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PRESS RELEASE

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FOR IMMEDIATE RELEASE

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ROLLOVER PROTECTIVE STRUCTURES
An effective way to prevent tragic farm accidents.

There's no way around it: tractor rollovers continue to be the single most deadly type of injury incident on American farms. And most tractors manufactured before 1985 don't feature rollover protective structures (ROPS), leaving many operators at risk for injury or death.

Identifying tractor safety principles is one of the aims of Central States Center for Agricultural Safety and Health (CS-CASH). This University of Nebraska Medical Center group (https://www.unmc.edu/publichealth/feedyard/) is conducting two research projects (funded by National Institutes of Occupational Safety and Health) that are designed to make a positive impact on the sustainability of cattle feedyards through increased safety and health efforts.

Out of approximately 4.8 million tractors being used on U.S. farms, about half of them are used without a ROPS. The protection a ROPS provides if

a tractor overturns is so effective – estimated at 99% effectiveness – that many states have established a ROPS rebate program to assist farmers in purchasing them.

Statistics indicate that one out of 10 tractor operators will experience a rollover in their lifetime. At least 80% of tractor rollovers involved experienced operators. Rollover accidents don't necessarily occur on sloping terrain. They could also be triggered by an overweight load in the loader, unexpected hitched equipment issues, or unseen obstructions in the work area.

ROPS are roll bars or roll cages designed for wheel- and track-type agricultural tractors. Regardless of their type, all ROPS are designed to create a protective zone around the operator when a rollover occurs. When used in conjunction with a seatbelt, the ROPS will prevent the operator from being thrown outside the protective zone, where they could be crushed by the overturning tractor or equipment mounted on or hitched to the tractor.

Several types of ROPS are available. The two-post design is the most common type and is ROPS has upright posts that are vertical or slightly tilted and mount to the tractor's rear axle. A foldable ROPS is designed with hinges to allow the ROPS to fit in low clearance areas.

A four-post ROPS is mounted onto both acles and onto the frame in front of the tractor operator. Typically, a ROPS with an enclosed cab is installed by the tractor manufacturer and the structure serves as a ROPS.

A ROPS with an enclosed cab also prevents tractor operators from being jostled out of their seat when working on rough ground and among low hanging tree limbs. The cabs also provide protection from weather events. All types of ROPS have specially designed mounting plates and mounting points for structural integrity.

For all agricultural tractors over 20-horsepower that were manufactured after October 25, 1976, and are operated by a hired employee, the Occupational Safety and Health Administration (OSHA) requires an approved ROPS.

When a tractor overturns, the ROPS is designed to limit the overturn to roughly 90 degrees and to prevent the tractor from rolling over more than once.

A seat belt is intended to keep the operator within ROPS protection zone. Operators should never assume they can jump clear if an overturn occurs. Generally, the incident happens so quickly there's no time to jump clear. Seat belts also protect operators if a collision with another vehicle occurs.

While a seat belt increases the effectiveness of a ROPS, operators will still be protected by the ROPS. While use of both the ROPS and seat belt provide optimum protection, the ROPS will provide more protection for an operator than no ROPS at all.

Because ROPS are carefully engineered structures designed to absorb some energy while maintaining structural integrity, a homemade ROPS, or one fabricated by a local shop, will not provide the same protection found in a standard ROPS.

Differences between a commercially manufactured ROPS and a homemade one include the fact that ROPS use special steel to avoid cold weather brittleness. Hardened bolts prevent failure at the fasteners and mounting plates fit on the axles in such a way as to maintain axle housing integrity. All bolted or welded joints are designed and constructed with the necessary strength and welds are of the highest quality in terms of penetration and size.

Commercial ROPS are tested using a standardized procedure with very large forces to assure the

structure performs properly during an overturn. Even experienced machine shops or blacksmiths should not make a ROPS because there's no guarantee that a homemade or shop-made ROPS will meet all the criteria required of a commercially manufactured one.

Aaron Yoder, Ph.D., Associate Professor, Biological Systems Engineering, University of Nebraska-Lincoln; Associate Professor, Environmental Agricultural and Occupational Health, University of Nebraska Medical Center, says use of ROPS is the easiest way to reduce potential for rollover deaths.

"Research from around the world shows that death and serious injury are virtually eliminated when ROPS are installed and seatbelts are worn," Yoder says.

For tractors manufactured after 1985, their featured ROPS structures should never be removed or modified, welded, cut down, etc.

"Modifications can negatively impact the integrity of the ROPS and impair its effectiveness in a rollover incident," Yoder says. "To ensure your tractor's ROPS is in good condition, periodically check it for any damage or signs of rust or cracks. Check the seat belt, too. If you have concerns about its condition, consult your dealer to help correct any issues."

The full cost of a tractor rollover injury or death are difficult to determine because there's no true way to measure the value of a life. The cost of losing an operation impacts the producer and his family, the community, and the region for many years. A lifelong injury can impact the person and others related to and interacting with them in multiple ways.

The cost of tractor rollover deaths and injuries to U.S. agriculture is estimated to be $115 million per

year. Those surviving a rollover accident can expect to see financial losses average some $900,000 with the combined cost of medical care, lost time, and property damage.

Since cost-share ROPS programs have been made available across the nation, the average cost of installing a ROPS is approximately $391. More retrofitting information is available at www.ropsr4u.org.

“Some reasons people don’t install ROPS can be attributed to customs, costs, and convenience,” Yoder says. “We all have a tendency to think that those kinds of tragedies only happen to ‘someone else.’

“Producers must use tractors to do their farm work,” Yoder says. “Without tractors, food production would fall far short of meeting needs. At the same time, no other farm machinery is so linked to injury and death. We must take every opportunity to make using a tractor as safe as possible.”

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