CONN-OSHA QUARTERLY

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Top Stories

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Landscapers…Start your engines! Riding Mower Safety

By Brian Testut, Occupational Hygienist

Landscaping season is in full bloom, and so is the use of lawn maintenance power equipment. One of the most frequently used pieces of equipment is the riding mower. Riding mowers provide the landscaping industry with efficiency and versatility, but they can also pose a serious safety hazard to the operator. Over 20 fatalities occurred due to riding mower roll-overs between 2023 and 2024.[1] See Hazard Corner on page 6 for a mower-related fatality.

Riding mowers can overturn for various reasons, including excessive speed, steep slopes, poor terrain conditions, wet surfaces, and operating too closely to ponds, waterways, and drop-offs. Roll-over prevention devices, used in conjunction with seatbelts, can help seated operators avoid tragedy if installed and utilized.

What types of mowers are we talking about?

A riding mower is a self-propelled vehicle operated by a person in a seated or standing position. It is designed for cutting grassy areas such as residential lawns, golf courses, cemeteries, and parks.

Note: The riding mowers discussed in this article are distinct from agricultural and industrial tractors or sulky-equipment mowers. Further information on the safe operation of these mowers can be found in 29 CFR 1928 Agriculture, Subpart C, Roll-Over Protective Structures and American National Standards Institute/Outdoor Power Equipment Institute ANSI/OPEI) B71.4-2017, Commercial Turf Care Equipment.

Where should I begin?

Inspect your mowers and read the operator's manual.

Employers need to ensure that the equipment in use is designed and maintained with safety in mind. Most seated riding mowers are designed by the manufacturer to be equipped with a roll-over protective structure (ROPS). The ROPS can either be standard or optional equipment. If the mower an employee will be using does not have a ROPS, look for unused bolt holes or brackets near the seat or frame to see if the mower should be equipped with a ROPS. Do not operate any mower that was intended to be equipped with a ROPS without its ROPS in place. In many cases, retrofit kits are available.

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Contact the manufacturer to see if there is a kit for the mower you will be using.

Provide and use approved seat belt assemblies on all seated riding lawn mowers on which a ROPS has been installed.

Where vertical clearance does not allow for a ROPS to be in the raised (active) position, the ROPS may be temporarily placed in the lowered (inactive) position. Also, workers should not wear a seat belt while operating a riding mower with the ROPS in the lowered position. Return the ROPS to the raised position as soon as the riding mower is in an area where the vertical clearance allows its use and reconnect the seat belt.

REMEMBER: ROPS UP = BELT ON


credit: osha.gov

Ensure riding mowers have a functioning operator presence control system that shuts off the blades when the operator dismounts the machine or rises out of the seat.

Ensure riding mowers have interlocks so that the engine cannot start while the mower is in gear or if the blade is engaged. Inspect mowers to ensure that all safety features, including belt and pulley guards and grass chutes, are always in place before operation.

Proper Operations

Do not operate mowers on slopes that exceed the angle limits specified by the manufacturer. Look for a label on the mower with this information. When the manufacturer's instructions do not specify the angle limits for operating on sloped surfaces, evaluate the terrain and slope conditions to ensure that the mower is operated in a safe manner. Avoid mowing on slopes with an angle of over 15 degrees if there is no other information available.

Use a slope indicator, also known as an inclinometer, if you need one to determine the slope of mowing areas. Printable versions of slope indicators are typically available within the operator's manual or available for download on the manufacturer's website. Additionally, slope finder applications may also be available on your smartphone.

Do not operate mowers in areas where the drive wheels are within five feet, as measured from the outside wheel edge, of the unprotected edges of retaining walls, embankments, levees, ditches, culverts, excavations, or similar locations that present an overturn or rollover hazard. Use a string trimmer or a push mower instead.

When it is necessary to operate riding mowers near ponds, creeks, reservoirs, canals, sloughs, lakes, golf course water hazards, and similar bodies of water, evaluate the terrain and any slope conditions. Establish a safety zone to ensure that the mower is operated at a safe distance from such hazards. Sometimes, a distance of two mower widths is sufficient.

Trained Operators Only

Employers are responsible for providing workers with training before they can operate any lawn-mowing equipment. Training ensures that each operator is competent to operate a riding mower safely. Training must be provided in a language and vocabulary that workers can understand. Training should cover topics on the safe operation of specific riding mowers and other equipment workers use. These topics include:

- A review of all safety devices to ensure that ROPS, guards, seat belts, and shields are securely in place and properly used.
- The importance of surveying the terrain for hazards before mowing.
- How to identify obstacles in the mowing path, such as large rocks, signposts, tree stumps, soft or wet spots, and areas where the use of riding mowers is prohibited.
- How to read and understand the operations, maintenance, limitations, and warning sections of the equipment manual.
- Speed control, steering, and maneuvering, such as decreasing speed when the mower is traveling down slopes or around sharp corners to prevent tipping.
- Being particularly alert when backing up or while operating in low-light conditions.

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How to Subscribe

Contact robert.hunt@ct.gov and in the subject line type "Subscribe" and then provide your e-mail address in the body of the message.

