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# Agricultural Safety Fact Sheet



## Protecting Agricultural Workers from Tractor Hazards

Most farmworker injuries and deaths are caused by tractor incidents such as overturns, runovers, power take-off (PTO) systems, and unintended contact with tractor attachments or implements. Employers are responsible for ensuring a safe work environment for every worker. This fact sheet provides employers with information about these tractor hazards, along with safety measures to protect tractor operators.

### Overturns

Tractor overturns are the leading cause of fatalities in the agriculture industry, resulting in approximately 130 deaths per year. The majority of tractor overturn incidents take place when these farm vehicles turn on their side or tip over backward. These overturns come about very quickly, often in seconds, which leaves the operator little or no chance to get clear as the tractor tips or rolls.

When operated properly, tractors are generally quite safe. Tractors that are old, in poor condition, lack safety guards and devices, or are driven in an irregular or risky manner can contribute significantly to unsafe or hazardous conditions.



### Roll-over Protective Structures (ROPS)

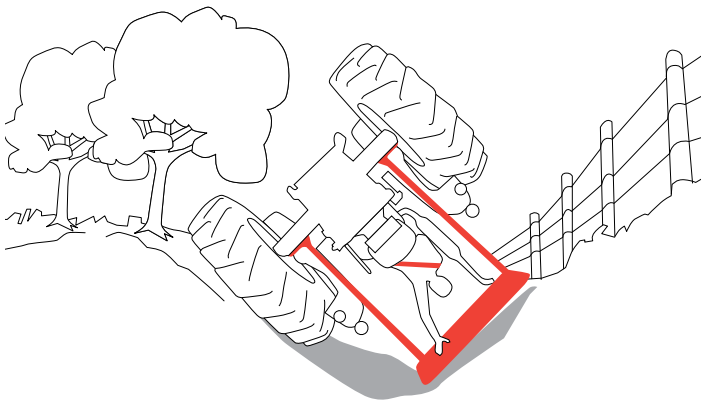
An operator's chances of surviving a tractor overturn without a serious injury are very good if the tractor has a ROPS and the operator is wearing a seat belt. A ROPS is a roll bar or cage frame that is designed to form a zone of protection around the operator if a tractor overturns. To prevent being thrown from a tractor, operators must wear a seat belt.



A qualified dealer can retrofit older tractor models with a ROPS/seat belt system. The National Institute for Occupational Safety and Health (NIOSH) Division of Safety Research and Protective Technology Branch has developed a Cost-Effective Rollover Protective Structure Program (CROPS) for four tractor models that lack commercially available ROPS.

### ROPS and Seatbelt Requirements

- Agricultural tractors with over 20 horsepower manufactured after October 25, 1976 are required to have ROPS. (1928.51(b)(1)).
- Each tractor with a ROPS must have a seat belt.
- Ensure that each operator uses a seat belt properly.
- Employers must ensure that each operator tightens their seat belt so that they are confined within the ROPS protective area.



*A roll-over protective structure and a seat belt can protect workers from being crushed by an overturned tractor.*

Employers must ensure that tractor operators receive initial and at least annual training on the safe operating practices described below (29 CFR 1928.51(d)):

- Fasten seat belts securely (for tractors with rollover protection).
- Where possible, avoid operating the tractor near ditches, embankments and holes.
- Stay off slopes too steep for safe operation.
- Reduce speed when turning or crossing slopes, and on rough, slick, or muddy surfaces.
- Operate the tractor smoothly, without jerky turns, starts, or stops.
- Be attentive, especially at row ends, on roads, and around trees.

## Power Take-Off (PTO) Shafts

A PTO allows farmworkers to use power from the tractor's engine to drive a variety of machines and implements. PTOs are useful, but they can pose a serious safety hazard. Operators and workers have come into contact with unprotected as well as protected PTOs. Employers must protect workers from coming into contact with hazards created by a rotating PTO, and they must inspect the PTO shaft to ensure that the PTO guard is always in place. Employers should replace any missing or damaged PTO guard.

At the time of initial assignment and at least annually thereafter, the employer should train every farmworker in the safe operation and servicing of all equipment with which the operator will be involved, including the following safe operating practices (1928.57(a)(6)(i)):

- All PTOs, including rear, mid- or side-mounted shafts, shall be guarded either by a master shield, or by other protective guarding (1928.57(b)(1)(i)).
- Before servicing, adjusting, cleaning, or unclogging the equipment, stop the engine, disconnect the power source, and wait for the PTO shaft to stop, except when the machine must be running to be properly serviced or maintained. In that case, the employer must train workers on all steps and procedures needed to safely service or maintain the equipment (1928.57(a)(6)(iii)).
- Keep all guards in place when the machine is in operation (1928.57(a)(6)(i)).
- Ensure that everyone nearby is clear of the machine before starting the tractor's engine and engaging the PTO shaft's selector switch (1928.57(b)(6)(iv)). Tie back and tuck in long hair and do not wear loose clothing. A rotating PTO shaft can catch long hair or loose clothing.
- If possible, avoid working alone around PTO-driven machinery. If entanglement occurs, a coworker may be able to stop the PTO shaft in time to prevent more serious injury, or death.



