State of California
CAL OSHA
Department of Industrial Relations

Agricultural Safety and Health Inspection Project (ASHIP)

California Department of Industrial Relations
Division of Occupational Safety and Health

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Table of Contents

	PAGE
Cal/OSHA AGRICULTURAL SAFETY AND HEALTH INSPECTION PROJECT (ASHIP)	**1**
PREVENTING MACHINERY RELATED ACCIDENTS – AGRICULTURAL EQUIPMENT	**2**
AVOIDING FIELD SANITATION HAZARDS	**3**
PROTECTING WORKERS FROM HEAT STRESS	**4**
SOME OF THE SYMPTOMS OF HEAT STRESS	**5**
THE USE OF SHORT-HANDLED AND LONG-HANDLED AGRICULTURAL TOOLS AND PROLONGED STOOP LABOR	**6**
SKIN CONDITIONS AND INJURIES	**7**
ELECTROCUTION BY CONTACT WITH HIGH VOLTAGE LINE	**8**
FIELD SANITATION CHECKLIST	**9 – 10**

Photographer – Robert Gumpert

This publication is not meant to be a substitute for – or a legal interpretation of – the occupational safety and health standards. The reader is cautioned to refer directly to the California Code of Regulations, Title 8, or the Labor Code for the detailed and exact information, specifications, and exceptions. Furthermore, additional information and materials (such as Injury and Illness Prevention Model Programs & the Farm Labor Contractor Safety and Health Guide) are available by calling any of the Cal/OSHA offices listed on the back cover.

Cal/OSHA
Agricultural Safety and Health Inspection Project (ASHIP)

Agriculture is one of the most hazardous industrial activities in California. Farm workers suffer high rates of both fatal and nonfatal work-related injuries and illnesses. Fatal and nonfatal injuries and illnesses in agriculture arise from a number of hazards, including, but not limited to:

(1) Machinery-related hazards, such as driverless tractors, rollover hazards and lockout;
(2) Field sanitation hazards, such as the absence of toilet and drinking water facilities in the field;
(3) Heat-related hazards, such as strenuous work in temperature extremes;
(4) Musculoskeletal hazards, such as the use of short-handled agricultural tools and prolonged stoop labor;
(5) Skin hazards, such as lacerations from exposure to pruning knives and rashes from exposure to soil contaminants, such as fertilizers and pesticides; and
(6) Electrical hazards, such as working with metal ladders, pipes and poles near high voltage electrical power lines.

Despite their work-related injury and illness rates, farm workers are reluctant to file complaints about workplace safety with Cal/OSHA. Through ASHIP, Cal/OSHA is committed to reducing the number of occupational safety and health hazards to which farm workers are exposed by increasing enforcement of existing workplace safety and health laws, by providing consultative assistance to employers, and by educating both farm workers and employers about how to work safely.

Ask for the newly released Farm Labor Contractor Safety and Health Guide (English and Spanish).

More free, confidential health and safety consultation services are available, including on-site assistance. Simply call the toll-free number or your nearest Cal/OSHA Consultation Service Office:

1-800-963-9424

- **Northern California (916) 263-0704**
- **San Francisco Bay Area (510) 622-2891**
- **Central Valley (559) 454-1295**
- **San Fernando Valley (818) 901-5754**
- **Los Angeles (562) 944-9366**
- **San Bernardino/Orange (909) 383-4567**
- **San Diego**

The Consultation Service will focus on identifying hazards and unsafe work practices and on improving upon the injury and illness prevention program for that particular work site. Consultation does not issue citations or impose penalties, and all on-site hazard findings are kept confidential.

The Consultation Services also provides free educational materials and outreach services that include presentations and seminars. For a copy of the publication and video

Preventing Machinery - Related Accidents – Agricultural Equipment

California Code of Regulations (CCR), Title 8 (T8) - 3203, 3300-3341, 3440-3447, 3649-3668

Every employee must be properly instructed and trained in the safe operation and servicing of all machinery and equipment that he or she may operate.

Workers often get caught in power transmissions, such as belts and pulleys, running rolls, chains and sprockets – sometimes when reaching past guards or when machinery starts up unexpectedly. Common tasks involving risk include:

- **Cleaning a jammed conveyor.**
- **Making quick adjustments.**
- **Adjusting and cleaning pneumatic cutters.**
- **Retrieving dropped objects.**
- **Reaching for tools and other equipment components.**

When operating machinery and equipment, it is important that:

✓ All self-propelled equipment, including tractors, must have an operator at the controls when the vehicle is in motion.

