



GROUPS SAFETY

Oklahoma State University



ENVIRONMENTAL
HEALTH AND SAFETY

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OBJECTIVES

- General Grounds Safety
- Terms needed for mowing
- Pre-Operations Checks
-
- Personal Protective Equipment
- Operating Procedures
- Trimming and Cutting Equipment
- Thrown Objects



GETTING STARTED

- Oklahoma State University takes pride in our beautiful grounds, so it only makes sense to keep our expert employees safe.
- Not everyone knows how to operate landscaping equipment safely. Common accidents include lacerations, injuries from projectiles, burns, electrical shock, strains and slips, trips and falls.
- The purpose of this training is to help you become familiar with grounds equipment. Let's get started.



GENERAL GROUNDS SAFETY

- Always read the owner's manual before operation and beginning work with a piece of equipment. Familiarize yourself with controls and safety equipment.
- Inspect the work area prior to starting work. Look for hazards such as rocks, stakes and sprinkler heads. Always stop work if a pedestrian enters the work area. Never leave equipment unattended.
- Always remove a piece of equipment from service immediately if maintenance is required.
- Ensure that all guards and safety switches are working properly, are in place and in good condition.



GENERAL GROUNDS SAFETY

- Always wear sunscreen while working outdoors.
- Be careful to avoid fatigue and heat stress by taking breaks and drinking plenty of water.
- Never operate equipment if you're tired, sick or taking medication.
- Take special precautions when working with electrical equipment. Avoid accidentally cutting any extension cords with equipment.



TERMS USED IN THIS TRAINING PROGRAM

- **Power Take Off (PTO)**

- PTO is the area of the machine where rotating torque is directly transferred to another machine or tool. In the mower case, the rotating torque is used to turn the mower blades.

- **Roll Over Protection System (ROPS)**

- ROPS is attached to some vehicle frames to help prevent the vehicle from upsetting more than 90 degrees and prevent the occupant from being crushed if an upset does occur.

- **Deadman Switch**

- A device that will automatically turn the machine off if the operator should leave the driver's seat for any reason. It may also be used in the case of an equipment malfunction to turn the machine off.



REMEMBER



- ROPS stands for Roll Over Protection System
- **Trivia #1:** Although there are few accidents with mowers, a number of injuries occur when mowers are in use. These accidents are caused by driving too fast, operating unsafely on uneven ground, operating a mower that has not been mechanically maintained, and pushing the mower beyond safe operating limits.



PRE-OPERATION PROCEDURES

If problems can be identified **before** stepping into the driver's seat, accidents can be prevented, and the equipment will remain properly maintained.

Pre-Operation procedures can be broken down into three areas:

- Guidelines for getting familiar with your equipment
- Using a safety checklist
- Personal protective equipment



PRE-OPERATION PROCEDURES

Guidelines for getting familiar with your equipment:

- Read the operator's manual first
- Make all necessary adjustments before turning on the machine
- Observe and question a skilled operator until comfortable with procedures
- Practice operating in an open area first



REMEMBER

- Observe and question a skilled operator until you are comfortable with the procedures.
- **Trivia #2:** Overturns have the highest fatality rate for unintentional injuries involving tractors that occur on the farm, according to reports from 31 states covering about 66% of the farm tractors in the United States. In 1995, overturns accounted for 55% of all on-the-farm fatalities reported, with an annual rate of 5.5 deaths per 100,000 tractors.(National Safety Council Accidents Facts, p137).



SAFETY CHECKLIST

- Make sure all protective guards are in place. Never remove guards.
- Determine that steering is responsive before beginning a job
- Test the brakes
- Clean the steps and operating platform to prevent slipping
- Ensure that tires are properly inflated



SAFETY CHECKLIST

- Check for correct tightness of bolts
- Ensure a Slow-Moving Vehicle (SMV) sign is installed and visible
- Ensure flashing warning signs are present and operating when traveling on roadways

**Once installed, never remove guards, lights or signs.
Ignoring these simple items can cause accidents.**



REMEMBER

- Never remove guards, flashing lights or Slow-Moving Vehicle signs—even if they are bothering you.
- **Trivia #3:** Private industry reported 2.8 million non-fatal injuries and illnesses among mowers during 2019, which is unchanged from 2017 and 2018. This is reported from the U.S. Bureau of Labor Statistics.



