Temporary Fence

Polywire makes electric fence quickly portable.

Story & photo by ***Troy Smith***

These days, increasing numbers of livestock producers face situations calling for portable, temporary fencing. That usually means they're going to string up some electric fence. It's been used for decades to temporarily enclose fields of wheat and other small grains planted for pasture, as well as fields where crop residues are grazed. And as more graziers have applied rotational grazing schemes, electric fence has aided the subdivision of irrigated pasture, large tracts of rangeland and other forage resources.

In short, electric fence has become the logical solution in situations where permanent fencing is impractical. Advanced technology has made it easier to use, too.

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There are more options for temporary fencing materials, which can help save time and effort when erecting and dismantling electric fence. More powerful and reliable electric fence chargers, or energizers, also provide for a more dependable livestock barrier.

The availability of "polywire" has eased the chore of stringing a temporary electric fence, and then rolling it up again later — especially for many "one-man" crews. Of course, there's still a lot of 17- and 14-gauge galvanized steel wire used in cow country. But rolling up steel wire is a lot of work unless you own or borrow a motorized wire-winder or one that operates off of a tractor power-take-off (PTO) shaft. Polywire is lightweight and can be rolled up on manually operated reels sold for that purpose. Some folks use reels designed for extension cords.

Polywire, or electroplastic twine, resembles plastic baling twine and is generally considered more readily visible to livestock than traditional small steel wire. Polywire contains aluminum or stainless steel filaments that conduct the electrical charge, and most reports claim stainless steel filaments are more durable. Polywire may contain three, six or nine metal filaments, and cost varies accordingly.

Producers should remember the fine metal filaments in polywire create higher resistance to the flow of electrical current. Therefore, polywire may not be advisable for use in long runs of electric fence.

Most producers splice polywire by simply tying two ends together in a hard knot, and that's what manufacturers often advise. However, Natural Resource and Conservation Service (NRCS) personnel recommend that the ends of the metal filaments be twisted together separately rather than simply tying a knot with the plastic strands included.

In situations where greater visibility and electrical conductivity is desired, producers may want to consider polytape or ribbon, which is manufactured in widths of ½ inch (in.) to 1½ in., and contains more metal filaments. For horses, most manufacturers recommend ¼-in. polyrope for increased visibility and durability.

Some producers worry about the lifespan of polywire, as compared to traditional steel wire. Plastic is subject to degradation from ultraviolet light, but most manufacturers have increased the "UV resistance" of their products. Perhaps of greater concern is the integrity of the metal filaments. Producers often report five or six years of useful service from polywire, but that can vary considerably

with how often it is rolled up and moved and the care taken while doing so. Over-stretching and careless kinking of polywire result in breakage of the filaments and loss of conductivity.

Post considerations

The most popular type of post used in constructing temporary fencing is the small steel or rebar post available at most farm and ranch supply outlets. They are durable and relatively inexpensive. The posts are driven into the ground manually with a large hammer or small post-driver. Since they are steel, insulators are needed to attach the wire or polywire without grounding out the electric charge.

Fiberglass posts are an alternative to steel, and wire can be fastened directly to them with wire clips marketed for that purpose.

For faster construction, particularly when temporary fences will be moved frequently, producers may want to consider plastic "tread-in" posts. These feature a spike on the bottom and a tread-plate on which the fence-builder places his or her foot to push the post into the ground. The molded plastic posts also feature hooks along the length of the posts, which hold the fence wire and eliminate the need for insulators.

Of course, insulators are required when fastening wire to corners or ends of a temporary line of fence. Generally, unbraced steel T-posts are adequate for corners and ends, as polywire won't pull them over.

Frozen ground provides a challenge to the use of plastic and fiberglass posts. However, many producers construct temporary fences with the small steel posts, despite cold weather conditions. In some cases, the ends of the steel posts are sharpened with a grinder, and some producers take time to drill a shallow pilot hole in the frozen earth with a rechargeable drill before driving posts.

Post spacing is an issue of considerable debate. Generally, posts should be spaced near enough together to maintain wire height — usually 34 in. to 40 in. from the ground. Pay attention to the high and low spots in the fenceline. On relatively level ground, posts might be placed at intervals of up to 60 feet (ft.) and still maintain wire height. Wide spacing actually allows for more flexibility and less chance of wire breakage if hit by deer or errant livestock.

Charger options

The heart of any electric fence system, including temporary fence, is the charger or energizer. Many modern energizers are low-impedance, delivering an electrical pulse of short length. High-impedance energizers deliver long pulse lengths, which can cause the wire to heat. Consequently, high-impedance energizers are not recommended for use with polywire.

Manufacturers often provide an estimate of how many miles of wire a particular model will energize, but the estimate is likely based on testing done under near-perfect conditions. Veteran users of both temporary and permanent electric fence say buyers of new energizers should be skeptical of recommendations based on distance.

Inadequate grounding is the leading cause of electric fence failure.

Typically, energizer manufacturers also rate their products in joules — a measure of the total amount of energy released per pulse. A joule is equal to the output of one watt per second. Generally, fences of longer distance will require more output. When matching a low-impedance energizer to a particular application, an industry rule of thumb suggests one joule per six miles of wire.

If a temporary fence is located near a 120-volt power source, a good choice would be an AC (alternating current)-powered energizer, which can be plugged into the outlet. AC-powered energizers often have higher joule ratings than battery-powered energizers. This would include energizers powered by 12-volt (car-type) batteries or energizers powered by deep-cycle batteries recharged by solar panels.

When selecting an energizer, it never hurts to pick a larger unit than you really need.

Regardless of the type of energizer used, it won't deliver optimum performance unless grounded properly. Inadequate grounding, say the experts, is the leading cause of electric fence failure. Sometimes, producers try to "get by" by grounding the energizer to a single rod, but most manufacturers and electric fence gurus recommend a grounding system including a minimum of three ground rods at least ½ in. in diameter and 6 ft. in length, with ground rods placed at least 10 ft. apart. The wire connecting the energizer to the grounding system should be clamped tightly to each rod — not just wrapped around each rod.

They also recommend using the same kind of metal throughout the grounding system. So, if galvanized ground rods are used, connect them with galvanized wire, but use copper wire to connect copper ground rods and carry current back to the energizer.

After a temporary electric fence is constructed, it should be tested. If there is no fire in the wire, recheck the grounding system first, and then post insulators for possible "shorts." A temporary electric fence can be a great tool, lending flexibility to forage management, but only if it works. AJ