Driverless self-propelled equipment must meet the following conditions:

- **Brake and throttle controls are within easy reach of the operator, who can reach them without climbing onto or over the equipment.**
- **Operator is within 10 feet of the controls.**
- **Operator has a clear view of other employees and the course of travel.**
- **Equipment is not traveling at a speed of more than two miles per hour.**
- **Equipment is furrow-guided.**

✓ The operator (and riders when appropriate seating is provided) is prohibited from climbing onto or down from the equipment while it is operating and moving.

✓ All guards and safeguards (for example, interlock switches and barriers) must be kept in place and properly maintained when machine and equipment are in operation. Power Take-Off (PTO) must be guarded.

✓ When servicing, adjusting, cleaning, or unclogging the equipment, motor/engine must be stopped and power source dis-connected, and the operator must wait for all machine movement to stop.

✓ Before starting the equipment, engaging power, or operating the machine, the operator must ensure that everyone is clear of the machinery.

✓ Seat belts must be used where roll over protection is installed.

Avoiding Field Sanitation Hazards

CCR, T8 – 3360-3368, 3457

According to California law and federal law, employers must provide water for drinking, water for handwashing, and toilet facilities for their workers in the field. The laws also require employers to notify each worker of the location of water and toilet facilities and to allow the workers reasonable opportunities during the workday to use the facilities.

Drinking water must be:

- ***Fit to drink*** **(potable), suitably cool.**
- **In adequate supply throughout the workday, and readily accessible to all workers.**
- **In dispensers that are kept *clean*.**
- **In dispensers *not located* in toilet rooms.**
- **In dispensers that are equipped with *faucets and single-use/disposable drinking cups, or equipped with fountains*. Dippers may NOT be used.**

****U.S. Environmental Protection Agency recommends that, at high temperatures, at least 4 gallons be provided per worker for an 8-hour workday.***

Handwashing facility must be:

- **Furnished *adequately* with *potable* water.**
- **Supplied with *soap*.**
- **Supplied with *single-use towels*.**
- ***Clearly marked*** **and installed so drinking or handwashing water systems are not contaminated by backflow. (This system also prevents employees from using nonpotable sources for drinking or handwashing.)**

Toilet facilities must be:

- ***Separate*** **for males and females, with 1 toilet per 20 employees of each sex. (*Exception*: If there are fewer than five employees, separate toilets may not be required as long as the toilet room can be locked from the inside.)**
- **Kept *clean* and in *good working order*.**
- **Supplied with adequate *toilet paper*.**
- ***Accessible*** **to employees at all times; where possible, toilets are near the work site (near = ¼ mile or 1,320 feet, or a 5-minute walk, whichever is shorter).**
- **Located where all water-carried sewage is disposed of in a manner that shall not endanger the health of the workers.**
- **Where possible, accessible at break sites to ensure hand washing can occur before employees eat or smoke.**

Protecting Workers from Heat Stress

CCR, T8 - 3203, 3363, 3380-3390, 3439, 3457

Heat-related illnesses have caused deaths among California workers. Workers in agriculture are especially vulnerable. Farm workers often work in the open heat and may have little opportunity to rest in a cool area. Also, acclimatization (adjustment of the body to heat exposure) is difficult for farm workers due to irregular work schedules, heat waves and not having enough cool water readily available.

ATTENTION:

- **Increase fluids (1 to 2 quarts per hour) and rest breaks during high temperatures, especially when above 100°F and during periods of unusually high humidity.**
- **Stay alert for early symptoms of excessive exposure to heat in workers and train employees to do the same.**
- **Ensure proper provisions (such as communication system) are available for contacting a doctor or medical assistance to avoid unnecessary delay of treatment and first aid.**
- **Consumption of alcohol will add to dehydration and increase the risk of health illness.**

What are some of the symptoms and risks of heat stress?

- **Loss of concentration and difficulty in focusing on a task.**
- **Increased irritability and rise in heart rate and body temperature.**
- **Little or no desire to drink, fatigue and headache - results from loss of fluids.**
- **Fainting and *possible death* if person is not removed from the source of the heat stress.**

How can you reduce the risk of heat stress?

