**Electric Fencer Study Guide**

 In 1938, the first electric fencer was developed in New Zealand by Gallagher. Since that time, electric fences have made farm and ranch life easier. Electric fencing is ideal for grazing or pasture management by containing animals on a selected area of pasture or crop. It takes less than half the time to set up an electric fence as compared to a regular fence and can be portable. Not only can it keep animals in, it can also keep unwanted animals (predators) out! Today, both permanent and portable electric fencing is used all over the world.

 Electric fences are safe; animals remember the short, sharp but safe shock and develop respect for the fence. Because animals respect the fence, they do not touch it thus making it more durable than a non- electric fence. You don’t see livestock reaching through a working electric fence the way they stretch a barb wire fence! Electric fences are easy to install and cost less than half of a traditional fence.

**Glossary of electric fencing terms**

**Alternating Current**: This is the type of electricity coming from 110 and 220 volt outlets. AC current cannot be stored. Some electric fencers deliver AC current to the fence and are called continuous current chargers (think Jurassic Park or Hunger Games).

**Amperage:** The measurement of electric current. Amperage is what you feel when you are shocked. The higher the amperage, the more intense shock you feel.

**Battery Charger: A charger (fencer) powered by a battery, usually a 6 or 12 volt.**  These fencers can be used in remote areas or anywhere there is no access to AC power. Solar powered fencers also fall under this category.

**Boundary Fence**: A usually well braced, permanent fence that is on the perimeter of a pasture or field.

**Capacitive Discharge**: These store direct current in an output capacitor before discharging to the fence. Most fencers are capacitive discharge.

**Controlled Grazing: The management of forage with grazing animals; it limits the amount of pasture that livestock have access to at one time. It usually involves making a large pasture into smaller paddocks with electric fencing and moving the livestock frequently.**

**Direct Current (DC): This is the type of electricity produced and stored in batteries. Most fencers produce direct current.**

**Energizer**: Another name for an electric fencer.

**Fencer, Fence Charger, Fence Controller: An electrical device that produces electrical energy and delivers it to a fence for the control of animals. All names for electric fencers.**

**Ground Rod: A metal stake (rod) driven into the soil (ground) that picks up electricity moving through the earth from the charger.**

**Ground Rod Clamp: A device used to connect a wire from the fencer to the ground rod.**

**Ground System: The electrical path back to the fencer. This is usually an earth ground system.**

**High Tensile: An affordable, long lasting electric fence system that is an excellent choice for perimeter fences, providing a barrier to contain or exclude animals. These sturdy, permanent fences require braced corner and end posts in wood along with special insulators, hardware, and tools that maintain constant high tension on metal wire.**

**Hook-up Wire: Insulated wire rated at 20,000 volts (or more) used to make electric fence connections without losing voltage.**

**Insulator: A device used to keep an electric fence wire from coming in contact with posts or anything else that would interrupt the flow of the current through the fence line. Usually made of plastic or porcelain.**

**Joule: The measurement of energy used to rate low impedance fencers. 1 joule = 1 watt of power for 1 second of time.**

**Line Posts: Posts used to support both electric and non-electric fence wire. Line posts support the fence line and have much less tension on them than corner or brace posts. They are usually made of wood, metal, plastic, or fiberglass.**

**Low Impedance: A type of fencer that can increase the output energy as the fence load increases. This allows the fence to have the same amperage at the end as it does near the fencer.**

**Offset Fencing: Offset fencing is one wire or more added to a permanent fence to extend the life of the fence by reducing the stress on it.**

**Ohms: Ohms are used to measure resistance to the flow of an electric current. A high ohms reading indicates a light fence load, while a low ohms reading indicates a heavy fence load.**

**Permanent Fence: A multi strand, well braced fence traditionally made from barbed wire or woven wire. Permanent fences made from electrified high tensile wire are becoming more popular now.**

