

Conclusion

My advice is this – there are many dairy farms out there with ground currents that are permanent. So your best approach is to do the best job of farming from the soil up, by producing a highly mineralized, high brix plant from good balanced soil. Feed that to the rumen and feed a high forage diet of at least 65–75% grasses and hay. Don't become acidotic. Manage your facilities to minimize stress. Get a common sense electrical expert that understands ground currents. Clean up your facility electrical wise

so you are not adding to the problem. I've been on farms with some current issues that have managed their ecosystem and are making a decent living by eliminating all outside stresses. Take time to watch how your cows are doing, especially in a stall or stanchion barn. Do you have a lot of tail switching, dancing and picking up of feet? Do you have problems with cows refusing to enter your parlor? Remember, everything on a farm that can conduct electricity is part of your electrical grid that can add to or subtract from your

problems. I've seen equal potential plane work and I've seen them as a disaster as they brought more current onto the premise as they were the best grounded in the area. Everything tacks to everything electrically on a farm. I am not a believer that anything under 1/2 volts is okay. I've only heard this from humans; a cow has never told me that it is just fine. Any charge going into that cow's system has the potential to disrupt the cations and anions in her body. Electricity is electricity.

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**Stray Currents
A Primer for Livestock Producers**

Sources of Current

Geographic Current

This comes from the earth itself. Our earth has an iron nickel center, like a huge magnetized ball bearing, surrounded by the earth's crust with its 110 elements (cations and anions).

Electricity flows in patterns.

1. Curry Lines – These are diagonal crisscrossing lines that circle the earth about every 6–8 feet apart. They are found everywhere and are detected by dowsing rods (L rods).

2. Ley Lines – These are natural lines that follow areas of higher organic matter. The first country churches were often located on ley lines. Electrical substations are also usually located on them.



Substation

3. Hartman Lines – These are talked about by professional dowsers. I have not yet located any!

4. Underground water moving will set up an electromagnetic field.

Grid Energies

1. This is the ground current set up by the electrical distribution systems of our rural electric cooperatives or companies. All poles are grounded and the grounded electricity returns to the substations (heavily grounded), by OHM's Law – the path of least resistance.



Miles of steel poles



Close-up of steel pole

2. Energies emitting from overhead transmission lines will be picked up on silo roofs, metal barn roofs and any other large antenna-like structure.



Electrical generating plant

Cosmic Energies

1. Negative energies have been discovered coming from outer space, penetrating the earth's crust as far as we can measure. The source is Super Novas. The most studied Super Nova is Crab Nebula, which was observed by the Chinese back in the 11th century. A Super Nova occurs in the Milky Way Galaxy about every 15 years. What effect cosmic energies have on ground current is unknown at this time.

2. Solar flares on our sun's surface and quasars are both sources of electromagnetic energy that reach our planet.

Solar flares interfere with radio signals. At this time, we have no clue what effect they have on ground current.



Radar guidance system at Fort Campbell – sitting on a grounding system of a gas line, power line, railroad tracks and smaller electrical distribution line.

Wherever ground currents or negative energies cross, these crossings have serious consequences. Cats (felines) love to lay in crossings of negative energy.



Cat lying on a (sick) calf that is lying in a geopathic energy line.



Two electrical transmission lines running parallel with gas line – see transformer with meter cathodically inducing charge onto pipe (Colorado).

Cell phones, radio, TV

All the newly generated radio waves going through the air in the last 40 years are yet to be investigated deeply for any negative effects. Cell phones are known to have some negative waves. I have a \$26 magnet from Acres on my cell phone to block the negative waves emitted.



Cell tower behind farm capacitor (by drive) with barn in-between

Gas Pipeline Cathodic Energies

Natural gas pipelines that run underground in every place I have been, lay ominously covered with dirt. These pipelines have a cathodic (plus) charge inducted onto them every so often to prevent the pipe from corrosion. The ground carries a negative charge. They do this by hooking into the electric grid (which has a meter – by the way, the pipeline company pays like everyone else), and grounding heavily by the pipeline to pick up the charge. This can be done with a series of grounded poles close together or simple underground grounding, which you can't see. (see pictures).



