



# Tailgate Safety Training for Landscaping and Horticultural Services

Agricultural Safety Program, 590 Woody Hayes Drive, Columbus, OH 43210

## Electrical Shock

**Objective: Recognize the hazards of working around electricity.**

### *How to Use This Module*

Workers should recognize the power and danger of electricity. Accidents happen due to ignorance. For this module:

- Read the information about electricity below. Review the hazards of electrical shock and how it can occur.
- With your supervisor, identify hazardous situations in your work.
- Discuss safety tips with your supervisor and others.
- Review the important points.
- Take the True/False quiz to check your learning.

## Background

Everyone must be aware of electricity and how it works. In particular, workers must know about proper grounding. Safety is always a priority. Voltage, current, grounding, and resistance are basic electrical terms:

- Voltage is the force that causes the current to flow.
- Current is the amount of electricity that is flowing.
- Resistance slows down or stops the flow of current.
- The greater the resistance, the less the amount of electrical flow.
- The grounding conductor is a connection between one electrical conductor and the source of electrical power.
- A neutral is the return path back to the source.

Electrical shock occurs when part of the body completes a circuit between conductors of different voltages or between an electrical source and a ground. When that happens, you might feel a tingling sensation. Take the tool out of service.

Wet skin has little or no resistance to electrical current flow and increases the danger of electrical shock or burns. A very small current can kill. A high voltage increases the risk of death. Avoid contact with exposed electrical conductors and connectors. Avoid contact with improperly insulated equipment. Damp or wet areas are dangerous.

The effect of electrical shock depends on the amount of current flow and the current's path through the victim's body. People have survived shocks of several thousand volts. Others have been killed by voltages as low as 12 volts. To prevent electrical shock, make sure that your body does not become part of the electrical flow and a path for the current.

Ground Fault Circuit Interrupters (GFCIs) are required in greenhouses and nursery operations where electricity, water, and grounds are intermingled. GFCIs quickly shut off the power at the receptacle. Other work areas may also have GFCI protection. For more details, refer to the Tailgate Safety Training module *Grounding Electricity*.

## Helping an Electrical Shock Victim

An important part of electrical safety is knowing how to help an electrical shock victim.

- Call for help immediately.
- Often, a victim is unable to pull away from the current source. Stop the flow of electricity in the victim's body — disconnect or de-energize the circuit.
- Do not try to remove the victim from the current source. Touching the victim could cause you to be shocked as well.

## Safety Tips

- Wet skin can greatly decrease your resistance to electricity.
- Inspect the area for electrical hazards.
  - ◆ Watch for damaged extension cords.
  - ◆ Watch for exposed electrical wires.
  - ◆ Watch for damaged electrical boxes.
- Avoid contact with overhead wires if you are working with long objects up in the air — ladders, pruning shears, pruning saws.
- Do not overload circuits.
- Keep electrical equipment away from water and dampness.
- Check electrical cords for fraying and signs of wear.
- Be sure to lock out/tag out switches when working on equipment.
- In case of an electrical fire, shut off the power.
- Use a fire extinguisher approved for electrical fires to fight the fire.
- Never use water to put out an electrical fire. Water can result in a fatal shock.
- GFCIs are designed to keep workers from being electrocuted. So workers must use them when needed.
  - ◆ Use a GFCI when operating hand-held portable tools with an extension cord.
  - ◆ Use GFCIs when equipment is used near water or wet areas.
  - ◆ Test GFCIs frequently.
- Multi-plug adaptors should have circuit breakers or fuses.
- Use only double-insulated power tools or equipment with three-prong plugs. Never use the equipment with one of the prongs broken.
- If you feel a tingling sensation while you are using a tool, stop using the tool immediately. Take it out of service.

## Review These Important Points

- Voltage, current, and resistance are basic electrical terms.
- Electrical shock occurs when a part of the body completes a circuit between conductors of different voltages.
- Proper insulation of electrical sources and proper grounding work together for safety.

## About These Modules

The author team for the training modules in the landscape and horticultural tailgate training series includes Dee Jepsen, Program Director, Agricultural Safety and Health, Ohio State University Extension; Michael Wonacott, Research Specialist, Vocational Education; Peter Ling, Greenhouse Specialist; and Thomas Bean, Agricultural Safety Specialist. Modules were developed with funding from the Occupational Safety and Health Administration, U.S. Department of Labor, Grant Number 46E3-HT09.

Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the U.S. Department of Agriculture or the U.S. Department of Labor.

Answer Key: 1 = T, 2 = T, 3 = T, 4 = T, 5 = T.

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*Name* \_\_\_\_\_

### True or False?

1. Never use a hand tool that has the ground prong broken off of the plug-in end. T F
2. Be sure to tag out and lock out equipment switches. T F
3. If you feel a tingling sensation while using a hand tool, it should be taken out of service. T F
4. The higher the voltage, the higher the risk for workers. T F
5. Wet skin makes it easier for electricity to enter the body. T F