

# Electrical Safety on the Farm

Each year, farmworkers are electrocuted when large machinery makes contact with overhead power lines.

Tragedy can be avoided by paying attention to the special electric risks faced by farmers.

## Wiring Agricultural Facilities

A special problem with electricity on the farm is the dusty, moist and corrosive environments of most livestock houses. Waterproof, dustproof and even explosion proof electrical boxes, outlets and motors are available for use in livestock facilities.

Type NMC or UF cable is recommended for most situations.

Check with a qualified electrician before purchasing cable to connect a branch circuit.

## Protect Electric Cable

Encasing electric cable inside conduit provides extra protection from livestock and gnawing rodents.

There are two basic types of conduit: metal and PVC (plastic). PVC is preferred inside agricultural structures because it is not corroded by moisture and is generally less expensive than metal conduit.

All electric cable in an agricultural structure, whether encased in conduit or not, should be placed in open areas for frequent inspection and maintenance.

## Ground-Fault Circuit Interrupters

A ground-fault circuit interrupter (GFCI) is a circuit breaker designed to prevent serious shock to people or animals under certain conditions.

It can reduce the risk of shock when using electrical tools or appliances in damp or wet areas.

If a ground-fault occurs, either to the grounding wire or through a person or animal, some of the current will take an alternate route back to the system's grounding electrode. One of the wires will then carry less current than the other wire.

When this occurs, the GFCI breaks

the circuit, stopping the flow of electricity, thereby reducing the electric shock hazard.

Ground-fault circuit interrupters come in several styles. They are commonly used as a receptacle outlet, part of an extension cord, or can be installed in the main electrical panel to replace an existing circuit breaker. When installed as a circuit breaker, the GFCI offers shock protection to an entire electrical branch.

The most effective shock prevention system for agricultural equipment and circuits is a good equipment grounding conductor run with the circuit wires and connected to all metal agricultural equipment.

## Extension Cords

For agricultural use, purchase extension cords with a strong outer coating.

Type "S" hard service cords have the strongest outer covering. Don't be confused with other "S" ratings, such as Type SJ—the "J" stands for junior hard service cord—which should not be used outdoors.

Extension cords are sold in various cable sizes. Smaller numbers indicate larger wire size. No. 10 wire is larger than No. 14.

### Teach and Practice Safety

Even with the right installations, tragedy can result due to carelessness and lack of knowledge.

Know the location of power lines, and keep farm equipment at least 10 feet away from them.

Use care when raising augers or the bed of a grain truck. It can be difficult to estimate distance and sometimes a power line is closer than it looks. When moving large equipment or high loads near a power line, always use a spotter or someone to help make certain contact is not made with a line.

Always lower portable augers or elevators to their lowest possible level before moving or transporting them. Be aware of increased height when loading and



**Be aware of your surroundings—high and low—when working on and around farm equipment.**

transporting larger modern tractors, which often have higher antennas.

Never attempt to raise or move a power line to clear a path.

Be careful of bumping into the guy wires on electrical poles. This will cause sagging in the overhead lines and will make entanglement more likely.

## What to Do in an Emergency

Teach farm equipment operators what to do if the vehicle comes in contact with a power line.

If the power line is energized and you step outside, your body becomes the path and electrocution is the result, notes Bob Aherin, an agricultural safety specialist with the University of Illinois.

In that case, the proper action is to jump—not step—with both feet hitting the ground at the same time. Do not allow any part of your body to touch the equipment and the ground at the same time.

Once you get away from the equipment, never attempt to get back on the equipment. Many electrocutions occur when the operator dismounts and, realizing nothing has happened, tries to get back on the equipment. ■



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