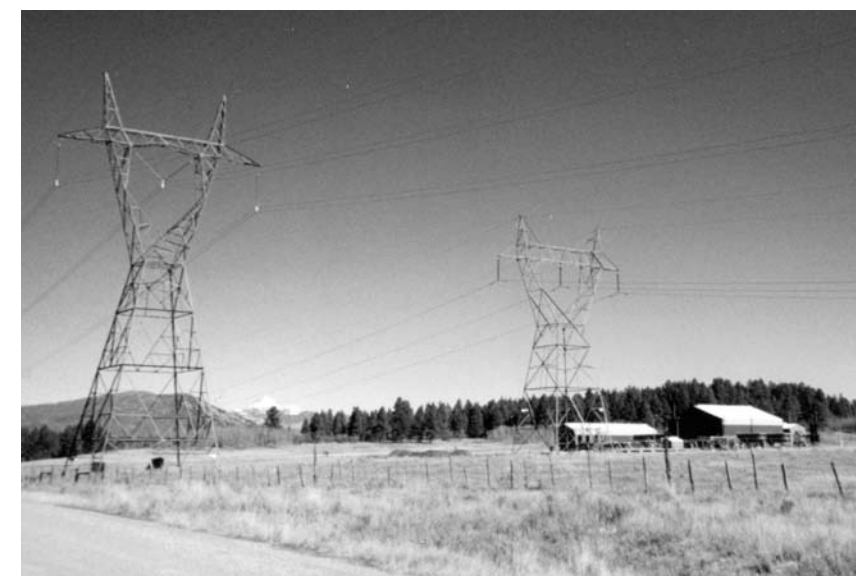
Yellow sign denoting buried gas pipeline



Cathodic system charging pipeline in Wisconsin



Twenty poles very close together, some with metal collars inducting current onto gas pipeline.



Two huge power lines coming from a power plant in New Mexico – flowing a big gas pipeline in western Colorado's San Jaun Mountains.

I've observed the cathode induction points (if there is more than one pipe line in the area) also line up with electrical substations. At intervals, they will bring the pipeline out of the ground and have a big shut-off valve. This is to protect against a leak, so if the line is broken or ruptured they can shut down a section. (See picture below.)



Gas pipeline shut-off

Where this happens, you have just interrupted the cathodic flow of current and it splays out into the ground, sending direct current into the outlying area. In my consulting work, I've observed farms close to these shut-offs with numerous problems. Electricity does not do 90° turns.

Position of the Sun, Earth and Moon

The earth rotates elliptically around the sun every thirteen years plus, and the moon rotates around the earth every 28 days. These bodies have huge electromagnetic pulls and can reverse the currents from positive to negative, depending on how they line up. These bodies have a huge effect on all of our currents on this earth, no matter what the source.

Stray current cows have no immune function. The current disrupts the cations and anions (energies) of the body.



Cathodic system in northern Wisconsin

Substations

Locate the substation that feeds the farm – all grounded current goes back to the substation via Ohm's Law – the path of least resistance. We use the open delta system of electrical distribution in the U.S., which means all poles are grounded along with every electrical installation. This electric current goes back underground to the substation. We use the earth as our return for electricity.



Newly constructed substation heavily grounded

Transformers

Transformers grouped in bunches of three on a pole are usually associated with a lateral line running off a main. This line is serving several farms or ranches or businesses. What these transformers are usually doing is lowering the current flow on the lateral when there is no great demand. They can either raise or lower, depending on what the lateral requires. These are very obvious when driving in the eastern Colorado area where laterals take off to a few big ranches. When you see three of these transformers together they are either bucking up or down the current.



Three transformers altering current on a lateral

- a. Minimum size on any dairy farm should be 27.5 KV.
- b. Locate away from milk house or barn.
- c. Any rusty transformer that is undersized or old and is running hot will have electricity on the neutral.



Transformer located right next to the barn – bad location!



Totally rusted little 15 kV transformer running hot and rusty.



27.5 kV transformer running properly. 35s are being seen more often in replacements.



15 kV transformer with streak of rust on both sides – needs to be upgraded.

Telephone System

Telephones should not be grounded to the metal barn or any ground of the electrical grid. They are commonly spliced into an electrical pole's ground. The phone system needs its own separate ground.



Phone entrance with ground going around barn, splicing into the barns electrical grounding wire.

Guy Wires

Guy wires should not be used as grounds.

