

# ASK THE EXPERTS:

## Temporary Fencing



**A**s spring grazing rapidly approaches many sheep and goat producers start thinking about rotational grazing. The editors of *HoofPrint Magazine* decided to ask some industry leaders for their tips on temporary fencing.

**Q:** *Do you prefer a solar or conventional fence charger? What level of charge is needed to turn sheep and/or goats, and are there any specific chargers that you recommend?*

**JEREMY MCGILL:** 110 volt plug-in type energizers are always the recommendation if the producer has a choice. In most cases, a 110 volt energizer will have 4-5X the power as a similar priced solar unit. I do realize that there are cases where a producer is limited to solar only. In these cases, it is strongly advised to use an energizer that has a minimum 1 stored joule of power. Many small solar units do not meet this requirement.

Regarding the level of charge: in terms of voltage, my recommendation is at least 5,000 volts (5.0kV) minimum for small ruminants. However, without a proper ground system, no amount of voltage will be effective. We must also take into consideration that a reading of 5,000 volts from a digital volt meter is not necessarily what the animal will receive when shocked by the fence. When an animal contacts the fence, this is similar to a fence being shorted and the voltage delivered will be decreased from the "unloaded" reading. Always use an energizer that is large enough

to overcome unexpected problems.

**GREG BRANN:** Minimum voltage for cattle is 2,500v, sheep 3,500v and goats 4,000v. For chargers, I recommend buying more power than you think you need particularly if you don't spray herbicides or weed eat under the fence. Options to increase power to the fence: 1) is maintain multiple strands carrying electricity from the charger and even under or over the gates to the whole fence, 2) switches to turn off sections of the fence that may have shorts, and 3) insulate the bottom wire but turn it off unless you have issues with animals going under. NRCS in TN recommends one joule of energy for each mile of planned fence when average energy loss to the system is expected. Each joule will typically provide enough power to fence 25 to 40 acres of pastureland. However, I personally run a Sta-fix 36R which has over 50 joules of stored power for my 241 acres of pasture. There are several good brands of chargers. Some chargers have a remote where you can turn the charger off and on in the field.

**Q:** *What type of fence material have you found to work best on your farm (i.e. metal wire, poly wire, poly tape, net, etc.)?*

**JIM MANSFIELD:** We have woven wire boundary fences and mostly 9 wire high tensile smooth wire electric fencing for subdivision fencing. If I had it to do over again I would use all high tensile, fixed knot, woven wire fencing and no electric fence at all. The high

tensile woven wire fencing is about half the cost of the traditional 9 gauge woven wire fencing used in our area, there is no maintenance needed and it is supposed to last 40 years.

**JEREMY MCGILL:** I personally use a combination of 12.5 gauge galvanized high tensile wire and Turbo Wire (a highly conductive polywire). The perimeter is high tensile with all strands electrified. Many of my cross fences for intensive grazing are Turbo Wire that can be easily moved. Tight connections are one of the most important aspects of any type of material. Metal wire such as high tensile, needs to be connected using joint clamps or crimps. Poly products should always be spliced properly. Simply tying a knot in polywire/tape is not sufficient – the poly material needs to be stripped or melted and the metal conductors twisted together once the knot has been tied. Wire size must also be considered when using smooth steel wire. Larger wire will carry more electricity longer distances than small wire of the same material. This is a very common misconception. Also, multiple strands of hot wire are always better. With more wire, there is less resistance to current flow in the wires and less of the voltage is dropped in the line itself, which leaves more to shock the animal.

**Q:** *What type of posts do you use and how far do you space them?*

**JIM MANSFIELD:** For high tensile fencing, on flat ground or gently rolling

land, I put 5 to 6 inch wood posts every 25 feet.

**GREG BRANN:** End posts are 6" diameter with a floating brace and line post that are typically 40' apart. Due to having a low wire 7" off the ground, I have to place posts 40' apart for the cattle fence or 1 strand post spacing would be 50 to 70' apart. For line posts, I mostly use 5/8" fiberglass posts, 1.25" composite pasture pro post, 4" wood post, 2" insultimbers, and I am interested in the timeless fence plastic T posts.