- **Provide cool water as close as possible and encourage workers to drink often (this helps to replace fluids lost through sweating).**
- **Train supervisors and first aid workers to recognize heat stress disorders.**
- **Encourage supervisors to move workers to a cooler place or reduce the workload and to stop and rest if they become extremely uncomfortable.**
- **Encourage workers to wear appropriate clothing (cotton garments) and to use sunscreen, hats, and sunglasses.**
- **Be aware that workers who are obese, pregnant, older, and on certain medications are at greater risk for heat stress.**

Some of the symptoms of heat stress

HEAT STROKE, the most serious health problem for workers in a hot environment, is caused by the body's failure to regulate its core temperature. Sweating stops and the body can no longer release excess heat. *Victims of heat stroke usually die unless treated promptly*. Signs include: • **Mental confusion, delirium, loss of consciousness, convulsions, or coma.** • **Body temperature of 106°F or higher.** • **Hot, dry skin that may be red, mottled, or bluish.**	***How should heat stroke be treated?* Immediately call for medical assistance. Prompt first aid and medical treatment can prevent permanent injury to the brain and other vital organs. While awaiting medical help, the victim should be moved to the coolest, shadiest spot available, fanned vigorously and the victim's skin and clothing should be gradually soaked with cool water. ***
HEAT EXHAUSTION results from loss of fluid through sweating and from not drinking enough replacement fluids. The worker still sweats but experiences extreme weakness or fatigue, giddiness, nausea, or headache. The skin is clammy and moist, while the body temperatures are normal or slightly elevated.	***How should heat exhaustion be treated?* The victim should rest in a cool place and drink water or an electrolyte solution, such as Gatorade or similar beverages used by athletes to restore potassium and salt. Severe cases, in which the victim vomits or loses consciousness, may require longer treatment under medical supervision.**
HEAT CRAMPS, painful spasms of the muscles, are caused by the body's loss of salt.	***How should heat cramps be treated?* As in the case of heat exhaustion, a victim of heat cramps should drink an electrolyte solution such as Gatorade. Seek medical attention in the case of severe cramping, vomiting, or loss of consciousness.**
FAINTING can occur when a worker is not acclimatized to a hot environment.	***How should fainting be treated?* At first, allow the victim to lie down on his or her back. When consciousness has been regained, the victim should recover after a brief period of walking around slowly. Immediate return to work in the heat is not advisable as heat stress may recur.**
HEAT RASH, also known as prickly heat, can be extensive and can be complicated by infection. Heat rash can be so uncomfortable that sleep is disrupted. It can impede a worker's performance and even result in a temporary total disability.	***How should heat rash be treated?* Place the victim in a cool place and allow the skin to dry.** *** Note: In all cases victim should be moved to a cool and shaded area.**

For additional information see the Cal/OSHA Farm Labor Contractor Safety and Health Guide (Section 5), the US Dept. of Labor Fact Sheet, and the National Institute for Occupational Safety and Health (NIOSH) booklet entitled "Working in Hot Environments".

SYMPTOMS OF HEAT STRESS

The Use of Short-Handled and Long-Handled Agricultural Tools and Prolonged Stoop Labor

CCR, T8 - 3456, 5110

Using short-handled tools (less than four feet in length) for weeding, thinning, and other similar work while in a kneeling or squatting position is prohibited. Employers must also ensure that workers using long-handled tools are not grabbing the tools from the base (as a short-handled tool) causing them to bend and stoop.

Prolonged stooping and bending puts stress on lower extremities and the spine and can result in injuries.

In addition, the practice of hand weeding may contribute to the development of back, shoulder, arm, wrist, and hand injuries. These injuries can result from a combination of harmful effects on the back (for example, prolonged stooping and bending) and upper extremities (for example, repetitive motions and forceful exertions when pulling the weeds).

Warning: Unsafe work practices that cause repetitive motion injuries and/or back injuries (RMIs) may result in Cal/OSHA citations and civil penalties under T8 CCR 5110.