Negative Energy

Negative energy lines can be dowsed with L rods which reveal stray currents.

Visual Red Flags

1. Being on the end of the line is a big red flag. If your farm is on the end of the distribution system, you have a greater chance of neutral with electricity on it and ground currents entering.
2. When your vacuum pumps compressor starts up, do your lights go dim, especially on an incandescent bulb? If so, this could mean your transformer is too small.
3. Rusty transformer. This means your old transformer is running hot and it overloaded. Bad sign.
4. If your transformer pole is right next to the barn or milk house, move it away.



Bank of three capacitors.



Bank of three capacitors.



Single capacitor

5. Capacitors/ Voltage Regulators

A capacitor is a voltage regulator that is trying to keep the voltage within a range that fits the demand. A capacitor stores electrons for peak load demands. I see these around saw mills with 100 HP electric motors and companies in the country with huge energy demand when running. The problem is that they have a limit and in non-peak times,



New sawmill installed in rural Wisconsin – the capacitor across the road appeared 30 days later.



Capacitors on three consecutive poles – quite common.

if overloaded, they dump electricity into the earth by being grounded. I've observed that quite often these are directly between substations. I've also seen them over, or real close to pipelines. It looks to me like the capacity of the line should be upgraded to handle peak consumption and capacitors wouldn't be needed. Capacitors are usually seen in banks of three or can be seen in a line on three poles. Whenever I had a dairy farm with a capacitor or capacitors close, I had a farm with current problems.



Shown below is a series of four pictures as you approach this farm.

The first photo shows a substation.

The next one shows a power line transitioning the current on its line using the substation as the grounding system.

The third photo, approaching the barn, shows the metal manure storage tank.

Photo four is past the barn, with two transformers, a little rusty one and a bigger one. The dairy barn is empty – no milk cows on the farm.



6. Manure Pits, Storage Tanks and Lagoons

These can be looked upon as energy tanks. The microbiological activity generates electricity. You can usually pick up at least 1/2 volt off any metal manure storage facility. Ohm's Law says electricity travels by the path of least resistance. A huge tank of organic matter suspended in a liquid of ions is comparable to one big electrical capacitor. These units will suck up ground by Ohm's Law. Never have the top or level of the manure in any manure storage facility higher than the level of the barn floor or milking parlor. Don't have your barn between the transformer pole and manure pit. You have a grounded pole sending electricity to the pit and the re-rodged barn. Water pipes electrical ground will suck it up into the barn.

7. Fencers for Trainers and Pasture Fences

Trainers cause more problems than any other one thing. Keep the ground away from the barn. Don't use the barn tin or a ground rod right next to the barn.

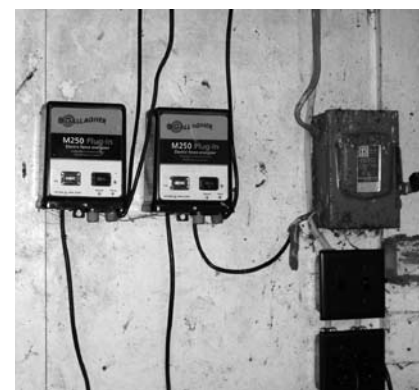


Trainer isolator located in a mess of wires, metals, pipelines and automatic take-off. All covered with whitewash which gets moist in summer



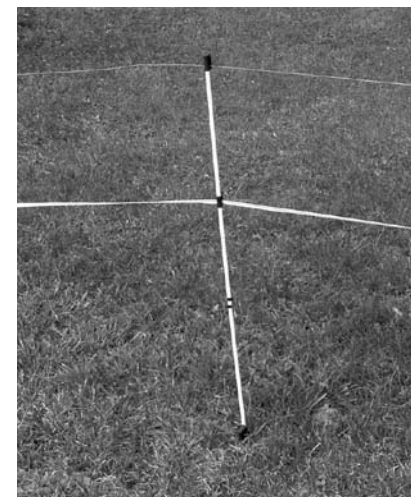
Properly adjusted trainer

Run your ground rod over toward your transformer. Don't let any trainer wires touch anything. Keep trainers eight inches from metal ceilings. Never have the trainers on while milking. Use double insulators on end. Short little insulators, after so many shocks will lose their insulating value. Consider using PVC pipe. Hang a PVC pipe on end. Make sure your trainer is not grounded so that it leaves the barn or house in between the ground and transformer.



