

# Troubleshooting Electric Fence



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## **Common fence problems:**

- Low power on the fence
- Frequent lightning damage
- Escaped animals.

Problems could be from a weak energizer, shorts on the fence, a poor ground, or a combination of these. A complete system check is needed. The problem almost always comes from poor behavior of animals because they have learned that the fence is usually weak.

## **The Energizer is the Engine for the fence.**

Keep high power on the fence during the “learning stage” of the animals. Electric fence is purely a psychological barrier, so the more it hurts in the beginning, the more able the animal is able to recognize the boundary and stay in the fence.

You need at least 5,000 volts (5.0 KV) in normal conditions when weeds are dry to control cattle at all times. Higher level is needed for other animals (7,000 for sheep and goats). Power will drop when conditions are wet and if shorts occur, so having high voltage during conditions will keep animals well trained and power will still be high under those challenging conditions.

Choose an energizer with plenty of power to start with. Buy something that will allow you to grow. Solar is expensive per joule, so only choose solar (or battery) when main power is not possible.

The Output Joule rating is power (think of it as horsepower). It is not completely consistent between manufacturers because of the way they are tested, but it's still your best guide.

- For small acreage, a whole farm energizer should be at least 2.5 joules
- Large acreage may need > 20 joules
- A good rule of thumb is 1 joule for 10 to 40 acres, depending on conditions

## **Lightning protection**

The most important thing is a well-grounded energizer

- There should be AT LEAST 3 ground rods, all the way in the ground (8 feet)
- Make sure the rods are 10 ft apart at least
- If there is voltage on a ground rod when the fence is shorted out, the ground is inadequate and more ground rods should be added.
- The metal of the rod and the metal of the wire contacting the energizer should be the same – copper to copper or galvanized steel to galvanized steel; do not mix & match
- Make sure the wire and ground clamps are ABOVE the ground for easy checking
- Use brass ground clamps

2nd most important thing to prevent lightning damage is a well-grounded electrical service

Put a commercial or homemade “spark gap” between the energizer and the fence

Optionally put an induction coil between the spark gap and the energizer, and a surge protector at the plug.

### **Tips:**

#### **Permanent Fence**

- Put most of your efforts into the braces
- Avoid using steel posts – they are a dead short when the insulator breaks
- Use good quality insulators
- Never electrify barbed wire – safety hazard

#### **Checking Fence using a fault finder**

- If your tester shows high amperage on the line, you have a “leak” or short of electricity that is going to ground somewhere along the circuit. The more leaks the lower the power.
- If you have multiple fence wires tied together at both ends of a stretch, the amperage (electrical flow) will split and run down the multiple wires and could run in either direction depending on the location of a short. Disconnect the far end of sections and leave all the "flow" to the next section of fence on one exposed wire for easy diagnosis of shorts.

#### **Temporary Fence**

Use polywire in most cases rather than polytape

- 9-strand stainless polywire works very well in most situations. Avoid the most inexpensive "5-strand" types. When using polytape, buy the more expensive type that has lower resistance.
- Polytape generally has a lot more resistance than polywire and the volts, has a problem with snow and ice, is bulky, and does not hold up to abuse as well as polywire.
- Polytape is a good choice for horses because of higher visibility.
- Polynet is a great invention for small ruminants and poultry, and keep predators under control, but it takes a lot of power to energize, and is dangerous if left uncharged.

Use good quality reels

- UV Protection is critical
- Geared reels (3:1) for long stretches.
- Ung geared reels for short stretches.

Use 7/8 inch fiberglass posts with UV coating (or other stiff posts) for stability on temporary stretches.

- Last at least 5 years
- Easy to move, good for corners & cross fence
- Cost about \$7

Tread-in posts should be:

- easy to get wire in and out of.
- hold up under the conditions of use for many years.
- Put in every 10 – 16 paces (3-ft. pace) depending on terrain and animals.

### **Don't Be Afraid Of Electric Fence!**

- Work with the fence off if you need to, but there is nothing to fear. Everyone that has electric fence has been shocked and it is not a reason to not work with fence. Working with the fence hot is preferred by some, so you decide, but if you turn it off, don't forget to turn it back on.

### **Practice and Learn About Advanced Uses of Electric Fence.**

Electric fence is a great tool if you know how to use it. Keep learning and visiting other farmers and see what ideas they come up with to cleverly use electric fence. Once cattle are trained to poly wire you can use it to gather cattle, cut out an animal that needs medical attention, build temporary enclosures for animals that need special attention, and for use in low stress loading of working pens.