The risk of back injuries can be reduced by:

- ✓ **Reviewing health and safety records for sprain or strain injuries, especially where they involve bending and stooping.**
- ✓ **Screening common jobs and tasks (involving bending and stooping) for ergonomic risk factors using a brief checklist. Checklist screening is a quick way to evaluate a number of different jobs and tasks and to compare their relative ergonomic risks.**
- ✓ **Asking workers and supervisors to identify jobs and tasks that they find difficult and especially hazardous and tiring. Ask them for suggestions to improve the conditions.**
- ✓ **Considering other control ideas, such as ergonomic handles on hoes, rotating workers to other tasks, and alternate weeding tools.**
- ✓ **Educating workers and supervisors on the following: risk factors, injuries and symptoms, discussion of job targets, ideas for improvement, plan for improvement and results.**
- ✓ **Observing workers to ensure that they are not using short-handled tools.**
- ✓ **Provide workers with long-handled tools and ensure that they are using the tools properly (avoiding their use in a stooped position).**
- ✓ **Training and instructing employees in safe work practices.**

Skin Conditions and Injuries

CCR, T8 - 3203, 3380, 3428, 3439, 3456

Many agricultural workers are exposed to hazards that result in lacerations, contusions, and dermatitis and pesticide poisoning from soil contaminants and pesticides. The key to reducing injuries and illnesses is education and training, immediate first aid, and safe work practices, including the provision of providing employees with safe tools and gloves and other protective clothing when needed. Risk factors and common safety and health violations include:

Cuts –

- **Pruning and cutting knives that are worn, broken, or defective.**
- **Not wearing proper hand and body protection when required.**
- **Reaching into cutting areas or sharp edges.**
- **Using the wrong tool for operation.**
- **Improperly instructing workers in the safe use of tools.**

Dermatitis – two general categories, *irritant* and *allergic*

- **Not wearing proper protective clothing and hand protectors.**
- **Not washing frequently.**
- **Exposing workers to insect and plant irritants and to chemical residues (such as fertilizers and pesticides).**
- **Handling and working with soil that is chemically treated (hand weeding increases the risk of exposure).**
- **Exposing cuts, rash, and other skin breaks.**
- **Not immediately providing proper first aid.**
- **Not educating workers on the risk factors.**
- **Washing facilities not readily available.**

Electrocution by Contact with High-Voltage Lines

CCR, T8 - 2946, 2947, 2948, 3203

Farmworkers must be particular aware of the hazards posed by overhead high-voltage lines. High-voltage contacts usually occur while pruning trees, harvesting, or moving irrigation pipes.

Electrocution can occur if a pipe, pole or other conductive object comes close to or in direct contact with a power line.

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

The risk of accidentally contacting high-voltage lines can be prevented by following these guidelines:

Remember the 10-foot rule – keep all vehicles, equipment, tools, and people at least 10 feet away from power lines.

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 if the machinery may come within the minimum clearance distance.

Ensure that trees are pruned well before they get close to the power lines. If the overhead lines are within proximity of the pruning work or the lines are sagging, contact your nearest electrical utility for assistance before continuing.

Teach all workers about the hazards posed by high-voltage lines. Ensure they understand that accidental contacts usually result in death or serious injury.

Instruct workers to always check for overhead high-voltage lines before lifting or moving any equipment, machinery or tools.

Instruct workers to keep irrigation pipes horizontal or even with the ground and to avoid standing the pipe upright before making certain that no power line is overhead.

Ensure all workers and supervisors follow safe work practices when working in proximity to overhead high-voltage lines.

Field Sanitation Checklist

Employer Name: _____

Date: _____ Time: _____

Location: _____

Inspection # _____ CSHO I.D. _____

Foreman or Supervisor Name: _____

Translator (if applicable): _____

Section	Y	N	Comments
Drinking Water 3457(c)(1) • Potable (* refer to sample protocol) • Cool • Single use cups • Accessible			Note: May need to measure water temperature.
Toilets 3457(c)(2) • Separate (male/female) • Distance ¼ mile or 5 minutes • Sanitary • Toilet paper provided • Locks • Number of toilets • Number of male employees • Number of female employees • Vents/opening screens			Note: Separate toilet facilities for each sex shall be provided for each 20 employees or fraction thereof.
Handwashing Facilities 3457(C) (2 and 3) • Provided • Potable water 15-gal minimum • Soap • Hand towels • Sanitary • Signage (handwashing only)			
Medical Aid 3439 • First Aid kit and location of • Medical attention for isolated areas			Note: One trained in first aid for every 20 employees in remote location.
History of Injury or Illnesses • Pesticides use **3450** • Dermatitis • Lacerations • RMI • Strains and sprains • Others…(i.e., sun burn, low back)			
Heat Stress • Prevention training • Frequent water breaks • PPE			Note: May need to use Wet Bulb Globe Thermometer (WBGT), refer to users manual.