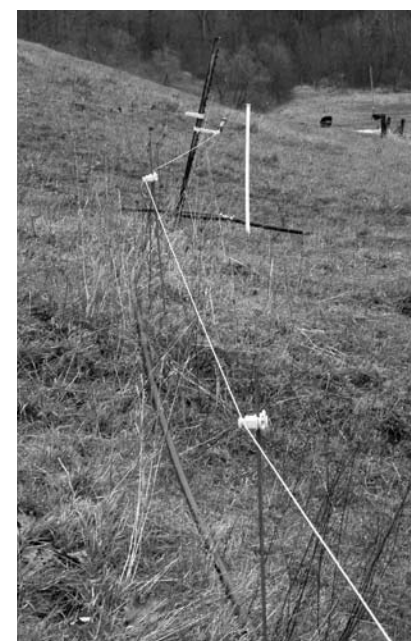
Have fencers preferably out of the barn and grounded close to your transformer.

Pasture fences should always run perpendicular to any power lines, especially if you have any transmission lines close. If you have a 72,000 kV or bigger transmission line, a



Fiberglass post

parallel pasture electric fence will pick that up, so go perpendicular. Try to avoid metal fence posts. Fiberglass and the new style plastic/wood composites are options. Some ingenious farmers have utilized PVC pipe for fencing and for grounding trainers in the barn. PVC is an excellent insulator. Wooden corner posts are a good idea also. Keep at least six feet away from any metal shed.



Waterline under electric fence with metal posts.

Don't ground fences by any re-rodged concrete. Graziers, don't run underground water lines below the electric fence or have an electric fence going over the middle of the tank so you can water two paddocks. If you must, six feet before the tank, put in a wood fence on both sides of the tank and put your electric fence wire up and over the tank so it is at least six feet above the top of the water. Try never to run water lines and electric fences parallel.



three of these were wet, moist, dark, dirty, cobwebby corners. These were accidents waiting to happen, and they did with total barn losses.

Old entrance box, miles of Romex, spider infested, damp box.



Newer, updated set up, 200 amp service in conduit. Barn is split. Box on left serves silos, gutter cleaner and fans. Box on right with fire extinguisher services the milk house and all equipment in that area – doors always closed.





Rusty streaks became evident within just a few months after this barn was built.

9. Rusty, streaky barn and silo roofs. I was in an area on the East Coast where there was a lot of current problems. Within 3 or 4 miles, they had a nuclear power plant that during non-peak hours pumped water up into a lake that during the day ran a small hydro electric generating facility. Consequently, there were overhead, high voltage lines emitting from these two facilities which were about three miles apart. The farms with metal roofs in this area were affected. One silo, built nine years ago, had a metal top that was 50 percent rusted. This barn was also loaded with stray current. Electrolysis from overhead lines was affecting the metal roofs. They were like a big antenna.



A second picture of the same farm that shows a little more about why they have problems with stray currents. As this photo shows plainly, there is a power substation just a few hundred feet NW of the barn. Also, a manure lagoon sits between the barn and the substation making matters worse (Manure pits contain a lot of ions potassium, sodium, chloride, etc. that cause them to act like a large battery).

10. Diesel Generators – commonly seen on Amish farms for electrical source. Do not put the fencer in the diesel generating room and don't put ground rods near generating building. If you have one battery, probably a deep cycle that runs the fencer and the generator for starting, then the whole system will talk electrically. First thing is your bulk tank will have current and the freon lines will develop little corrosive pin holes from electrolysis. Put two separate systems in: one for the fencer and one for the generator. When grounding anything, always step back and check where your transformer is in relation to your house, barn, manure storage and your substation. Electricity makes its way back to the transformer substation by Ohm's Law – the path of least resistance.



Diesel generator – keep ground away from barn.

11. Transpositioning High power (kV) transmission lines have electromagnetic fields around the lines. The normal configuration is three lines and the outside lines are either plus or negative and the center line is the neutral after miles of this configuration. The neutral will become energized. To clear the neutral, they will flip the outside lines from positive to



Transpositioning flipping the charge over a gas line.

negative and negative to positive. They do this over something that will ground out the neutral and this is called transpositioning. It is best to not milk cows around this. You can identify this by seeing all the insulators and wire loops going back and forth. They quite commonly do this over the interstate highway system. Using the re-rod in concrete as the ground, a natural ley line, gas line, cell tower, substation or capacitors very close will be seen by transpositioning. They quite often will use more than one of the above.



