



# Understanding Uncontrolled Electricity

Uncontrolled electricity is a constant underground current that runs through the soil and is detectable on barn floors or through metal feeders or stabling structures. Uncontrolled electricity, sometimes referred to as stray voltage, refers to electricity that delivers unwanted electrical currents that can cause serious harm to livestock.

## Identifying Uncontrolled Electricity

Uncontrolled electricity can result in serious issues for farmers and can affect all forms of livestock. Livestock can be exposed to shocks transmitted through feeders, water bowls and even milking equipment.

Uncontrolled electricity can occur anywhere, but is most-commonly found on farming operations with poor grounding or outdated electrical wiring. Improper grounding allows low voltage electricity to travel along the neutral wire resulting in unwanted electrical currents.

When an animal comes into contact with stray voltage, it acts as a conduit for electricity which can stimulate the nervous system causing mild pain and discomfort for the animal.

### Get to know the warning signs of stray voltage:

- Higher electrical bills
- Increased livestock behavioural problems, including shuffling feet, muscle spasms, and reduced food or water intake
- Spontaneous abortion
- High somatic cell counts in milk

- There are several remedial actions that can provide temporary relief to livestock affected by stray voltage, including:

- Extra bedding for livestock
- Rubber pads or shoes for livestock
- Removing groundwater from under livestock dwelling
- Updating or re-wiring electrical systems to meet current safety codes, particularly for low-strung fluorescent lamps
- Replacing 120 volt fluorescent lamps with 240 volt fluorescent lamps
- Ensuring there are no sub-panels in the electrical system
- Effective remote grounding

## Getting Tested

Contact a reputable electrician at an early stage to inspect for ground faults or other electrical problems.

If you think you may have stray voltage, your electricity service provider can arrange for a test to conclusively determine whether stray voltage is present at your operation.

The location of the stray voltage can help to determine who is responsible for fixing the problem.

- If located in the barn, it is the owner's responsibility to pay for and fix the problem
- If located on the grid side of the meter, it is the electricity service provider's responsibility to pay for and fix the problem

Some problems may be caused by electric fences, phone lines, voltage on pipes, or neighbouring ground faults. Your electrical service provider may find these problems through testing, but is not responsible for fixing them.

Stray voltage in new facilities is rare, however it is recommended to inspect your facility's electrical wiring every five years.

In some cases, stray voltage filters can be effectively installed at the panel. Re-wiring all or parts of a barn may be needed. In other cases the return neutral may have to be increased in size or disconnected or grounded.

Different causes will require different remedies, and sound professional advice is needed to determine which approaches are best in any situation.

Information about voltage testing in your region is available at [www.hydroone.com](http://www.hydroone.com).

For more information on uncontrolled electricity, contact your local OFA Member Service Representative or OFA's Guelph office.

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