- Never mow from side to side when operating mowers on unlevel or sloped ground. Always mow slopes in the up-and-down direction (refer to the manufacturer's operating manual).
- A review of stability and rollover hazards associated with operating riding mowers on surfaces, terrain, or areas that could pose a risk. Locations that present a rollover risk include loading ramps, wet surfaces, slopes, and areas near drop-offs, retaining walls, embankments, streams, bodies of water (e.g., lakes and ponds), unprotected ditches, culverts, and excavations.
- Use of all required personal protective equipment (PPE): hearing protection, safety glasses, and proper footwear.
- Never wear jewelry and loose-fitting clothing that can easily become entangled with moving parts.
- Never carry passengers. Riding mowers are one-person machines.
- Always start the mower from the driver's seat and keep both feet on the machine while it is running.
- Avoid sudden starts, stops, or turns.

Retraining and Seasonal Start-ups

Retraining and evaluation are necessary to ensure that workers maintain their competency to operate a riding mower safely. Provide refresher training to workers when:

- An operator has been observed operating a mower in an unsafe manner.
- An operator receives a new job assignment that includes operating a mower or machinery with which the operator is unfamiliar.
- An operator receives a new job assignment that includes mowing on terrain or surfaces that present hazards unfamiliar to the operator.
- An operator has suffered an injury or been involved in a near-miss incident.

References

1. OSHA's Accident Search results
2. OSHA's Dangers of Roll-Overs of Riding Mowers webpage

Requesting a Consultation

To learn more or request your free consultation from CONN-OSHA:

Call us at 860-263-6900, or visit our webpage

ATV and UTV use by First Responders and Other Agencies

By Scott Adams, Safety Compliance Officer

Let's look at All-Terrain Vehicle (ATV) and Utility Task Vehicle (UTV) use among municipalities and state agencies within the state of Connecticut. We will cover differences between each type of unit, hazards associated with operating such units, uses for these types of units, PPE use while operating such units, types of helmets recommended to wear while operating these units, accessories used with these types of units, and resources available.

Major Differences Between an ATV and a UTV

ATVs are smaller and normally designed for one rider, with options for an additional rider. They can have three or four wheels, and the ATV is steered by a set of motorcycle-type handlebars. ATVs tend to be less expensive and may be better suited for tight trails. UTVs are larger and have seating for multiple people. UTVs normally have between four and six wheels, are steered by a steering wheel, have more storage space, typically have a roll cage or enclosed cab, larger motors, seat belts, and better riding suspensions. UTVs can also accommodate various skids, such as, but not limited to, fire suppression skids and patient transport sleds that slide into the rear bed. Each type of accessory brings its own set of safety hazards for both patients, operators, and riders of these types of vehicles. Both types of vehicles have an inherent ability to rollover since the stability of these vehicles is not the greatest.

Hazards Associated with Operation

Both types of vehicles are dangerous to operate on rough, uneven, loose terrain. Stability should be one of the main focuses while operating such a vehicle. UTVs tend to have better stability due to the increased wheelbase over ATVs. Other factors that need to be assessed prior to operation include:

- Have the units been properly maintained?
- Are the operators trained in the unit's operation, and are they familiar with the types of terrain they will be operating in?
- Do the operators know the limitations of the vehicle?
- Do all operators and passengers have the proper PPE available?
- Have all operators read and understood the vehicle's operator's manual?

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Common Uses

Use of ATVs and UTVs by municipalities may include, but are not limited to:

- Community events, parade coverage, and sporting event coverage
- Brush fire suppression
- Search and rescue
- Patient transport
- Equipment transfers
- Personnel transport
- Law enforcement actions
- Trail maintenance


credit: osha.gov

Required Personal Protective Equipment (PPE)

Certain PPE is required to operate or ride in these two types of vehicles. While Connecticut does not require the use of helmets by adult operators, most, if not all, manufacturers require the use of approved helmets. Operating one of these units without a helmet is extremely dangerous. The United States Forest Service Health and Safety Code Handbook (FSH 6709.11) specifies helmet standards for ATV/UTV operators and passengers. They are required to wear a three-quarter or full-face motorcycle helmet that meets U.S. Department of Transportation (DOT), American National Standards Institute (ANSI), or Snell Memorial Foundation (SMF) standards, for firefighters operating these types of vehicles. Firefighter helmets are NOT acceptable for operating or riding on, or in, these vehicles. They are tested differently and are designed for fire activities, not for motorized vehicle operation. Eye protection, long pants, sturdy boots, and gloves may also be required. Beyond PPE, you must ensure all operators utilize the unit's safety features, such as seatbelts if so equipped. Failure to follow instructions can result in serious harm or death.

Accessories Used with ATVs and UTVs

UTVs can accommodate various accessories such as a fire suppression skid or a medical patient transport skid, depending on the agency's needs. It is imperative that the dealer you purchase the unit from has a solid understanding of the type of skid that best fits your uses. All the units have weight limits both for the cargo bed and overall. These units' installations may require additional safety brackets or bolting to ensure the skids don't shift during operation. A good understanding of how the skid changes the unit's center of gravity and handling is imperative to safe operation. The UTV cargo bed should NOT be used to transport additional personnel, as this will also change the center of gravity and may exceed the unit's weight limitations.