Transpositioning over gas line and a very marshy area.



Transpositioning next to a cell tower.



Transpositioning over concrete interstate highway.



Lots of Romex!

On Farm Problems

1. Maze of wires coursing through the barn, some being used and some not. Old black Romex in barns will conduct 1/2 volt of electricity very easily.
2. Improper grounding or groundings that have shorted out.
3. Keep your different buildings separate. Don't feed the young stock shed, the shop and chicken coop off one box. Keep separate units on their own system.
4. Fluorescent lights give off an electromagnetic field. Don't have them right over the cows in a parlor. You may have them standing in the fluorescent light electromagnetic field while you are comfortably down in the parlor. Use incandescent in parlors.

Low-hanging florescents in old barn



Newly remodeled parlor with glass enclosed incandescent bulbs.

5. Don't confuse acidosis with stray current as the signs are very similar. Quite often, a farmer thinking he has stray current will have the voltage checked, make a few minor corrections, and when nothing improves, will condemn the power company for not doing their job. The underlying problem could be the rumen. The rumen's pH is in the 5s, not 6.5. I have seen farms with both acidosis and stray current together, and then you do truly have a mess.



Glass receiver jar with nylon couplers

Plate cooler can be a source of current.



Milk pipelines are part of the electrical grid on your farm.



6. Stainless Steel Pipelines. SS receiver jars should be isolated with nylon elbows to break current flow. Glass receiver jars don't need nylon elbows and are preferred as they don't conduct current. Electric pulsation in smaller barns with S.S. pipelines will pick up a charge, especially higher on farms with direct ground current. The grounding system won't bleed it off. If you have a pipeline close to your farm, don't use electric pulsation or S.S. receiver jars. Use vacuum pulsation and glass jars.

7. Plate Coolers. Plate coolers that have an electric water valve connected to the transfer pump will send a shock onto the pipeline whenever it turns on and off. Get a bigger plate cooler with a manual valve, or isolate your bulk tank with PVC pipe.



Tail twitching and dancing



Calf living on a ley line, drinking mud and urine, but will leave milk.



Same calf six weeks later after being moved from ley line – dramatic turn-around with no medication!

Signs of Stray Current

1. High cell count.
2. Nervous cows: head pressing, lifting feet off the ground one at a time, shuffling back and forth in the stall, lots of tail switching, but not at flies, standing a lot.
3. Feet problems: hocks swollen.
4. Incomplete digestion of grain.
5. Teat end puckered out like they have been over-milked.
6. Incomplete milk let down, one quarter will still have milk in it.
7. No response to treatment. Cows die from everything under the sun.
8. Refusal to go into a stall or enter the parlor or barn.
9. Poor breeding efficiency and low conception rates. Cows don't show heat – quiet.
10. Lowered production.
11. High death loss.
12. Increased Johnes incidence in herd.
13. Refusal to lay down. After a cow is milked and fed,



All cows standing at 10:00am. Milked at 6:00am, fed at 7:30am. They should be lying down chewing their cud, but all cows in the entire barn are standing.

she should lay down and chew her cud. Voltage cows stand and dance and tail switch.

14. Failure to lay in a certain area of free stalls or part of the barn.
15. Refusal to drink water at certain water cups.
16. Low water consumption.



Head pressing, lifting foot, refusal to lie down in stall

Treatment

1. Call your electrical coop and nicely ask for a service up-date.
2. Hire an expert on stray currents to do a farm assay.
3. Clean up on farm messes. 50 percent is farm origin, old Romex, improper grounding, bad location of a manure facility, fencer or transformer, etc. If purchasing a farm, do a stray current assessment before any offer is made.

Useful fixes I've seen

1. Isolation transformer: C-4 wiring to barn and in the barn.
 2. Ertlizer (motorized unit that redirects ground current)
 3. Clean up the farm wiring and grounding messes.
 4. Move and up-grade transformer.
 5. Get off the end of the line.
 6. Get isolated.
 7. If all else fails – move.
- I've seen farms between two power plants that have no fix.