PROTECTIVE GEAR

- Hearing protection, such as earplugs or muffs, are required for prolonged noise exposure.
- Gloves can't always prevent a finger amputation, but they can guard against cuts, abrasions, chemicals and other skin irritants. Wear gloves that fit and wear the right type of glove for the job.
- Long pants should be worn to protect against hazards such as flying debris, skin irritants and burns from exhaust.



PROTECTIVE GEAR

- Dust masks reduce inhalation of dust and other particles in the air. Do not use when working with chemicals, toxic gases, and or when there is an oxygen deficiency.
- Safety glasses should be worn with side shields. If you wear glasses, ensure they have impact-resistant lenses.



PROTECTIVE GEAR

- Remember to wear the right type of personal protective equipment for the job, keep the items clean and sanitary, and replace any items that wear out or become broken.



REMEMBER

- Wear personal protective equipment for ears, eyes, hands, nose, legs and feet.
- Keep the items clean and sanitary.
- **Trivia #4:** Most Mower accidents occur between April and October, with June being the peak accident month.



OPERATING PROCEDURES

There are 3 kinds of procedures for safely operating grounds equipment:

- General Safety Procedures
- Operating on Uneven Ground
- Avoiding Thrown Object Hazards



GENERAL SAFETY GUIDELINES



- These procedures may sound like common sense, but they are often abused by operators and can result in minor or major injuries.



GENERAL SAFETY GUIDELINES

- Only the operator is allowed on the equipment. No passengers allowed!



GENERAL SAFETY GUIDELINES

- When leaving the seat, the operator should disengage the PTO, engage the brake, stop the engine, and wait for all parts to stop before dismounting.
- The operator should not adjust any mechanism of the equipment while the mower is running but should follow the above procedures making sure all parts have stopped moving.



GENERAL SAFETY GUIDELINES



- When driving between mowing jobs, crossing a road, path or sidewalk, or when not using the mower, the operator should disengage the PTO to stop the mower blade.
- Operators should not mow in conditions where traction or stability is questionable. If uncertain, test drive a section with the PTO off.



REMEMBER

- Disengaging the Power Take Off (PTO), putting on the brake, stopping the engine, and waiting for all parts to stop moving before getting off the mower, are good common-sense rules to follow.
- **Trivia #5:** Over half of tractor/mower-related deaths result from overturns. Most go over sideways; some go over backward. Chances of survival are better if your tractor/mower is equipped with a rollover protective structure (ROPS) and a seat belt.



GENERAL SAFETY GUIDELINES

- Never refuel equipment while the engine is running or extremely hot. A fire or explosion could result.



SAFE FUELING PROCEDURES

- Always refuel in a well-ventilated area on concrete or pavement. Never refuel equipment in grassy areas, as sparks could cause a fire.
- Before refueling equipment that has recently been used, allow the engine to cool before adding gasoline.
- Never smoke around gasoline or gasoline powered equipment.
- Always clean gasoline spills immediately to avoid accidental ignition.



OPERATING ON UNEVEN GROUND

- Operating on uneven ground is the number one cause of accidents due to rolling of the machine. Since not all machinery is equipped with ROPS, mower operators have been killed or severely injured by improper operation on uneven ground.
- Even when ROPS is used, operators remain at risk and therefore should evaluate each situation on the safest way to mow.
- If ROPS is on the machine wear your seat belt, equipment not have ROPS do not wear a seatbelt.



OPERATING ON UNEVEN GROUND

- If an area is too sloped or the ground is deemed too uneven to operate the mower safely, use a weed eater or push mower.



OPERATING ON UNEVEN GROUND

Before mowing on EVEN ground, prepare the machine:

- Lock the differential for better traction on slopes and in slippery places.
- If available, install rear and/or front wheel weights to increase stability, steering, and traction. Refer to the machine's operating manual for installing these.



OPERATING ON UNEVEN GROUND

When mowing on UNEVEN ground:

- Slow down the travel speed so that you can see and react to hazards in your path. Overturns are four times more likely to occur when speed is doubled.
- Be on the alert for holes and ditches covered by grass or debris. A wheel may drop and cause an overturn.



OPERATING ON UNEVEN GROUND

When mowing on UNEVEN ground:

- Drive up and down a hill, not across.
- Do not stop when going up hill or down hill. If the mower stops going up hill, turn off the PTO and back down slowly.
- Do not try to stabilize the mower by putting your foot on the ground.

If in doubt, do not mow on uneven ground

- Saving yourself time by operating in an unsafe situation could cost you life or limb.



