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## PRESS RELEASE

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### FOR IMMEDIATE RELEASE

*By UNMC, Central States Center for Agricultural Safety and Health, Omaha, NE*

#### TRACTOR TIPS: HOW TO AVOID THEM

Tractors and loaders are an invaluable resource in the feedyard for a multitude of daily tasks. To keep operators safe while operating tractors and loaders, it's necessary to understand how use of a front-end loader impacts the stability of a machine.

Identifying tractor and loader 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 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.

The use of loaders will shift the center of gravity on a machine. That shift may cause the machine to become unstable if an item being transported is too heavy, puts excess weight on one side of the loader, or is raised too high.

“Whenever a machine’s center of gravity changes, there is some risk that the tractor will tilt or roll over,” Aaron Yoder, Associate Professor, Environmental, Agricultural and Occupational Health, University of Nebraska Medical Center, says. “With weight on the loader, the machine’s center of gravity will shift forward or upward from its normal point, at the center of the tractor. If either the forward or upward shift goes too far, the tractor will turn over.”

The first step in safely operating a tractor or loader is to ensure that the size of the loader and machine are matched. Manufacturer operator manuals provide important details that all tractor/loader operators should review and learn. If necessary, contact the manufacturer to replace a manual or secure an additional one.

All machines used with a loader need a rollover protective structure (ROPS) and a fully functioning seatbelt to protect the operator if a rollover occurs. The seatbelt should be secured any time the operator is on the machine.

To help avoid rollovers while using a loader:

- Adjust the width of the tractor wheels so they are as wide apart as is practical.
- Ballast the tractor/loader combination as the manufacturer recommends or attach wheel weights to the machine’s rear axles or wheel rims. A three-point hitch attachment may also be used to help balance the weight of a load.
- Keep the bucket as low as possible when turning. Avoid any obstructions or uneven landscape while transporting the load.
- Avoid quick starts, stops or turns; drive smoothly.
- Before raising the loader to its full height, make sure the machine is sitting on level ground free from holes or depressions.

Regardless of the model or size of a machine and loader, use of the loader changes the physical and handling attributes of a machine. Both maneuverability and machine clearance change when a loader is in use.

Loader lift capacity can be measured as full height, static lift capacity, pivot pin capacity, bucket center capacity, lift arm capacity and 24 inches aft of lift arm capacity. The higher the load is lifted, the more the center of gravity will shift.

As a load is moved, it's critical to maintain the machine's proper center of gravity to avoid tilting or a tractor rollover.

In transporting a load, always keep the loader bucket as low as possible and drive slowly. When carrying a load that blocks your view, back the machine to the desired location rather than raising the load higher.

When moving a load, keep these safety practices in mind:

- Keep speed low.
- Raise and lower loader arms slowly and steadily.
- Raise the loader in an area free from overhead obstacles, such as power lines.
- Load the bucket evenly from side to side, observing the capacity of the machine and loader.
- Use caution in handling loose or shifting loads.
- Allow for the extra length of the loader attachment when making turns.
- Keep the loader low while carrying loads and/or while driving on an incline. Drive with loaded buckets facing uphill rather than downhill.
- Stay off steep slopes to prevent bouncing and loss of control.

- Avoid the outer edges of banks and slopes.
- Never tow a machine by attaching a tow chain or cable to the loader.

Whenever a heavy item is hitched to one side of a loader for transport, there is high risk that the machine will tilt or overturn. If it's necessary to use a tractor loader to move a heavy item, add weight to the rear of the tractor to help maintain the center of gravity.

Often, other feedyard workers are nearby when tractor loaders are in use. To avoid peer and bystander issues, follow these guidelines:

1. Never lift or carry people in the loader bucket.
2. Don't move or swing a load when bystanders are nearby.
3. Never walk or work under a raised loader.
4. Avoid putting hands or fingers near pinch or crush points on the loader.
5. Only operate the loader while seated on the machine.
6. Use the safety support locks on the loader cylinders (if equipped) during loader maintenance.

Loaders are often used to handle large, round bales in a feedyard. Weighing as much as 2,500 pounds, caution must be used in handling these bales with a machine. Every machine operator must be aware of safe operating practices and potential hazards related to moving bales. Always use the recommended amount of rear ballast or rear counterweight to insure stability.

Before transporting bales, visually inspect the loader for hydraulic leaks and broken, missing or malfunctioning parts. Pinhole hydraulic leaks can be spotted by using a piece of cardboard or paper to check for them. These leaks are hazardous because leaking hydraulic oil can have sufficient force to penetrate the skin, causing serious injury that's difficult to treat. Before disconnecting hydraulic

lines, relieve all hydraulic pressure. Make necessary repairs before attempting to move bales.

Whenever possible, it's safer to handle bales with a rear attachment, such as a rear-mounted lading spike, rather than the frontend loader. This eliminates the danger of roll-back and doesn't block the operator's vision. Rear tires are better suited to carry the extra weight and there's less chance of a side overturn because the bale isn't lifted as high. Insert the spike into the center of the bale for maximum control.

Extending the tines of a loader to accommodate a large bale may seem to be a good way to solve the problem of moving a large bale. However, doing so will move the machine's center of gravity forward and place additional stress on the loader, hydraulic system and tractor's front end.

Use of a grapple hook to transport large round bales will prevent the bale from rolling back onto the loader arms.

"Poor weather conditions, fatigue and other distractions may affect the tractor loader operator," Yoder says. "Those types of conditions are not within our control. However, understanding how to properly use this equipment and doing all you can to reduce the risk of accident or injury will result in a safer work environment for everyone."

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