



Safety and Health in Agricultural Field Operations



This publication explains the functions of the California Occupational Safety and Health (Cal/OSHA) Program and some common requirements of California law and regulations for workplace safety and health. It is not intended to provide interpretation of the law and regulations. The reader must refer directly to title 8 of the California Code of Regulations and the California Labor Code for detailed information, specifications, and exceptions.

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.

Table of Contents

Topic	Page
Why Safety and Health Are Important	1
How to Provide Safe Working Conditions	1
Having Effective Safety and Health Programs	2
Having an Effective Injury and Illness Prevention Program (IIPP)	2
Following Instructions from the Manufacturers	6
Providing Effective Training	6
Selected Safety and Health Topics	7
Power Take-Off (PTO) Safety	7
Tractor Safety	8
Farm Machinery and Equipment Safety	9
Aerial Device Safety	10
Power and Hand Tool Safety	10
Chain Saw Safety	11
Wood Chipper Safety	11
Avoiding Field Sanitation Hazards	12
Protecting Workers from Heat Illness	13
Using Long-Handled Tools and Preventing Prolonged Stoop Labor	16
Preventing Skin Conditions and Other Injuries	17
Electrocution by Contact with High-Voltage Lines	18
Using Ladders Safely	19
Working Safely in Confined Spaces	21
Lighting and More	23
Preventing Slips, Trips, and Falls	25
Providing First-Aid and Medical Services	26
Employee Training Topics	27
Using a Field Checklist	30
Applicable California Code of Regulations Title 8 (T8CCR) Standards	32
Safety and Health Resources for Agricultural Field Operations	33

This document is not meant to be a substitute for, or 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 detailed information regarding the regulation's requirements, scope, specifications, exceptions, and for other requirements that may be applicable to their operations.

Safety and Health in Agricultural Field Operations

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 stoop labor 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, 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 \(T8CCR\)](http://www.dir.ca.gov/samples/search/query.htm) (www.dir.ca.gov/samples/search/query.htm) 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

[5157 & 5158](#) - Confined Space

[5144](#) - Respiratory Protection

[5178](#) - Grain Handling Facilities

[5194](#) - Hazard Communication

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 protection equipment, are critical elements of an effective safety and health program.

Effective safety and health programs help employers follow all of the related 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 (IIPP)

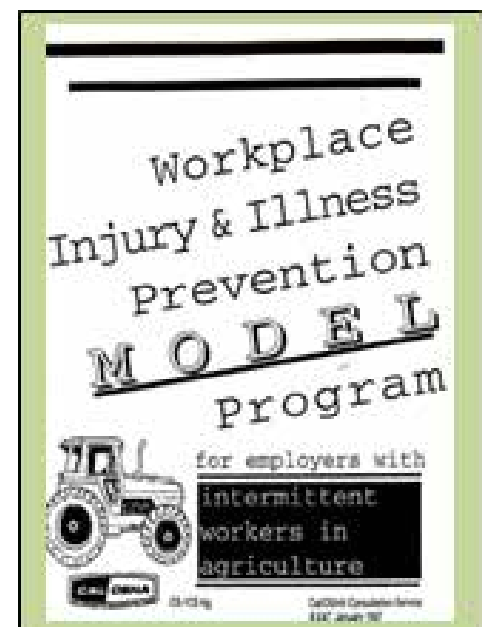
Every employer in California is required to have a written IIPP that includes, among other things:

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 \(www.dir.ca.gov/dosh/PubOrder.asp\)](http://www.dir.ca.gov/dosh/PubOrder.asp) for the IIPP:

- [Workplace Injury & Illness Prevention Model Program for High Hazard Employers](#)
- [Workplace Injury & Illness Prevention Model Program for Employers with Intermittent Workers in Agriculture](#)
- [Guide to Developing Your Workplace Injury & Illness Prevention Program](#)

Cal/OSHA [eTool for IIPP \(www.dir.ca.gov/dosh/etools/09-031/index.htm\)](http://www.dir.ca.gov/dosh/etools/09-031/index.htm)

IIPP Checklist

Do You Have an Effective IIPP?

