

## Farm worker deaths from tractor rollovers

Farming is one of the most hazardous occupations in the United States. In Iowa, the leading cause of farm worker deaths is overturns of older tractors not equipped with rollover protective structures (ROPS).

From 2003 through 2010, 74 farm operators and workers in Iowa died from tractor-related injuries. Most of these fatalities were associated with tractors that overturned on the farm or roadway, where the tractor did not have ROPS to prevent the operator from being pinned under or thrown from the tractor.

Rollover protective structures do not prevent rollovers from occurring (most rollovers result from tractor speed, operator error, or unsafe driving conditions). Rather, ROPS protect the operator in the event of an overturn by creating a zone of safety when the operator uses seatbelts.

### Iowa Tractor Overturn Fatalities

- A 49-year-old farmer drove a narrow-front-axle tractor to feed cattle in a pasture. Authorities surmised he drove too close to the edge of a ravine in attempting to retrieve a dead cow from the ravine, and the ground gave way, causing the tractor to overturn. The operator was thrown from the tractor. The tractor had no ROPS.
- A 46-year-old farmer was driving his wide-front-axle tractor with an attached forage chopper along the edge of a field next to a steep embankment. The tractor overturned and rolled down the 15-foot embankment and pinned the farmer underneath the rear wheel. The tractor was an early-1970s model without ROPS.
- A 72-year-old farmer operating a narrow-front-axle tractor made a sharp right turn in a grassy waterway while driving in 6<sup>th</sup> gear (road gear). The tractor overturned onto the farmer and pinned him under the seat and fender. The tractor was a late-1960s model without ROPS.

### Tractor Overturn Facts

- The tractor is the leading cause of death on the farm.
- The most frequent causes of tractor-related deaths are side and rear overturns.
- 80% of deaths caused by overturns happen to experienced farmers.
- 1 in 7 farmers involved in tractor overturns is permanently disabled.
- 7 of 10 farms will go out of business within a year following a tractor-related fatality.
- ROPS are 99% effective in preventing injury or death when used with a seatbelt.

### References:

The University of Kentucky College of Public Health. The Kentucky ROPS Guide. 2010.

<http://warehouse.ca.uky.edu/rops/ropshome.asp>.

New York Center for Agricultural Medicine and Health ROPS Retrofit Program. 2011. <http://ropsr4u.com/>.

The Ohio State University. Ohio State University Extension publication AEX 192.1.56: Rollovers and Rollover Protective Structures (ROPS). 2006. [http://ohioline.osu.edu/aex-fact/192/pdf/0192\\_1\\_56.pdf](http://ohioline.osu.edu/aex-fact/192/pdf/0192_1_56.pdf).

## Recommendations

Contact your local implement dealer to install ROPS and seat belts on all tractors for which there is a manufacturer's retrofit available. A directory of ROPS retrofits, arranged by tractor make and model, is available at: <http://warehouse.ca.uky.edu/rops/indexoriginal.asp>.

Be aware of risks of installing your own ROPS. A summary of the risks and disadvantages of attempting to install your own ROPS is provided at the New York State ROPS Rebate Program website: <http://ropsr4u.com/ny/installer-info/>.

Install and use seatbelts on tractors with ROPS.

Be aware of terrain characteristics that may increase the risk of a rollover, including ditches, holes, slopes, and unstable ground near roadways or embankments. Do not operate tractors without ROPS in locations where these hazards are present.

### ***Reduce the risk of a rear overturn***

- Always hitch loads at the drawbar.
- Use front weights to increase tractor stability.
- Start forward motion slowly and change speed gradually.
- If possible, avoid backing downhill. Drive around ditches.
- Back out or be towed out of ditches or mud.

The Iowa Fatality Assessment Control and Evaluation (Iowa FACE) program is conducted by the Injury Prevention Research Center at the University of Iowa College of Public Health working in conjunction with the Iowa Department of Public Health and its Office of the State Medical Examiner.

### ***Reduce the risk of a side rollover***

- Set wheels as far apart as possible.
- Lock the brake pedals together before high-speed road travel.
- Match speed to operating conditions and loads. Do not let the front wheels bounce.
- Slow down before turning.
- Use engine braking when going downhill.
- Avoid crossing steep slopes. Watch for depressions on the downhill side and bumps on the uphill side.
- Turn downhill, not uphill, if stability becomes a problem.
- Stay 10 feet or more away from ditches and steep slopes. Slow down to maintain control.
- Stay 10 feet or more from a riverbank. The bank may be steep. Slow down to maintain control.
- Keep front-end loader buckets as low as possible when moving to maintain a low center of gravity.
- If the right front tire goes off the road into the ditch, turn downward or hold steady and slowly recover. Do not attempt to turn sharply back onto the roadway.