2022

PRESS RELEASE

For More Information:
ELLEN G. DUYSEN
Central States Center for Agricultural Safety and Health
University of Nebraska Medical Center
College of Public Health, Room 3035
984388 Nebraska Medical Center
Omaha, NE 68198-4388
402.552.3394

FOR IMMEDIATE RELEASE

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

INVISIBLE AND DEADLY

Be aware that electrocution threats exist wherever high lines or electrical current is present.

Photo Credit: © Canstock by samurkas

It is difficult to protect yourself from a hazard you don't recognize. On the farm, electrocution claims the lives of approximately 62 agricultural workers each year (www.electrocution.com), people die in fires caused by faulty electrical systems, people are injured through electrical shocks and burns, and property is damaged or destroyed due to incidents involving electricity.

Overhead power lines are a common source for on-farm electrocution fatalities. Lines may have been installed without insulation or the insulation may have worn off due to exposure from weather. The safest approach to working around overhead power lines is to assume that they are bare.

Unlike birds, that can sit on a power line without any consequence, when humans touch overhead lines, they are in contact with the ground at the same time. This gives the electricity a channel to flow through, which results in electrocution.

Other common electrocution hazards on the farm include degradation of electrical wire insulation from rodents, weathering, etc.; improper wiring, corrosion of electrical connections, moving irrigation pipes, using electricity in dusty conditions found inside agricultural buildings, and more.

Farm equipment that's often involved in overhead power line contact includes tractors with front-end loaders, portable grain augers and elevators, dump trucks, feed trucks, irrigation pipes, equipment with antennas, and folding implements.

When using dump trucks, the operator should be aware of the location of overhead power lines before raising the bed and should not move the truck or trailer while the bed is in the raised position. Areas with overhead lines should be clearly marked. Typically, if a raised bed contacts a power line, the operator will not be at risk as long as they remain inside the vehicle, because the tires provide insulation.

However, if anyone standing on the ground touches the dump truck or trailer while it's in contact with overhead lines, that person could be electrocuted.

A loader tractor or telescopic load may be used to handle hay. Because booms on these types of equipment may reach as high as overhead power lines, hay should not be stored under power lines.

Around grain bins, the National Electrical Safety Code (NESC) requires power lines to be at least 18 feet above the bin's highest point of any bin constructed since 1992. Whenever a new grain bin is installed, a licensed electrician should be consulted to assist with placing electrical service lines. Lines may also be buried to reduce electrocution risk. Local utility officials can also help evaluate line height issues on the farm site.

When moving equipment beneath a power line, clearance should be at least 10 feet between the power line and the highest point on the equipment. Keep in mind that implements such as a fold-up planter will be taller when folded up than when they're used in the field.

Everyone involved in planting and harvest activities must be trained to recognize potential electrocution hazards. Clearly identify any area where there are electrocution hazards related to overhead power lines when equipment is used or moved.

Electrocution hazards related to standby generators include using the transfer switch to remove the farm's electrical system from the power company's utility lines. This switch prevents electricity generated by a farm operation's emergency power system from entering the power company's utility lines and protects from electrocution those power company workers who service lines during an outage. The switch also protects the generator when power is restored.

Always use the transfer switch when your standby generator is in operation. Make sure all workers know the location of the transfer switch.

If your tractor contacts a power line, stay on the tractor. Immediately ask someone to contact the local utility company to resolve the danger. In the event that there's a need to leave the equipment (i.e. an electrical fire), jump as far away from the equipment as possible. Do not allow any part of your body to touch the equipment and the ground at the same time. Hop with your feet together to prevent electrical conduction through your legs.

Once you're away from the equipment, never attempt to get back on it or touch it. It's not unusual from an operator to dismount the equipment and, realizing that they're okay, to get back on the equipment and being electrocuted in the process.

Prevention is the best way to avoid emergencies. Respect electricity and take every precaution to avoid contact with overhead power lines.

Four important electrical safety devices and features to be aware of are fuses and circuit breakers, GFCIs, grounding, and polarization. Fuses and circuit breakers help protect an electrical system from current overload, but they don't protect people from electrical shock.

A ground wire provides an alternate path for electricity to flow back to ground potential if an electrical short occurs. Never destroy or cut off a grounding prong on a plug to make I fit into a

socket or extension cord that doesn't accommodate the prong. If you work with equipment that doesn't have a grounding wire, consider rewiring the device to accommodate this feature.

GFCIs – Ground Fault Circuit Interrupter – monitors current flow to an electrical device, comparing it to the amount of current flowing back. If there's a difference between the two, which indicates a malfunction, the GFCI stops the current flow before harmful amounts of current can flow through an individual.

Polarization refers to plugs and outlets that have two different-sized prongs or slots. This helps protect you from accidental contact with an energized socket.

Additional safety practices around electrical power include:

1. Choose a route on your farm site that avoids potential contact with overhead power lines.
2. Never touch a power line.
3. Contact your local power company if an incident occurs.
4. Never use ladders around power lines.
5. Contact your power company to determine the height of power lines on your farm site.
6. Review safety measures with all individuals working on our farm, whether full-time, part-time, seasonal, or voluntary.
7. Remember that even non-metallic objects such as tree limbs, ropes, and straw can conduct electricity.
8. Install and use electrical safety devices.
9. Check the condition of all power cords and devices and repair or replace as necessary.
10. Make sure power is disconnected before working on any electrical device.
11. Use double insulated tools, which put an additional barrier between you and electricity.
12. Use waterproof, dustproof, and even explosion proof electrical boxes, outlets, and motors in uniquely troublesome environments of livestock facilities.

Funding for this educational article comes from the Central States Center for Agricultural Safety and Health and the University of Nebraska Medical Center.