In order 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:		

Do You Have an Effective IIPP? (Page 2)

Topic	Yes	No
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:		
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 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 (www.dir.ca.gov/title8/342.htm) to Cal/OSHA within 8 hours?		
6. Do you have a system for correcting job hazards and work practices? What is it?		

Do You Have an Effective IIPP? (Page 3)

Topic	Yes	No
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 those 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.

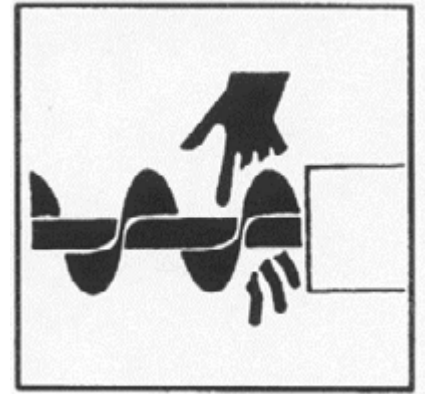
An example of a written warning is "WARNING, HAND ENTANGLEMENT IN AUGER." This instructs users not to place hands in the auger. The picture to the right conveys the same warning.

Failure to following 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.

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.
- Make sure that PTO drivelines are also guarded.
- 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.

Not all Cal/OSHA requirements are addressed for each of the topics. Reference T8CCR for all regulatory requirements.

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

- 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.
- 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, unless they meet one of the exceptions allowed by T8CCR 3651, such as when being operated in a location where vertical clearance is insufficient.
- Display the slow-moving vehicle emblem on equipment driven on public roadways.
- The operator (and riders when appropriate seating is provided) is prohibited from climbing onto or down from the equipment while it is operating or moving.
- 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 T8 CCR 3441(i). These are only a few of the safe practices that must be followed for the safe use of PTCs:
 - o Use of PTCs must be allowed only for employees who are installing, removing, or maintaining irrigation pipe for low-lying row crops.
 - o 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.
 - o The field must be relatively flat. (<5% grade).
 - o PTCs must have seatbelts installed and used.
 - o PTCs must be equipped with a shade cover or roof on the top of the unit.
 - o PTCs may only be mounted on tractors that are equipped with ROPS.
 - o PTCs must be inspected prior to daily use to ensure they are safe and in good repair.
 - o 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 the 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 tractor is stopped, set brakes securely and use park lock if available.

Farm Machinery and Equipment Safety

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.
- 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.
 - 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 permit 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. In order 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.
- Have only authorized persons 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 such 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 defect.
- 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 long hair back or wear 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 provide supervision and ensure that employees read and understand the manufacturer's instruction manual, are given effective training, observe all safety rules, and follow operating instructions.

Hazards

- Mechanical hazards cause serious injuries, such as cuts, broken bones, and death.
- Ergonomic hazards result in musculoskeletal disorders, such as back and shoulder strains.
- Flammable liquids result in 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 hardhats, 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 the 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/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 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 devices 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

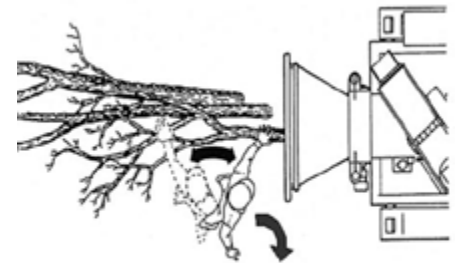
- Chippers’ moving parts can pull in, cut, crush, and amputate hands, feet, etc.
- Missing, unsecured, or damaged guards may expose employees to moving parts and cause injury or death.
- Employees can sustain serious injury if they attempt to unjam the chipper without performing the required lockout of 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 hardhats, 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.

