



Tractor Operation Safety: Preventing Overturns

Half of all farming and ranching accidents resulting in fatalities involve tractors. The amount of time the tractor is in use, the variety of uses, and its power and massive weight all contribute to why tractors are involved with so many accidents.

Common Tractor Accidents

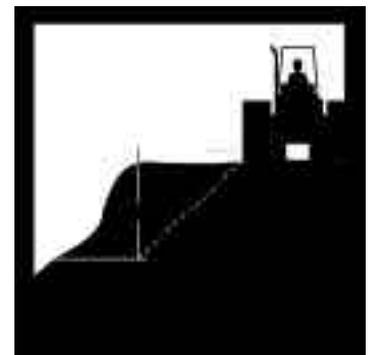
Tractor overturns or “roll overs” are the most common tractor accident resulting in a serious injury or a fatality. Overturns are involved in almost half of all fatal tractor accidents. The two types of overturns are side and rear.

Causes of Side Overturns

- Turning uphill on a steep bank.
- Turning a corner too rapidly. Side overturns occur even on a level surface because the centrifugal force will cause the tractor’s center of gravity to shift from the tractor’s center to the outside wheel causing the inside wheel to lift.
- Operating a tractor equipped with a front end loader raised too high with a heavy load. The higher the bucket, the higher the center of gravity, making the tractor unstable especially when turning.
- Towing loads (implements, wagons, etc.) too heavy or loads that are unstable can cause side overturns. The whipping action of the load or failure of the tractor to control the load downhill can cause the load to push the tractor resulting in loss of control.



- Operating a tractor too close to a road or ditch bank. An unstable bank will give way causing the tractor to roll into the ditch.



- Hitting holes, logs, stumps, or bumps, particularly at high speeds.
- Improper loading of tractor on transport vehicles. Tractors have slipped off the bed causing serious accidents.

Rear Overturns

Rear overturns happen very quickly (1 1/2 seconds). In a rear overturn the tractor reaches the critical point of no return in three-fourths of a second, which means you cannot prevent the overturn. Human reaction time to respond varies from one half to 1 1/2 seconds, or usually not fast enough to prevent an overturn or to escape.





Causes of Rear Overturns

- Attempting to free a tractor that is stuck or frozen in the ground can result in a rear overturn. If the ground doesn't give, the torque forced on the rear wheels will transfer to the tractor body causing the front of the tractor to raise.

**REMEMBER: IF SAFETY IS NOT PRACTICED
IT WON'T BE USED.
SAFETY DOES NOT COST; IT PAYS!**

- Improper hitching, such as hitching a chain or cable to a point above the drawbar when attempting to pull stuck vehicles or stumps.



Prevention of Overturns

Following are several ways to prevent overturns and to keep the operator and others safe.

1. Tractors should be equipped with rollover protective equipment such as ROPS (Roll Over Protective Structure) and seat belts. To be completely protected always fasten seatbelts. If the tractor is not equipped with ROPS, the farm management should install one or talk to an implement dealer about installing ROPS equipment.
2. Hitch loads correctly. Always attach loads to the tractor drawbar, not to the axle or any area above the drawbar.
3. When working in an unfamiliar field or one that you have not been in for a while, stop the tractor, and walk over potential problem areas of the field. Note ruts, rocks, stumps, logs, holes and debris, etc. Moveable debris should be removed from the field before you start work. In areas of tall grass or brush, mark problem areas to warn or remind you or others of the hazard.
4. Reduce speed on rough ground, on slopes, when turning, or when driving onto roads. Operate at



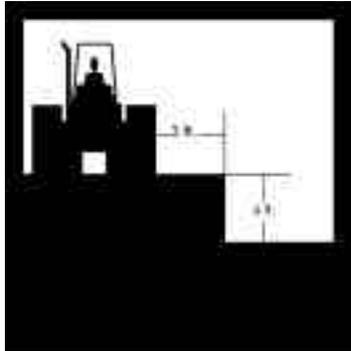
speeds appropriate to operating conditions.

5. Avoid sudden turns, especially on sloping ground. Avoid uphill turns, and turning too fast with a load.
6. Operate front end loaders with the bucket as low as possible. Raise only when necessary to dump the load or to clear obstacles.
7. Familiarize yourself with the tractor by reading the manual and going over the procedures thoroughly before operating. Management should train workers and family members in safe operating procedures.
8. If the tractor has ROPS and the tractor starts to roll, do **not** jump off of the tractor. Stay with it until the machine comes to rest.
9. When loading a tractor for transport, keep other workers out of the way until the tractor has been adequately secured to the transport. Use the right equipment for the job, such as a wide enough bed for loading and transport, proper load tie downs, and a secure ramp, not a roadbed.





10. Operate the tractor at least as far away from the edge of a ditch as the ditch is deep (e.g. 3 feet deep, then 3 feet away).



11. If the tractor is traversing a slope or traveling on the shoulder of the road with a sharp pavement incline, do not turn up slope. Always turn down slope.
12. When working on sloping land, add weight to the front and widen the wheel base of the tractor. This adds stability to the machine.
13. Do not “pop” the clutch or give a sudden jerk when pulling out stuck vehicles or stumps, or when pulling any machinery. Instead, start out slowly taking up slack in the rope or chain, and continue with a steady pull. Try to loosen the object before pulling.
14. Keep the tractor in control at all times. Don’t let your tractor bounce.

15. Use the tractor only for what it was designed to be used.
16. Lock brake pedals together before driving on roadways so that you won’t press a side brake and cause the tractor to suddenly swerve.
17. Get plenty of rest before operating tractors. Take periodic rest breaks when operating the tractor for long hours.

Safety Reminders

- **Slow down when turning or when working rough ground.**
- **Always hitch to the draw bar.**
- **Make sure tractors are equipped with ROPS.**
- **Keep the loader bucket low and go slow.**
- **Stay far away from the edge of a ditch.**
- **Watch out for holes, rocks, and stumps.**
- **Ease the tractor in gear when pulling. Don’t “pop” the clutch.**

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