

# EMPLOYERS' INSTRUCTIONAL GUIDE

## Training Employees Who Operate Agricultural Tractors

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The Department of Labor by the Code of Federal Regulations (29CFR1928.51 – Occupational Safety and Health Standards for Agriculture: Roll-over Protective Structures for Tractors Used in Agriculture) governs all employers that have employees who operate agricultural tractors. The standard defines an agricultural tractor as a two-wheel drive, four-wheel drive, or track vehicle having an engine with more than 20 horsepower designed to supply the power to pull, carry, propel, or drive implements that are designed for agriculture.

Any agricultural tractor manufactured after October 25, 1976, that is operated by an employee must have a Rollover Protective Structure (ROPS). There are three exceptions to this rule. These are:

- Low profile tractor used in orchards or vineyards when vertical clearance requirement of ROPS would interfere with normal operations,
- Low profile tractor while used inside a farm building or greenhouse where vertical clearance inhibits ROPS and the use of ROPS is incidental to the work performed, and
- Tractors while used with mounted equipment that is incompatible with ROPS.

All employees who operate agricultural tractors must be informed of nine safe operating practices. If followed, these practices will help prevent tractor overturns and the resulting injuries and fatalities. Each employee must be instructed fully on safe operating practices from the operator's manuals for the particular tractors he or she operates.

Employers are responsible for informing their employees who operate agricultural tractors of these nine points at the time of initial assignment and at least annually thereafter. This applies regardless of tractor age or the existence of a Rollover Protective Structure (ROPS).

### **1. Securely fasten your seat belt if the tractor has a ROPS.**

As an employer, you must explain to your employees that the purpose of the safety seat belt is to keep the

operator confined within the protective frame during an overturn. Failure to use the safety belt increases the chance of the operator being thrown against or under the ROPS if the tractor upsets. The use of a safety seat belt is required for a tractor with either ROPS or a safety cab having ROPS built in.

Never use seat belts with tractors not having ROPS; a seat belt eliminates the operator's chances of being thrown clear of an overturning tractor.

### **2. Where possible, avoid operating the tractor near ditches, embankments, and holes.**

Instruct employees that when they are operating an agricultural tractor in the vicinity of any of these hazards, they must be constantly alert for ditches and holes obscured by weeds or vegetation, drive at reduced speeds, and allow plenty of room for maneuvering. Banks of ditches will often give way if the tractor is driven too close to the edge. The weight of the tractor on the ground can cause the edge to fail. A judgment guideline is to stay at least as far from the edge of the bank as the ditch is deep. Because of varying conditions of moisture and ground, it is difficult to predict how much weight the edge can carry, so caution is always necessary.

Many fatal overturning accidents have occurred because the operator was distracted by highway traffic. The mistake these tractor operators made was to turn sharply back toward the ditch. In this case, it is better to instruct your employees to drive into the ditch (in which case the tractor will usually remain upright) rather than to overreact and overturn in an attempt to get back onto the roadway.

### **3. Reduce speed when turning, crossing slopes, and on rough, slick, or muddy surfaces.**

Centrifugal force while turning decreases the stability of a tractor. The probability of a tractor side rollover by turning is greatest on a steep slope, but this should not lull anyone into a false sense of security just because one is operating on level ground. It is possible to tip any tractor on flat ground if the turn is short

enough and the speed is high enough. Always lock the foot brake pedals together for highway or fast field operation. Most unballasted two-wheel-drive tractors with wide front ends, but with the wheel spacings set close, may tip on sharp level turns at speeds as low as 10 miles per hour if the wheels hit an obstruction or drop into a hole or depression.

With four-wheel-drive tractors, be sure to check the operator's manual with your employees for instructions as to proper wheel spacing, ballasting, and use of dual tires to get the best steering response and operating stability. The instructions are most important with tractors that use articulated steering systems. Some four-wheel-drive tractors have unique steering characteristics. Be certain to advise your employees of these different handling conditions.

Tricycle-type tractors are susceptible to tipping when the rear wheels are set too close together. Operate this type of tractor with the rear wheels set wide, 72 to 80 inches apart or as far as possible. Front-end ballast, such as suitcase weights, will help improve steering response when working on sloping fields.

Relatively high ground speed (8 to 20 mph) combined with slippery surface conditions can cause skids and loss of control. Ditches and obstructions are difficult to avoid when the tractor is out of control.

Caution should always be taken when operating a tractor on any slope, but driving too fast on a slope increases the chance of overturning as well as reducing the operator's chance to keep the tractor under control. Instruct your employees to slow down and turn as widely as operating conditions permit.

#### **4. Stay off slopes too steep for safe operation.**

This is the only sensible thing to do. If you must go down a very steep embankment, do it in a low forward gear. If you must go up a very steep slope, back up slowly. If you must work across a steep slope, set rear wheels at full width; with large tractors, dual rear wheels can be helpful, and avoid uphill turns. Doing otherwise is hazardous. With your employees, check the operator's manual for any instructions that might be given for operating on sloping land. Remember that every model of agricultural tractor has different stability characteristics, depending on its design, to meet the needs of varying farm practices and crop conditions.

#### **5. Watch where you are going, especially at row ends, on roads, and around trees.**

Looking backward at trailing or mounted implements is important and necessary for good operation, but unless there is plenty of open space or you are operating at reduced speeds, do it sparingly. Slow down at row ends to give yourself plenty of reaction time and to reduce the effect of centrifugal forces on the operator. Adding rear-view mirrors can reduce this problem considerably.

#### **6. Do not permit others to ride.**

There is one simple rule with agricultural tractors—no seat, no rider. Make it a habit. This applies to children and teenagers as well as your employees. ROPS are designed to protect one person, not two or more. The operator must have non-restrictive access to controls and an unobstructed view to operate safely. Others can interfere with these operational requirements.

#### **7. Operate the tractor smoothly—no jerky turns, starts, or stops.**

Start forward motion at low engine speeds. Engage the clutch slowly and increase speed only after forward motion has begun. Throttling up and engaging the clutch quickly is an easy way to flip a tractor over to the rear, particularly if you are headed up a slope.

#### **8. Hitch only to the drawbar and hitch points recommended by tractor manufacturers.**

Never attach a load to the rear axle or on the three-point lift or draft arms. Hitching too high can result in backward tips. For each tractor, consult the operator's manual for acceptable hitch points. Do not vary from the manufacturer's recommendations.

#### **9. When the tractor is stopped, set brakes securely and use park lock if available.**

This is most important on grades and hillsides. Don't depend on a transmission gear to keep a tractor from rolling out of control. Wheel chocks at the drive wheels are recommended when the tractor must be left parked on steep slopes. Use chocks with 45-degree bevels to meet safety standards.

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