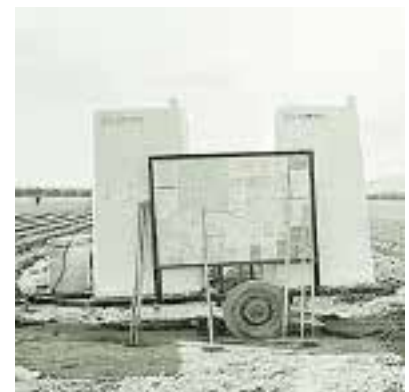


Training topics should include:

- 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:
 - o Being in good physical condition (not being sick/fatigued/impaired by medication or other substances).
 - o Never leaning or standing directly in front of the feed area or placing any part of the body near rotating parts when the chipper is in operation.
 - o Being attentive and concentrating on working safely.
 - o Using 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 potable water for drinking and hand washing, and toilet facilities for their workers in the field. Non-potable water systems or systems carrying any other non-potable substance must be installed so as to prevent 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 be posted in a manner understandable to all employees to indicate that the water is unsafe and must not be



used for drinking, washing, cooking or other personal service purposes.

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 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.**



1. The water level must not be allowed to get too low.
2. A dipper must not be used.

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

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.

Toilet facilities must be:

- Separate for females and males, private, with 1 toilet per 20 employees of each sex (except if fewer than five 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 five- minute walk, whichever is shorter.

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.

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 symptoms will appear in each case of heat illness.

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 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 muscles cramps may occur.

Fainting is caused by a lack of adequate blood supply to the brain. Dehydration and lack of acclimatization to working in warm or hot environments can increase susceptibility to fainting. Victims normally regain consciousness rapidly after they faint.

"HEAT KILLS"

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

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 is a serious health problem and is caused by the body's failure to regulate its core temperature. Sweating stops and the body can no longer release excess heat. **Heat stroke is a medical emergency since victims usually die unless treated promptly.** General symptoms include:

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

How can employers prevent heat illness?

Employers are required by Title 8 CCR section 3395 to take several measures to prevent heat illness in their employees:

- Create a written Heat Illness Prevention Plan (HIPP) that includes:
 - Employer's procedures for providing water and access to shade.
 - High-heat procedures.
 - Emergency response procedures.
 - Methods and procedures for acclimatization (the body's adaptation to being able to work 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. Topics must include:
 - Drinking water more often so the body can sweat and liberate heat.
 - The right to access shade at all times and to take 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.
- Check the [weather forecast](http://www.weather.gov) (www.weather.gov) ahead of time for the area their employees will be working and implement all appropriate precautionary measures.
- Provide supervisors with additional training on:
 - 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.
- Provide all employees information about the work site address or location for the work shift in case they need to inform emergency medical services.

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.

- 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 a means to refill the supply of cool, fresh water.
- Place water containers as close to employees as possible. Ensure water replacement procedures are reliable and do not result in field employees being left without access to water when water containers are being refilled.
- 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.
- Create shade such that there will always be room for all employees wanting to rest in the shade (sitting in normal posture fully in the shade without making contact with one another) or take meal breaks, and for handling emergency situations.
- Locate shade as close to employees as practicable.
- Provide shade that does not expose employees to unsafe or unhealthy conditions and that does not deter or discourage access or use (for example, placing next to a toilet). Have shade in locations either open to the air or provided with ventilation or cooling.
- Be sure to 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 period of time employees must be observed by a supervisor or other employer designee.
- On hot days, monitor 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.
- **During high heat episodes (equal to or exceeds 95°F) 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.
- 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.
- Have a designated person trained in first-aid watch over any employee with possible symptoms of heat illness. **No employee with symptoms should be left unattended or sent home without medical assessment.**



"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.

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.

- Make sure to account for all your employees at the end of your work shift.

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:
 - o The location of the work site (field) where you are working, should you need to direct emergency services to a particular location.
 - o The location of drinking water, shade, and toilet facilities.
 - o To drink water often and not wait until you are thirsty. Avoid alcohol, sodas, and caffeinated drinks because they can increase dehydration.
 - o You are allowed to request access to shade even when temperatures are below 80°F.
 - o You are allowed to take a preventative cool-down rest for at least five minutes whenever you need it to prevent overheating.
 - o The signs and symptoms of heat illness.
 - o The importance of acclimatization and risk factors for heat illness.
 - o Your employer’s emergency procedures, including who is the first aid or designated person to contact in case of emergency.
- 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](http://www.dir.ca.gov/dosh/heatillnessinfo.html) (www.dir.ca.gov/dosh/heatillnessinfo.html)