REMEMBER

- When operating on uneven ground, watch for holes and ditches covered by grass and debris.
- **Trivia #6:** The fewest mower accidents occur on Sunday. On the other hand, Saturday and Wednesday are the peak days for accidents. Keep in mind that accidents can and do occur on any day of the week, usually when they are least expected.



TRIMMING AND CUTTING EQUIPMENT



- Before transporting any equipment, ensure it is turned off.
- Always carry equipment with cutting mechanisms away from the body.
- Always keep hands and feet away from blades and cutting heads.
- Never attempt to cut anything above shoulder height.
- Always use two hands and maintain a good grip on equipment.
- Use shoulder harnesses to prevent strain from overexertion.



THROWN OBJECT HAZARDS

- Since most newer model mowers now have optional equipment that catches cut material, it is less important than it once was for operators to be aware of thrown object hazards.
- However, many mowers without the optional equipment are still in use. This makes it necessary for all operators to be aware of and control for these hazards.
- If bystander is hit during mowing please report to your supervisor.



THROWN OBJECT HAZARDS



To avoid these hazards . . .

- Operators should check areas where grass and weeds are high enough to hide debris that could be struck and thrown. The area should be closely inspected before mowing and these objects collected.
- Areas with high grass and weeds should be mowed to an intermediate height, inspected a second time, then mowed again to the desired height.



THROWN OBJECT HAZARDS

To avoid these hazards . . .

- Operators should estimate how far and in what direction objects may be thrown
- Equipment shields must remain in place and not be removed. The shields help prevent objects from being thrown

Operators must recognize the throwing capabilities of the equipment being used and follow all guidelines to ensure safety of the people, animals, equipment, and the operator.



REMEMBER

- First walk and check areas to be mowed, looking for and removing objects that might be thrown.
- **Trivia #7:** The Deadman Switch is referred to by mower operators and is a device that will automatically power-off machinery or equipment if the operator should leave the driver's seat for any reason.



LINE TRIMMERS



- Remove all projectiles before trimming.
- Watch out for exposed electrical wires, communication lines, that could be damaged by the trimmer string.
- Don't remove protective guards and string guides.
- Monitor the string length this might cause the string to strike you unexpectedly.
- Make sure all bystanders are out of the way before you begin trimming.



LINE TRIMMERS



- Wear appropriate protective clothing and equipment such as long-pants, long-sleeve shirts, gloves, hard boots, goggles or safety glasses, face shield and ear plugs.
- Turn off gas-powered trimmers before inspecting, cleaning, adjusting, replacing string or leave unattended.
- Before refueling gas-powered trimmers, place the trimmer on the ground and allow the engine to cool.



LAWN EDGER

- Make sure bystanders are clear before starting the edger.
- Don't start an edger if the blade is touching the ground. It could move unpredictably and possibly contact your feet and legs.
- Wear appropriate eye protection such as goggles or safety glasses to guard against flying objects.
- Do not stand in front of lawn edger while it is running.



LAWN EDGER

- Don't remove protective guards or shields.
- Operate the edger at full blade speed.
- When edging along roadways wear reflective vest, stay as close to the curb as possible to avoid being hit by passing vehicles.
- Turn off a gas-powered edger running while inspecting, cleaning, adjusting, or replacing the blade unattended.
- Ensure bystanders are clear from the area when starting and operating.



LEAF BLOWER



- Make sure bystanders are clear before starting the leaf blower and when operating
- Always wear eye protection when operating a leaf blower even small stones can blind a person
- Hearing protection is recommended
- Always start and run the unit in an upright position
- Never operate the blower without the tubing



LEAF BLOWER

- Always direct the debris away from people, animals, glass and solid objects that could cause the debris to rebound or ricochet.
- Never use the blower to spread or mist chemicals, fertilizers or other toxic substances.
- Never use the blower from ladders, trees, rooftops or other unstable surfaces.



TAKEAWAYS

- Importance of Pre-Operation Checks
- The right PPE for the job
- Walk the ground first
- Watch out for people
- Safety Devices never bypass



PROGRAMS AND SERVICES

ENVIRONMENTAL HEALTH AND SAFETY

- Fire Protection Engineering
- Life Safety and Emergency Preparedness
- Environmental Compliance
- Laboratory Safety
- Occupational Safety
- Occupational Health and Medical Surveillance
- Materials Management
- Industrial Hygiene
- Chemical Hygiene
- Safety Training



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QUESTIONS?

