title8/3648.html

Section 3651. Agricultural and Industrial Tractors:

www.dir.ca.gov/title8/3651.html

Section 5110. Repetitive Motion Injuries:

www.dir.ca.gov/Title8/5110.html

Section 5144. Respiratory Protection:

www.dir.ca.gov/Title8/5144.html

Sections 5157 and 5158. Confined Space:

www.dir.ca.gov/Title8/sb7g16a108.html

Section 5178. Grain Handling Facilities:

www.dir.ca.gov/Title8/5178.html

Section 5194. Hazard Communication:

www.dir.ca.gov/Title8/5194.html

Webpages

Heat Illness Prevention Website:

www.dir.ca.gov/dosh/heatillnessinfo.html

Heat Illness Prevention etool:

www.dir.ca.gov/dosh/etools/08-006/index.htm

Publications Webpage:

www.dir.ca.gov/dosh/puborder.asp

Wildfire Smoke:

www.dir.ca.gov/dosh/doshreg/Protection-from-Wildfire-Smoke/Wildfire-smoke-emergency-standard.html

Workplace Violence Webpage:

www.dir.ca.gov/dosh/Workplace-Violence.html

Publications

Agricultural-Industrial Tractors:

www.dir.ca.gov/dosh/dosh_publications/s504engpstr.pdf

Operating Rules for Industrial Trucks:

www.dir.ca.gov/dosh/dosh_publications/IndTrucks_Eng.pdf

Controls for Hazardous Energies, Including Lockout/Tagout:

www.dir.ca.gov/dosh/dosh_publications/lockout.pdf

Field Sanitation Factsheet:

www.dir.ca.gov/dosh/dosh_publications/Field-Sanitation-Fact-Sheet.pdf

Model Workplace Violence Prevention Plan for General Industry (Non-Health Care Settings):

www.dir.ca.gov/dosh/dosh_publications/Model-WPV-Plan-General-Industry.docx

Workplace Injury & Illness Prevention Model Program for High Hazard Employers:

www.dir.ca.gov/dosh/dosh_publications/IIPP-Model-high-hazard.doc

Workplace Injury & Illness Prevention Model Program for Employers with Intermittent Workers in Agriculture:

www.dir.ca.gov/dosh/dosh_publications/IIPP-Model-intermittent.doc

Guide to Developing Your Workplace Injury & Illness Prevention Program:

www.dir.ca.gov/dosh/dosh_publications/iipp.pdf

Workplace Violence Prevention in Agricultural Operations Fact Sheet for Employers:

www.dir.ca.gov/dosh/dosh_publications/WPV-Agriculture-for-employers-fs.pdf

Labor Code

Labor Code Section 6401.9:

https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202320240SB553

NIOSH

Agriculture Worker Safety and Health:

www.cdc.gov/niosh/agriculture/about/

Ladder Safety Mobile App (Android and iOS):

www.cdc.gov/niosh/falls/ladder/ladder-safety-app.html

OSHA

Agricultural Safety Website:

www.osha.gov/agricultural-operations

Agriculture Industry Resources:

www.osha.gov/agricultural-operations/resources

References for Orchard Ladder Safety

SAIF Work Life Oregon:

www.saif.com/safety-and-health/topics/prevent-injuries/ladder-safety.html

University of Ohio:

<https://ohioline.osu.edu/factsheet/aex-591710>

Work Safe BC:

www.worksafebc.com/en/health-safety/tools-machinery-equipment/ladders/types/orchard

Other Resources

National Education Center for Agricultural Safety (NECAS):

www.necasag.org/

Weather Forecast (National Weather Service):

www.weather.gov

Western Center for Agricultural Health and Safety - UC Davis:

aghealth.ucdavis.edu/

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Cal/OSHA Consultation Programs

Toll-free Number: 1-800-963-9424

Internet: www.dir.ca.gov

On-site Assistance Program Area Offices



Voluntary Protection Program – Oakland, CA 94612 (510) 622-1081

This guide is available with active links at: www.dir.ca.gov/dosh/PubOrder.asp