Cal/OSHA [Heat Illness Prevention eTool](http://www.dir.ca.gov/dosh/etools/08-006/index.htm) (www.dir.ca.gov/dosh/etools/08-006/index.htm)

Heat illness prevention [educational resources](http://www.99calor.org/english.html) (www.99calor.org/english.html)

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 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 hand held tools

- Workers shall 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 shall not perform the aforementioned 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:
 - o Justification to Cal/OSHA should there be an inquiry.
 - o 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-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:
 - o In fields or greenhouses that have been registered as organic.
 - o For high-density plants spaced less than 2" apart.
 - o For all agricultural and horticultural commodities when they are seedlings.
 - o 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.

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

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.

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.
- 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.

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 brim 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.
- Washing clothes with hot water and detergent separately from the family wash helps to clean and avoid cross-contamination.
- Follow the employer's safety and health training, including the use of 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 period of time.
 - Different chemicals may require PPE made of different materials or with different levels of protection.
- Provide ready access to washing facilities 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](http://www.dir.ca.gov/Title8/sub5.html) (www.dir.ca.gov/Title8/sub5.html).

- 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.

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 precautions are taken to avoid any possibility of accidental contact with high-voltage lines.

- Ensure that trees are pruned well before they get close to the power lines. If the overhead lines are in proximity of 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 in proximity to overhead high-voltage lines.

See T8CCR section 2946 for details on clearance requirements.

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.

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

- Inadequate training of workers on ladder safety.
- Improper selection, care, or use of ladders, including incorrect positioning and other unsafe work practices.
- Use of the wrong ladder for a job.
- 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 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.

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

Orchard ladders are designed specifically for use with orchard trees and generally range in size from 5 to 20 feet and 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 for the removal of a suddenly disabled employee is difficult due to the location and/or size of the openings.

- 1. Employers may satisfy all of the requirements of T8CCR 5158 by implementing a confined space program in accordance with section 5157.***
- 2. 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.***
- 3. 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.



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:
 - o Moving the system or equipment to a new location that is not a confined space.
 - o 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:
 - o Hazards of working in confined spaces, including refresher training and opportunities for workers to ask questions if necessary.
 - o Safe work procedures employees are to follow to effectively perform duties as an entrant, attendant, additional standby employee, supervisor, or rescuer.
 - o Being constantly alert for any changing conditions within the confined space.
 - o Effective hazard control including the importance of:
 - Testing the atmosphere in confined spaces and providing sufficient ventilation.
 - Using intrinsically safe tools and lighting if a potentially flammable/explosive atmosphere could develop.
 - Addressing all safety hazards within the space ahead of time.

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

- 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.

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

- Pre-entry procedures include the following:
 - Blinding or blocking off lines that may convey hazardous gases or substances into the space.
 - Flushing the space of any existing flammable or hazardous substances and ventilating the space to get rid of any hazardous atmosphere.
 - Assessing the risks in the space prior to and frequently during each entry, including atmospheric testing and monitoring.
 - Determining 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:
 - Continuing to ventilate the oxygen-deficient or contaminated atmosphere with clean, fresh air and performing atmospheric testing for the entire duration of the entry.
 - Using respiratory protection if ventilation cannot control all atmospheric hazards or if unsafe conditions are likely to return.
 - Locking or blocking out all equipment and energy sources to prevent equipment from starting up unintentionally or accidentally releasing energy.
 - Implementing hazardous dust inspection, appropriate housekeeping, and a dust control program to minimize accumulation of dust and the potential for explosion.
 - Controlling all potential ignition sources, such as smoking, sparks, static electricity, mechanical friction, and the use of special electrical equipment.
 - Ensuring 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.
 - Ensuring 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).
 - Having 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.
 - Taking precautions 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 whenever employees have to wear respiratory protection in the confined space.
 - Continuing 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, seven days a week. Night work is also undertaken 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, overly bright, too much glare, improperly placed lights, etc., creates an additional set of hazards that can negatively impact the health and safety of employees. 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.