**JEREMY MCGILL:** Permanent high tensile: I use a combination of wooden posts with UV-stabilized insulators and non-conductive, UV-stabilized Insulated Line Posts. Post spacing is approximately 30' between posts regardless of material. This allows for a flexible high tensile fence.

Temporary fence: 1"x48" fiberglass posts for corners/areas of strain and HD Treadin posts that are UV-stabilized and have 9 open lugs that allow for multiple wires. The open lugs allow for easy removal of the wire by simply "twisting" the wire 90 degrees. Some posts have clips that must be spread away from the post shaft in order to remove the wire – these often break after multiple uses. Other options are electric netting and the Gallagher SmartFence all in one system.

Important factors to consider: Avoid using metal posts if possible. Metal is a conductor and can lead to dead shorts if an insulator is broken or damaged. Also, the use of UV-stabilized products will greatly extend the life of fence components. NON UV-stabilized plastic insulators and temporary posts will break over time because they become brittle and fail. Quality plastics will initially cost more, but have a superior return on investment in regards to life span.

**ENDRE FINK:** For the permanent fence we try to space the wooden post approximately 30 feet apart. The T posts between the wooden posts are approximately 10 feet apart. For temporary fences we use step-in plastic posts every 15 to 20 walking steps.

**Q:** *How many wires do you typically use and what is their spacing?*

**GREG BRANN:** Depending on the pressure on the fence I would run 3 to 6 strands of fence. Spacing of a

3 strand fence between wires (8", 8", 12"); 4 strand fence (7", 7", 10", 12"); 5 strand (7", 6", 7", 10, 12"); 6 strand (6", 6", 6", 8", 10", 12"). I only use 3 strand fences for temporary fence and all wires are hot. For all other fences, all wires can be hot but typically the bottom wire is turned off.

**ENDRE FINK:** On the boundary fence, we use nine wires with every other one being hot starting with the bottom wire. The bottom wire starts 4 inches from the ground. At that point we have 3 more that are spaced 4 inches apart, followed by 4 more 6 inches apart and 1 8 inch apart (top hot wire). These measurements are for a 48 inch fence. For temporary fence we use two poly wires approximately 12 inches apart.

**Q:** *Any suggestions for handling situations such as gate openings, creeks, and gullies?*

**GREG BRANN:** Three options for small streams: 1) suspended electrified welded wire panels 2) pallets resting on the stream bottom with a 1/4" cable through them, or 3) old tin framed up in 8' sections that is electrified. On bigger streams vertical rods, chains or pipe work well. On huge frequently flooded streams, poly wire about 10" above the water can work. Some people tie off creek crossings with a light wire on one end so it breaks away but you don't lose the crossing. Best to always have a separate wire above expected flood level to deliver electricity to rest of the fence. There are also flood controllers which will turn off the fence when it is under water.

**JEREMY MCGILL:** These are all situations that can lead to problems if not designed properly. For permanent fence, it is always recommended to use double insulated fence wire to carry the current under gateways. Never use an electrified gate as the sole means to transfer power. Tight connections on both sides of the gateway are of paramount importance. The simple connection made by a gate handle is not sufficient for primary power transfer. It is also notable that electric wiring that is designed for houses should never be used anywhere in an electric fence system – especially under gates. The insulation on house wiring is not designed to handle the voltage common with electric fence.

For creeks and gullies, use a

separate wire below the lowest continuous wire. This requires setting posts on either side of the void to use for anchoring and insulating. The separate wire should be connected using a flood gate controller and a cutoff switch. Galvanized pipe or chain can be fastened to this wire to hang into the void formed by the creek/gully at normal water levels. The pipe/chain is then electrified by the connection. During times of flooding or seasonable water levels, the switch needs to be turned off. There are designs for this type of electrified floodgate available on the internet and at most USDA-NRCS offices.

**ENDRE FINK:** In creeks and gullies we sometimes use strips of poly wire tied to a hot wire. We hang the strips really close together and then tie a lead weight or a heavy nut on the bottom to keep them straight.

**Q:** *How many and what type of ground rods do you recommend and how deep should they be placed?*

**JEREMY MCGILL:** Grounding is perhaps the most neglected component of many fence systems. Three ground rods, 6' deep and spaced 10' apart are the minimum recommendation. Never attach copper to steel. Electrolysis can occur and result in corrosion which weakens shocking power. Use galvanized ground wire and galvanized ground rods to avoid this problem. Consider that most energizers use galvanized or stainless steel terminals – not copper. A hose clamp holding a piece of copper wire to a rusty t-post has been the weakest link of many electric fence systems.