**Portable Fence: An electric fence that is easily moved. Also known as a temporary fence.**

**Rotational Grazing: A system for allowing livestock to graze smaller areas of a larger pasture or field. This system utilizes portable fencing to keep the livestock in one area while the previously grazed area grows back.**

**Solid State: A type of fencer that delivers a medium amperage shock of medium duration. They are best used to control shorthaired livestock, small animals, and pets where light weed conditions exist.**

**Splicer: A device that joins separate strands of fence wire without breaking the fence’s electrical circuit.**

**Tensioner: A device used to tighten fence wires to increase tension on a section of the fence line.**

**Voltage: Measurement of electrical pressure. Voltage “pushes” amperage down the fence line. The higher the voltage, the more amperage it can push.**

**Watt: Measure of electrical power. Voltage X Amperage = Watts. Watts X Time = Joules.**

**How an Electric Fence Works**

 **Electric current (Amps) only flows when a circuit is completed between a positive and negative terminal. Normally the positive terminal of the fencer is connected to the fence wire and the negative terminal is connected to a ground rod or rods. The circuit is open and no current flows until the circuit is completed by an animal (or you) touching the fence and the ground at the same time. This causes the victim to get shocked.**

**This is also why birds can perch on an electric fence and not be shocked; they are not completing the circuit. If you are wearing insulated footwear you are less likely to get shocked as well!**

**It is recommended that you use three – six foot long ground rods spaced at least ten feet apart to provide optimal grounding. If they are less than ten feet apart they are not as effective.**

**If you’re fencing a dry or sandy area, it might be necessary to add a ground wire to the fence. The livestock must then touch both the positive and ground (negative) wires to get a shock.**

**Choosing Fencing Wire**

**There are a number of different wiring options available and all of them work well for their intended use:**

**High Tensile Wire is made especially for permanent fencing. It is much stronger than regular wire and is galvanized to prevent rusting and for long life. It is more awkward to work with than some other wire types so it isn’t the best for portable fencing.**

**Aluminum Wire is ideal for high powered fencers. It never rusts and woks well in the harshest of environments. It conducts electricity four times better than steel wire. It is easier to work with; easy to re-spool and this makes it good for controlled or rotational grazing.**

**Equine Fence Wire is made especially for horse fencing. It is electric ribbon instead of a twine making it more visible to the horses. It is good for permanent fencing and easy to use.**

**Braided Wire can be used for either permanent or temporary fences. Poly wire is best used for fences under ¼ mile long but other types are good much longer distances.**

**Turbo Tape is similar to equine ribbon and is good for long distances.**

**Electric Netting is ideal not only to keep livestock in but predators out as well! It comes in 164 foot lengths with posts integral with the netting (they are part of the fence) making it very easy to set up. They are great for small pens and easy to move. Great for small animals and there is even poultry wire available.**

**Choosing an Electric Fencer**

**There are two basic types of electric fencer:**

**110 volt powered fencers plug into a normal electrical receptacle and convert AC power into DC current to energize the fence. These fencers are excellent to use where you always have AC power available but they are not practical for remote areas with no place to plug it in.**

**Battery/Solar powered rely on batteries or solar panels that charge batteries to energize the fence. These fencers can be used anywhere, but they require the batteries to be charged either by a battery charger or solar panels.**

**Both types of fencers come in several different models and sizes. Choose a model and size that best fits your plans. Remember that it’s better to have too large of a fencer than too small. A larger fencer will also allow you to expand your grazing area if you choose to without having to buy a new fencer. Of course larger fencers cost more money and if it does not fit your budget it doesn’t matter how good it is…. You can’t afford it!**

**The size of the fencer is measured in joules and it is a good idea to keep in mind the number of joules that your fence will require for proper operation. For instance electric netting requires a half joule for each 164 foot length used so it will require one joule for every two lengths used. Check with the manufacturer of the wire you are using to see what size of fencer you need.**