Some of the dangers facing 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 in order 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.
- **Physical hazards.** 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.
- **Poor visibility.** This can be a serious safety hazard, as low visibility may 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. In turn, an erroneous visual perception may lead 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.** Under poor lighting conditions, worker fatigue correlates with reduced safety, health, and productivity:
 - o Fatigue may carry over from day to day and build up over time.
 - o 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 be done 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.
- Before starting the shift, make sure that foremen/supervisors communicate clearly with employees the scope of the work 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 as 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. In situations where the 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 in order to work at night. Provide periodic rest breaks. Several short breaks are more beneficial than fewer longer breaks for jobs requiring heavy physical labor.
- Identify hazards that are greater in conditions of low visibility such as open ditches, unstable or uneven surfaces, 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 an eventual 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).

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 comply with Cal/OSHA regulations and use safe work practices, including the following:

- Eliminate 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 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 shall 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 provides benefits for 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 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.
- First aid materials need to be kept 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, at other designated sites).
- 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 the event of an accident or sudden illness (e.g., who to report to, the location of first aid kits).



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:
 - o The environmental risk factors such as air temperature, relative humidity, and wind speed.
 - o Personal risk factors such as an employee's age, degree of acclimatization, and health.
 - o Added burden of heat load on the body caused by exertion, clothing, and personal protective equipment (PPE).
 - o The importance of water, shade, rest, and acclimatization.
 - o Signs and symptoms of heat illness.
 - o The importance and method of reporting any signs or symptoms of heat illness in themselves or in co-workers to a supervisor.
 - o Employers' procedures for responding to symptoms of possible heat illness, including procedures for first aid and contacting emergency medical services.
 - o The employer's high-heat procedures.



- **Supervisor training.** In addition to the training requirements for employees described above, supervisors need to be trained on the following:
 - o The procedures to follow when an employee exhibits symptoms of heat illness.
 - o How to monitor weather reports.
 - o How to respond to hot weather advisories.

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 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, 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.

The topics and contents for the topics above are not all-inclusive. Employers will 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 \(www.dir.ca.gov/samples/search/query.htm\)](http://www.dir.ca.gov/samples/search/query.htm) 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
<p>Drinking Water</p> <ul style="list-style-type: none"> • Potable • Cool • Single use cups • Located as close as practicable • Sufficient quantity and/or replenishment procedures 			<p>Note: 1) May need to measure water temperature. 2) Refer to section 3395 for additional requirements.</p>
<p>Toilets</p> <ul style="list-style-type: none"> • Separate (male/female) • Located within ¼-mile distance and less than five 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 			<p>Note: Separate toilet facilities for each sex shall be provided for each 20 employees or fraction thereof.</p>
<p>Handwashing Facilities</p> <ul style="list-style-type: none"> • Provided close to toilet facilities • Potable water 15-gal minimum • Soap • Hand towels • Sanitary • Signage (i.e., “hand washing only”) 			
<p>Medical Aid</p> <ul style="list-style-type: none"> • First-aid kit replenished and available • Plan for prompt medical attention in remote areas 			<p>Note: In remote locations, one employee should be trained in first-aid for every 20 employees.</p>
<p>Evaluate Workplace for Potential Hazards, Including Past Injuries and Illnesses</p> <ul style="list-style-type: none"> • Pesticides use • Wildfire smoke • Dermatitis • Lacerations • Repeated motion injury (RMI) • Strains and sprains • Others (e.g., sunburn, low back injuries) • Slips, trips, and falls 			