Section	Y	N	Comments
Agricultural Equipment • PTOs **3440** Fenders/or 64 inches Positive brake-locking PTO shaft guard PTO driveline guarded Signs - guards in place Guards – gears, belts, chains, etc. Revolving Shafts Guards, shields, doors in place Audible sound Guards not interfere w/ function • Tractors **3441** Guarding ROPS Seat belts Driverless tractors • Forklifts **3664, 3668** Load capacity Warning devices Poster Training			Note: Will need make, model, and serial number if applicable.
Hand Held Tools 3456 • Good condition • Short-handled used for weeding, thinning, hot capping • Long handled used as short-handled			
Health and Safety Programs • IIPP • Hazard communication • Log 200 • Training			
Communications 3438 • Language employees understand			

Cal OSHA District Offices (Enforcement) Directory

Use this directory for employee assistance and for reporting accidents or complaints.

Anaheim
2100 East Katella Ave., Suite 140
Anaheim, CA 92806
Phone (714) 939-0145

Chico (Field Office)
1367 E. Lassen Ave., Suite B-4
Chico, CA 95973
Phone (530) 895-4761

Concord
1465 Enea Circle, Bldg. E
Suite 900
Concord, CA 94520
Phone (925) 602-6517

West Covina
1906 West Garvey Avenue South
Suite 200
West Covina, CA 91790
Phone (626) 472-0046

Eureka (Field Office)
619 Second St., Room 109
Eureka, CA 95501
Phone (707) 445-6611

Foster City
1065 E. Hillsdale Blvd., Suite 110
Foster City, CA 94404
Phone (650) 573-3812

Fresno
2550 Mariposa St., Room 4000
Fresno, CA 93721
Phone (559) 445-5302

Los Angeles
320 West 4th Street Room 850
Los Angeles, CA 90013
Phone (213) 576-7451

Modesto (Field Office)
1209 Woodrow Ave., Suite C-4
Modesto, CA 95350
Phone (209) 576-6260

Oakland (New Office)
1515 Clay St., Suite 1301
Oakland, CA 94612
Phone (510) 622-2916

Pico Rivera
9459 East Slauson Ave.
Pico Rivera, CA 90660
Phone (562) 949-7827

Redding
381 Hemsted Dr.
Redding, CA 96002
Phone (530) 224-4743

Sacramento
2424 Arden Way, Suite 165
Sacramento, CA 95825
Phone (916) 263-2800

San Bernardino
464 W. 4th St. Suite 332
San Bernardino, CA 92401
Phone (909) 383-4321

San Diego
7575 Metropolitan Drive
San Diego, CA 92108
Phone (858) 637-5534

San Francisco
455 Golden Gate Avenue, 10th Floor
San Francisco, CA 94102
Phone (415) 703-5210

San Jose
2010 North First St., Suite 401
San Jose, CA 95131
Phone (408) 452-7288

Santa Rosa
1221 Farmers Lane, Suite 300
Santa Rosa, CA 95405
Phone (707) 576-2388

Torrance
680 Knox St., Suite 100
Torrance, CA 90502
Phone (310) 516-3734

Van Nuys
6150 Van Nuys Blvd., Suite 405
Van Nuys, CA 91401
Phone (818) 901-5403

Ventura
1655 Mesa Verde, Room 150
Ventura, CA 93003
Phone (805) 654-4581

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Cal/OSHA Consultation Programs

Toll-free number: 1-800-963-9424 **Internet: www.dir.ca.gov**

•On-site Assistance Program

Area Offices

Northern California
2424 Arden Way, Suite 410
Sacramento, CA 95825
(916) 263-0704

San Francisco Bay Area
1515 Clay Street, Suite 1103
Oakland, CA 94612
(510) 622-2891

Central Valley
1901 North Gateway Blvd., Suite 102
Fresno, CA 93727
(559) 454-1295

San Bernardino/Orange
464 West 4th Street., Suite 339
San Bernardino CA 92401
(909) 383-4567

San Fernando Valley
6150 Van Nuys Blvd., Suite 307
Van Nuys, CA 91401
(818) 901-5754

San Diego
7575 Metropolitan Dr., Ste. 204
San Diego, CA 92108
(619) 767-2060

Los Angeles
10350 Heritage Park Drive., Suite 201
Santa Fe Springs, CA 90670
(562) 944-9366

Your call will in no way trigger an inspection by Cal/OSHA Enforcement

- **Voluntary Protection Program**
  San Francisco, CA 94142
  (415) 703-5272

- **Education Unit**
  Sacramento, CA 95825
  (916) 574-2528

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