*In 34 states, SMV emblems must be displayed on the rear of any tractor and its towed attachment traveling 25 mph or slower.*

## Tractor Operator Training

Employer-provided tractor operator training can aid in reducing tractor incidents. Employers should train tractor operators to:



- Comply with the tractor's operating instructions.
- Allow no riders, unless the tractor is manufactured with a seat and a seat belt for each rider.
- Hitch only to the draw bar and hitch points.
- Set the brakes and hand brake, if available, when the tractor is stopped for more than a few seconds.
- Ensure that operators have the experience and knowledge to operate the tractor.

## Emergency Planning and Preparedness

Many injuries in agriculture occur far from hospitals and emergency medical facilities. Moreover, most employers do not have the training or capability to treat these injuries. Because treatment facilities are not typically located within a reasonable distance or timeframe, employers should:



- Develop an emergency action plan that addresses all likely hazards.
- Designate an emergency staging area for the field or the office.
- Train tractor operators on how to respond to emergency situations.
- Ensure that each tractor has a first-aid kit and a working fire extinguisher.
- Assemble a first-aid kit that is designed to address agricultural injuries and incidents. Agricultural first-aid kits should contain basic medical items such as gauze, splints, ice packs, surgical tape, disposable gloves, eye patches, burn dressings and a first-aid instruction booklet.

- Call local first responders or 911 in case of an emergency. When reporting an emergency, provide your name, location, the nature of the emergency and where the worker(s) can be reached.
- Maintain frequent communication with tractor operators who work alone or in remote areas.

## Workers' Rights

Workers have the right to:

- Working conditions that do not pose a risk of serious harm.
- Receive information and training (in a language and vocabulary the worker understands) about workplace



hazards, methods to prevent them, and the OSHA standards that apply to their workplace.

- Review records of work-related injuries and illnesses.
- File a complaint asking OSHA to inspect their workplace if they believe there is a serious hazard or that their employer is not following OSHA's rules. OSHA will keep all identities confidential.
- Exercise their rights under the law without retaliation, including reporting an injury or raising health and safety concerns with their employer or OSHA. If a worker has been retaliated against for using their rights, they must file a complaint with OSHA as soon as possible, but no later than 30 days.

For additional information, see [OSHA's Workers page](#).

## General Safety Precautions

- **Inspections and review:** Ensure that operators and workers are thoroughly familiar with farm machinery that may be used for just a few days out of the year. This is especially important with harvesting equipment such as combines and cotton harvesters.
  - **Safety checks:** Conduct preoperational safety checks, review proper operating procedures and ensure that tractor safety decals and stickers are not worn, damaged or removed.
  - **Be aware:** Ensure that operators are familiar with the ground where the tractor will be used. Operators should be aware of ditches, uneven ground, and bystanders in the area.
  - **Children:** Keep children away from tractors and their implements. Having children on a tractor is unsafe.
  - **Indoor safety precautions:** Prevent indoor carbon monoxide buildup by ensuring that adequate ventilation is always available when starting or operating a tractor indoors.
- Make sure that exhaust fans are running if available, and always leave the structure's doors open if exhaust fans are not available.
- **Highway safety:** Employers should train tractor operators to avoid highways during busy peak travel times or poor visibility, and at night or during bad weather. Lighting and markings for tractors and towed equipment should be up-to-date and in accord with transportation regulations. Tractor operators should consider using emergency flashers and an escort vehicle to increase the tractor's visibility. The tractor should have a clean, highly visible, unfaded slow-moving vehicle (SMV) emblem affixed to the rear. SMV emblems are required in 34 states, and they must be displayed on the rear of any tractor and its towed attachment traveling 25 mph or slower. Employers should check state highway regulations to determine if a SMV emblem is required in their state or local jurisdiction.

**For questions or to get information or advice, to report an emergency, fatality, inpatient hospitalization, amputation, or loss of an eye, to file a confidential complaint, or to request OSHA's free on-site consultation service, contact your nearest OSHA office, visit [www.osha.gov](http://www.osha.gov), or call OSHA at 1-800-321-OSHA (6742), TTY 1-877-889-5627.**

**For more information on ATV safety and other issues affecting farmworkers, visit OSHA's Safety and Health Topics Agricultural Operations website at [www.osha.gov/dsg/topics/agriculturaloperations](http://www.osha.gov/dsg/topics/agriculturaloperations).**

**For assistance, contact us. We can help. It's confidential.**



**Occupational  
Safety and Health  
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