Section	Yes	No	Comments
<p>Heat Illness Prevention</p> <ul style="list-style-type: none"> • Training for all outdoor employees • Water and shade available • Written high-heat procedures • Written emergency response procedures • Employees encouraged to take suitably frequent preventative cool-down rest periods 			<p>Note: Measure work site temperature with an adequate thermometer.</p>
<p>Agricultural Equipment</p> <ul style="list-style-type: none"> • Power-Take-Offs (PTOs) <ul style="list-style-type: none"> o 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"> o Guarding o ROPS o Seat belts • Forklifts <ul style="list-style-type: none"> o Load capacity o Warning devices o Poster o Training 			<p>Note: Will need to know the make, model, and any modifications.</p>
<p>Handheld Tools</p> <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 			
<p>Health and Safety Programs</p> <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 			
<p>Communication</p> <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](#) (www.dir.ca.gov/samples/search/query.htm). 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
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 , 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 , 3400 , 3421 , 3427 , 3438 , 3439 , 3441 , 3456 , 3458 , 3648 , 3650 , 3664 , 3668 , 4640 , 5110 , 5157 , 5158 , 5178 , 5194

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:

Cal/OSHA

- [Publications webpage](http://www.dir.ca.gov/dosh/puborder.asp) (www.dir.ca.gov/dosh/puborder.asp)
- [Field Sanitation Factsheet](http://www.dir.ca.gov/dosh/dosh_publications/sanitation.pdf) (www.dir.ca.gov/dosh/dosh_publications/sanitation.pdf)
- [Heat Illness Prevention Website](http://www.dir.ca.gov/dosh/heatillnessinfo.html) (www.dir.ca.gov/dosh/heatillnessinfo.html)
- [Agricultural-Industrial Tractors](http://www.dir.ca.gov/dosh/dosh_publications/s504engpstr.pdf) (www.dir.ca.gov/dosh/dosh_publications/s504engpstr.pdf)
- [Operating Rules for Industrial Trucks](http://www.dir.ca.gov/dosh/dosh_publications/IndTrucks_Eng.pdf) (www.dir.ca.gov/dosh/dosh_publications/IndTrucks_Eng.pdf)
- [Lockout/Tagout - Methods and Sample Procedures](http://www.dir.ca.gov/dosh/dosh_publications/lockout.pdf) (www.dir.ca.gov/dosh/dosh_publications/lockout.pdf)
- [Field Sanitation Factsheet](http://www.dir.ca.gov/dosh/dosh_publications/sanitation.pdf) (www.dir.ca.gov/dosh/dosh_publications/sanitation.pdf)
- [Wildfire Smoke](http://www.dir.ca.gov/dosh/doshreg/Protection-from-Wildfire-Smoke/Wildfire-smoke-emergency-standard.html) (www.dir.ca.gov/dosh/doshreg/Protection-from-Wildfire-Smoke/Wildfire-smoke-emergency-standard.html)

NIOSH

- [Agricultural Safety Publications](http://www.cdc.gov/niosh/topics/aginjury/pubsGeneral.html) (www.cdc.gov/niosh/topics/aginjury/pubsGeneral.html)
- [Ladder Safety User's Manual \(Android\)](http://www.cdc.gov/niosh/topics/falls/pdfs/Android_Ladder_Safety_Users_Manual.pdf) (www.cdc.gov/niosh/topics/falls/pdfs/Android_Ladder_Safety_Users_Manual.pdf)

OSHA

- [Agricultural Safety Website](http://www.osha.gov/dsg/topics/agriculturaloperations/) (www.osha.gov/dsg/topics/agriculturaloperations/)
- [OSHA Farm Safety Fact Sheet](http://www.osha.gov/OshDoc/data_General_Facts/FarmFactS2.pdf) (www.osha.gov/OshDoc/data_General_Facts/FarmFactS2.pdf)

National Education Center for Agricultural Safety ([NECAS](http://www.necasag.org/)) (www.necasag.org/)

Western Center for Agricultural Health and Safety - [UC Davis](http://aghealth.ucdavis.edu/) (aghealth.ucdavis.edu/)

References for Orchard Ladder Safety

- [University of Ohio](http://ohioline.osu.edu/atts/PDF-English/Orchard-Ladder.pdf) (ohioline.osu.edu/atts/PDF-English/Orchard-Ladder.pdf)
- [SAIF Work Life Oregon](http://www.saif.com/safety-and-health/topics/prevent-injuries/ladder-safety.html) (www.saif.com/safety-and-health/topics/prevent-injuries/ladder-safety.html)
- [Work Safe BC](http://www.worksafebc.com/en/health-safety/tools-machinery-equipment/ladders/types/orchard) (www.worksafebc.com/en/health-safety/tools-machinery-equipment/ladders/types/orchard)