**Q:** *What are your tips for making temporary fences easily portable?*

**Jeremy McGill:** We must consider that in most cases, multiple wires will be necessary. The newest and most user-friendly system available is the Gallagher Smart Fence. This is a completely self-contained unit that has 4 wires, reels and posts necessary to construct a 330' temporary fence in one pass across the field. Multiple units can be attached to create a longer fence. Alternatives to the Smart Fence include using multiple reels of poly wire and posts. Electrified netting is also widely available in several configurations that average 164' per



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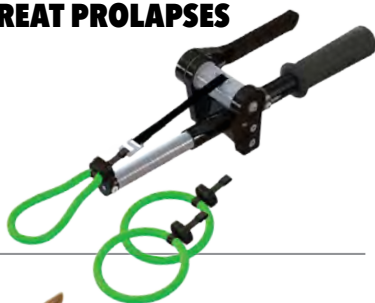


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roll. However, the more bulky netting must be folded properly when moved to prevent entanglement. Never roll electrified netting – it must be folded in an accordion fashion.

**Endre Fink:** Make sure the sheep respect the fence by training them to the fence first in a small area where you can make the fence really hot. Once the sheep respect the fence and know it is always hot, then one poly wire about thirty inches from the ground usually keeps them in. By using only one reel and a few plastic posts, the fence is as portable as you can make it.

**Q:** How many years of use do you typically get out of your charger, posts and fencing materials?

**GREG BRANN:** For wood posts, you want as little heart wood as possible because treatment doesn't soak in heart wood well. Different batches have different life spans. I prefer treated posts over creosote treated posts because they have lasted better for me. Don't cut off wood posts if you do put a sealant like pitch on them. For native posts like red cedar, you want 50% or more heartwood. UV protection is very important in plastic post.

**JEREMY MCGILL:** The life span of an energizer is mostly dependent on lightning and power surges. While there is nothing that can make a system "lightning proof", there are cost effective steps we can take to protect the investment of the energizer. It is always recommended that a lightning diverter be properly installed. Additionally, for 110volt powered energizers, a surge protector is needed between the plug and the receptacle. I routinely have producers approach me with stories of energizers that have been in operation for 15+ years.

There are several factors that will affect the lifespan of the fence system. Class 3 galvanized high tensile wire can last up to 50 years. Fiberglass or other synthetic materials will last the longest. If wooden posts are used, it is recommended that they be treated or use high density woods such as locust or osage orange. Plastics are the most common component to fail first. This is why it is essential to use high quality UV-stabilized materials designed for maximum life. It would not be unreasonable for a properly

designed system, constructed from premium materials to last 30+ years with light, routine maintenance. Take home points: Class 3 galvanized steel and UV-stabilized plastics.

**ENDRE FINK:** Currently we are using fence chargers that are over ten years old. A few have been sent back for repairs, but they were repaired for half the price of a new one. Plastic posts usually last six to ten years, depending on how much time they spend under sun light. Poly wire usually lasts three to four years.

**Q:** What do you recommend for farms that currently have plank fences?

**GREG BRANN:** Planks actually work pretty well if spacing between planks is less than 6". The most important area is the bottom so, an offset wire about 6-8" off the ground will typically be good enough. Retrofitted barbed wire fence typically needs to add another barbed wire about 6" above the ground, then run an offset electric wire about 6" above it. Ideally another electric wire would be placed 8" above the bottom hot wire.

**Greg Brann, Big Spring Farm Trousdale County, Tennessee second generation farmer Greg Brann has worked as an NRCS state grazing lands soil health specialist for Tennessee for 20 years (and the agency at large for nearly double that). He also owns and operates Big Spring Farm comprised of 220 acres of pasturelands in Allen County, Kentucky, and approximately 108 acres of rented pasturelands in Trousdale County, Tennessee.**

**Jim Mansfield, Four Hills Farm, raises Kathadin sheep in Mercer County, KY and he markets gourmet lamb to stores and restaurants. www.fourhillsfarm.com**

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