CONN-OSHA Inspection

If CONN-OSHA is called to a UTV/ATV incident or responds to a complaint about the operation of these units, a review will be done to see if the employer has conducted a hazard assessment to determine the hazards of operating these motorized vehicles and steps that have been taken to mitigate the hazards. Safety professionals will be looking to see if the employer has standard operating procedures for these vehicles and if the operators have been adequately trained by competent personnel and have a good understanding of the owner's manual. The PPE required to safely operate the vehicles will be looked at and the OSHA 300 logs will be checked to determine if there were any recorded injuries while operating these vehicles.

In conclusion, UTVs and ATVs have many uses that can help get the job done, but it must be remembered that these motorized vehicles are inherently dangerous and must be operated and maintained by trained, qualified personnel.

Resources Available

1. The Connecticut Fire Academy has a course on UTV/ATV operation.
2. The United States Forest Service has a Utility-Terrain Vehicle Operator Training Course, Publication December 2011, 6700-Safety, 1167-2828-MTDC
3. ANSI/OPEI B71.9-2022: Multipurpose Off-Highway Utility Vehicles
4. [OSHA's All-Terrain Vehicles (ATVs) and Utility Task Vehicles (UTVs) webpage]

CONN-OSHA STAFF Update

Welcome Justin Roberts

Justin joins us as an Occupational Hygienist. He has over a decade of experience in Occupational Health and Safety working with the US Air Force, the Coast Guard Academy and Electric Boat.

Virtual Training Schedule

Trenching and Excavation *8/21/25*	Studies show that excavation work is one of the most hazardous types of work done in the construction industry. Injuries from excavation work tend to be of a very serious nature and often result in fatalities. The primary concern in excavation-related work is a cave-in. Cave-ins are much more likely to be fatal to the employees involved than other construction-related accidents. This workshop will provide an overview of 29 CFR 1926.650 - 652, Excavations, including the role of the competent person.
OSHA Reporting and Recording Requirements *9/25/25*	The purpose of this workshop is to introduce the requirements and procedures related to OSHA Injury & Illness Recordkeeping, including the electronic reporting of injuries and illnesses requirements. The class will help develop skills to accurately report occupational injuries and illnesses. Resources and reference materials will be provided. If you are responsible for completing the documents required by this rule (OSHA 300, OSHA 300A and OSHA 301), or if you supervise the person that completes the forms, or if you are a safety committee member, this class is a must.
Bloodborne Pathogens *10/9/25*	This workshop introduces participants to the requirements of 29 CFR 1910.1030 Bloodborne Pathogens. Emphasizes developing the knowledge and skills necessary to do program development, administration, and training as required by the rule.
Respiratory Protection *11/20/25*	Even though personal protective equipment should be used as a last resort for the protection of a worker, we do find ourselves having to utilize such protection. We will discuss the requirements of the OSHA Respiratory Protection standard, 29 CFR 1910.134, to help provide a better understanding. Required versus voluntary use will also be covered.
New England Roundtable *Every Wednesday of the Month*	Bringing business together to network and share ideas in the occupational safety and health community. The roundtable meetings are held from 9:00 am to 10:15 am every Wednesday. For more information on the New England Roundtable visit: oshaedne.com/roundtables

Visit this link for more info and to sign up.

Hazard Corner: Seasonal Lawn Mower Operator Crushed and Dies After Lawn Mower Rolls Over on a 30 Degree Slope

Case Summary

A 22-year-old lawn mower operator was killed when he was involved in a lawn mower rollover incident. The victim was mowing horizontally on a hill with a 30-degree slope when his mower slid down the hill and rolled onto him. Landscaper crewmembers also working in the area discovered the victim pinned beneath the mower at the bottom of the slope and immediately removed the lawn mower from on top of the victim, discovering he was deceased. The medical examiner identified the cause of death as asphyxia caused by chest compression.

Area where mower overturned at jobsite.

Fatality & Casualty Reporting

State & Town:

- **Report to CONN-OSHA**
- **(860) 263-6946**

Private Employers:

- **Report to Federal OSHA**
- **(800) 321-OSHA (6742)**

Key Contributing Factors

- Operating a riding mower on a slope that exceeds manufacturer's specifications.
- The riding mower was not equipped with a rollover protection structure.
- The employee was working alone.

Recommendations for Prevention

- Never operate a lawn mower on a slope that exceeds the angle limits specified by the lawn mower manufacturer; use lawn maintenance equipment designated for steep slopes.
- To prevent rollover injuries, riding lawn mowers should be equipped with roll-over protective structures (ROPS) and seat belts.
- Employees should receive safety training on slope mowing with riding lawn mowers that includes slope calculation, manufacturer specifications, and terrain assessment.
- Employers should consider implementing a buddy system when working in hazardous areas such as steep slopes.

OSHA Can Help You Prevent Heat Illness at Work

CONN-OSHA's sample Heat Illness Prevention Plan can be found here.