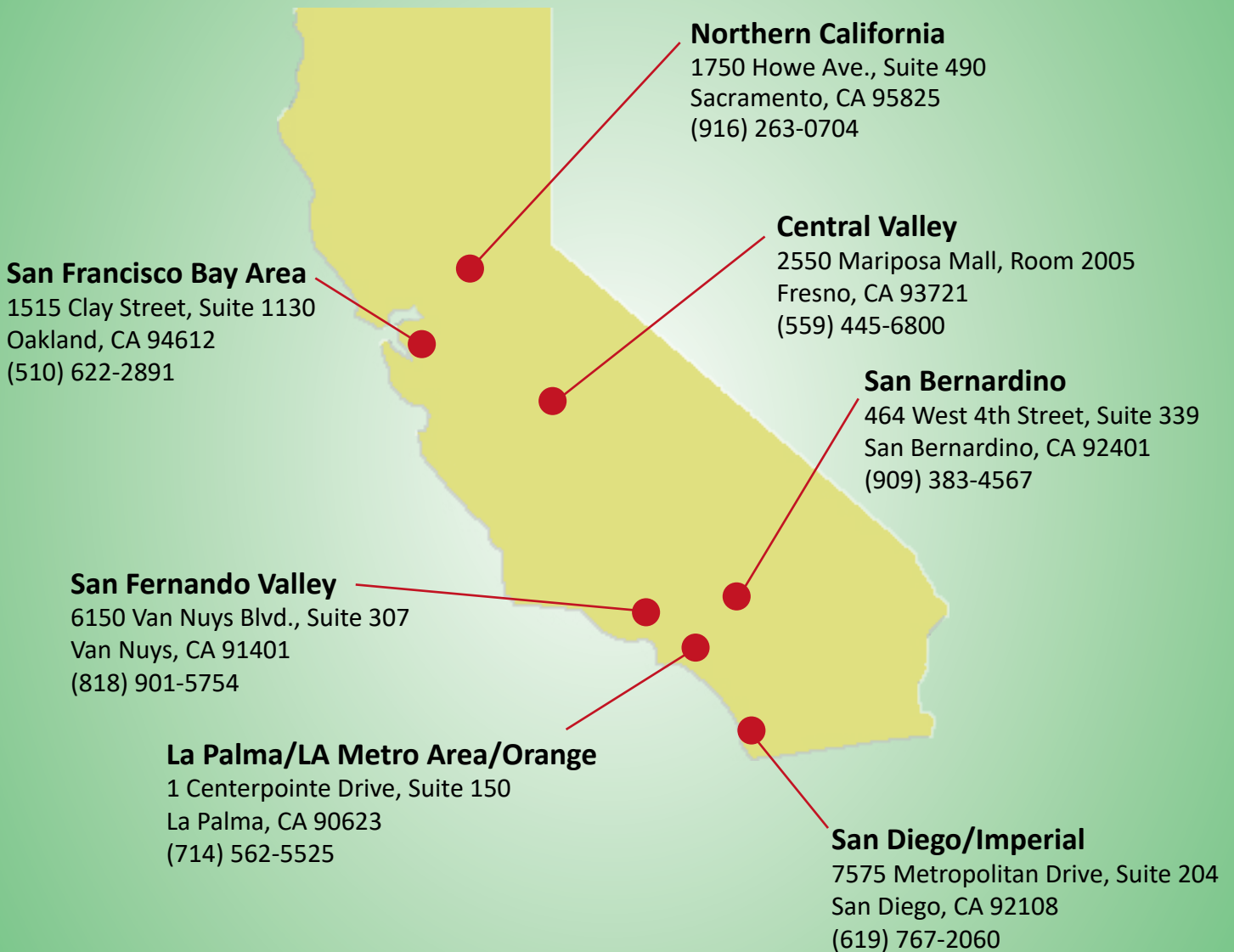


Cal/OSHA Consultation Programs

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