

Construction and Function of Electric Fences

Electric fences are very different from other types of fences. Conventional fences such as woven wire, barbed wire and high tension fences all rely on physical barriers to keep livestock on one side or the other. Physical barrier fences all depend on the strength of the components in order to function and be long lasting. Animals lean, scratch themselves and knock against conventional fences on a regular basis putting much wear on wire and posts.

Electric fences provide a psychological barrier that in some respects is superior to physical barrier fences. Electric fences receive much less animal contact because the trained livestock know that if it touches the wire, it will be an unpleasant experience. Because of this, much less animal wear is put on the fence and construction costs can be much lower.

Conventional fences all require stout bracing, frequent posts and plenty of wire in order to do the job. With animals leaning over the top wire, rubbing on posts and bumping the fence on a regular basis, posts have to be frequent, braces must be carefully placed and wires tight as is feasible. If posts are too far apart, slack wire will appear in no time and/or posts will fall over.

Electric fences work on livestock instincts in order to keep them on one side. Generally, the only time that trained livestock rub a post or lean over the wire is when there is no current for the animal to be wary of. It has been indicated that livestock can smell the ozone created by the charge pulse in the line and so stay away from the wire.

The key point to remember with electric fence is that maintaining the strength of the *current* is critical. The longer the run of line and/or the lower conductivity of the line will eventually translate into a less effective psychological barrier. A two-strand electric fence can cover twice the distance with the same punch as a four-strand fence –but with half as many wires to install and maintain. Some folks prefer to double their troubles for the sake of security, but in truth, it is the proper conditioning of the animals, careful placement of the wire and adequate current is what makes the fence work.

From a construction standpoint, electric fence operates as long as the animal must contact a live wire. What this means is that the high tensions that conventional fence uses are not needed when building an electric fence. Lower tensions translate into fewer or less frequent braces, less stress on individual posts and little or no need for double bracing.

Height of the top wire is dictated by how much control the livestock need. Some livestock will jump over a hot wire that is under 2' high. Most will not jump one that is 3' high. Livestock normally do not want to even get close to the wire let alone risk touching it. If forced, livestock will jump or break the line –just as they jump or break conventional fencing. The point is that the height of the top wire is less critical for cross fencing as it is for boundary fencing or riparian fencing.

Height of the bottom wire is equally crucial. If the fence you build has a hot bottom wire, make sure it is at least as far off the ground as your forage is tall. Oftentimes, plants will grow up and create a low-grade short in the fence and 18" will keep wise stock in check. By positioning the wire 16-20" above the ground, a relative compromise can be made that will keep stock under control and maintenance reasonable. Keeping the wire can allow livestock to access forage closer to the wire further reducing the need to remove vegetation that can short systems.