



Farm Safety Association
March 2000
Tailgate-Rollovers

Prevent tractor overturns

Instructor: The following script can be used to deliver a 15-minute training session to employees. It would be a good idea to make the presentation while standing in front of a ROPS-equipped tractor. You can point out hazards and safety features on the machine.

The text emphasizes the most important points related to tractor rollover prevention. It is suggested that you try to stay strictly on topic. Obviously, you will need to be prepared to answer questions.

POINTS TO EMPHASIZE:

- **Maintain control of tractor under all operating conditions.**
- **Never hitch higher than drawbar height.**
- **Always fasten the seatbelt when operating a tractor equipped with rollover protection.**

Be aware of the danger

1. Tractor overturns—both sideways rollovers and backward “flips”—are likely to result in death if the operator is not protected by a rollover protective structure (or ROPS).
2. A tractor has a high centre of gravity, compared with a passenger car or pickup truck. This makes them relatively top heavy, and more prone to tipping over.
3. Particularly in the case of 2-wheel-drive tractors, the back half of the machine accounts for more than two-thirds of the weight.
4. If a tractor’s rear drive wheels can’t turn, the machine will want to turn on its axle when power is engaged. Think about this one fact: it can take less than one second for a tractor to reach the “point of no return” in a backwards flip after the front wheels leave the ground!

Prevent sideways overturns

Always remember these two key points:

1. Short, quick, high speed turns upset tractors.
 2. An attachment like a raised front loader increases a tractor’s centre of gravity, making it even more “tippy”.
- Lock brake pedals together before driving at high speed. Application of uneven brake pressure can literally force a tractor to rollover.
 - Keep your tractor under control at all times and under all conditions. Obstructions such as rocks and stumps, or depressions such as dead furrows and pot holes could cause a tractor to roll, particularly if the machine is travelling too fast.
 - Never let a tractor “bounce”—this causes loss of

steering control.

- Pull heavy loads and equipment at safe speeds. A wagon that is fishtailing could throw the towing tractor out of control. Try to avoid quick stops, because the heavy load could push the tractor into a skid, and possible rollover.
- Slow down before turning! Quick, short turns at high speed overturn tractors.
- Use engine “braking” when going downhill. A runaway tractor—and particularly one towing a load—often tip over. Shift to a lower gear before starting downhill. Make sure that you don’t use a speed range that allows the tractor to “freewheel”.
- Avoid crossing steep slopes, if possible. Always turn *downhill* if stability becomes uncertain on a slope.
- Stay at least as far away from ditches and streams as the banks are deep. Any closer, and the tractor’s weight could cause the bank to shear.
- **Take extra care with loader tractors.** A raised, loaded bucket increases the centre of gravity, thereby making the tractor more subject to rollover. Keep the loader bucket as low as possible when turning or transporting. Watch carefully for obstructions or depressions. Avoid quick stops, starts, and turns.

Prevent rear rollovers

- *Never* hitch a towed load higher than the tractor drawbar. Hitching too high is major cause of rearward tractor flips.
- Front chassis weights can be used to counterbalance rear-mounted implements and heavy drawbar loads.

- Always start forward motion slowly. Gunning the engine and jerking your foot off the clutch is one of the surest ways to flip a tractor!
- Backing down a grade is risky. If brakes are applied, the tractor could rotate around the rear axle and tip over backward. The faster the speed and the steeper the slope, the greater the potential for flipping. If you have to back down a steep grade, do it slowly in a low gear. That should let you stay off the brakes. Whenever possible, *back* tractors up steep slopes, and come down forward.
- Suppose your tractor starts rolling backward down a steep grade with the clutch disengaged. Engaging the clutch is much the same as applying the brakes in this situation—a backward flip could result. It's safer to let the tractor roll to the bottom of the slope without applying the brakes or engaging the clutch. Try not to get into this dilemma in the first place!
- Always drive around ditches. Never try to cross them. It is only safe to *back* a tractor out if the drive wheels get lodged in a ditch.
- Back your tractor out if it gets stuck in the mud. Never, ever put boards or logs in front of the drive wheels! This practice has been responsible for a number of backward tips.

ROPS save lives

A majority of farm tractors are now fitted with rollover protective structures. ROPS cabs and frames are designed to minimize injury potential in the event of a rollover.

It is *critical* for an operator to securely fasten the seatbelt in a ROPS-equipped tractor. It is the belt that holds you within the protected zone should a rollover occur.

However, do *not* wear a seatbelt if your tractor doesn't have a ROPS. On an open tractor, the belt would eliminate any chance of being thrown clear in the event of an overturn.

Drivers must be alert at all times

As you can see, there is plenty to remember when it comes to avoiding tractor upsets. Operators have to be alert at all times, and maintain complete control of their machines. If you are ill, over-tired, or on medication, you have no business driving a farm tractor.

Are there any questions?

Finally, let's take a moment to review some of the "Do's" and "Don'ts" of tractor rollover prevention.

DO:

Fasten the seatbelt before starting a ROPS-equipped tractor.

Lock brake pedals together before high speed travel.

Always maintain full control of a tractor.

Turn downhill if stability becomes uncertain on sloping ground.

DON'T:

Wear a seatbelt when driving a tractor that is not fitted with ROPS.

Make short, quick, high speed turns.

Travel any distance with a loader bucket raised.

Suddenly apply the brakes when backing down a slope.

The information and recommendations contained in this publication are believed to be reliable and representative of contemporary expert opinion on the subject material. The farm safety Association Inc. does not guarantee absolute accuracy or sufficiency of subject material, nor can it accept responsibility for health and safety recommendations that may have been omitted due to particular and exceptional conditions and circumstances.

Copyright © 2000

Farm Safety Association Inc.
22-340 Woodlawn Road West, Guelph, Ontario N1H 7K6 (519) 823-5600

Produced with the assistance of:



Agriculture et
Agroalimentaire Canada

Agriculture and
Agri-Food Canada



Canadian Coalition for
Agricultural safety and rural Health
Coalition canadienne pour la sécurité
agricole et la santé rurale



Ministry of
Agriculture,
Food and Rural Affairs

Ontario