



Beef Cattle Handbook



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Fence Systems for Grazing Management 3. Portable Electric Fence Materials

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One of the initial management considerations in designing grazing systems is selection and installation of the proper fencing system. Three types of fencing are likely to be used in a grazing cell: perimeter, permanent subdivision, and temporary or portable fencing. Numerous options are available for portable electric fencing. This fact sheet deals with material selection and proper installation of temporary electrified fences for grazing systems. Fence components are covered in individual sections.

Portable Fence Conductors

The most commonly used materials for portable fencing are polywire and polytape. Both of these materials are combinations of plastic and metal filaments. Usually the plastic component is polyethylene and the metal is stainless steel. Other products are available that use fiberglass filaments and aluminum or tin-copper alloy for the conductors. The main value of polywire or polytape over wire is that they are very lightweight and require no tools for setup. Virtually no bracing is needed to hold the fence, and very light duty lineposts may be used. The main limitation of the poly products is the distance which they can be energized, before the internal resistance of the fine wire filaments used as conductors becomes restrictive.

Polywire has the appearance of heavy cord or plastic baler twine. Several different grades are available depending upon the number of filaments and the gauge of the conductor. The cheapest available product contains only three wire filaments and has very limited usefulness. The number and size of conductor limits the

effective distance that can be energized to about 1/4 mile or 1320 feet. The breaking strength of this material is fairly low and the useful life is limited. Very little three-strand polywire is sold in this country anymore, due to its poor performance.

Most polywire sold is either six or nine strand. The six strand can be effectively energized for distances up to 1/2 mile or 2640 feet. More strands of plastic also serve to increase the breaking strength of the product. The nine-strand polywire not only have more wires, but may also contain slightly larger wire filaments. This increases the practical length of fences to 3/4 - 1 mile. Either six or nine strand wires may contain two or three color filaments, which greatly adds to the visibility and longevity of the material.

Polytape comes in a similar array of options. Polytape should be purchased on the basis of the number of filaments and quality of the plastic weave in the tape. A good polytape will have the visible appearance of good stout strapping tape and contain at least six wire filaments.

Tape has the advantage of greater visibility when compared to polywire. The tape tends to flutter in the breeze and attract animal attention and inspection. This generally leads to quicker animal recognition and training to the fence. However, the same fluttering may cause greater wear of the tape on post clips or insulators which will reduce the useful life of the fence. A good quality tape should have a useful life of five to seven years unless it is handled abusively. Polywire may last up to ten years with proper use. Each new generation of products has a longer useful life.

Reels

To use the poly-products effectively a dispensing and retrieving system is a must. Many types of commercial reels are available and many producers make their own. Features to look for in a commercial reel are a positive locking system, a good warranty, the capacity to hold adequate footage of the conductor typically used, and for some applications, hi-speed gearing.

Two basic types of locking systems are used. The first is a cog-and-lock lever system. This is a truly positive lock, which prevents the accidental payout of fence. This system is advantageous for keeping the fence taut, particularly in rolling terrain. The other system is a rubberized friction washer which is tightened with a knob to keep the spool from turning. The washer systems work well until the washers become polished and no longer hold the spool in place. When this occurs, the fence will sag and an animal stepping across the sagging fence may pull several hundred feet of tape or polywire across the field. With a positive lock the fence is less likely to sag and encourage animals to try to cross it but if the animal does cross the fence, the animal may drag the reel across the field (hence, the need for a good warranty!).

Reel warranties vary from no warranty up to a 5-year warranty on the plastic components of the reel. If a person is inclined to toss the reel in the back of the pickup and then throw a load of firewood on top, a good warranty is a necessity. Most reels are fairly durable but do need a little common sense in handling as the spools are mostly plastic. Durability of reels is quite variable with some breaking down in only 2 or 3 years while others may still be in use after 10 years. This is an area where you definitely get what you pay for. A bargain reel is usually no bargain.

Reel capacities vary from as little as 300 - 1,320 feet. Polywire capacities may range from 660 - 2,640 feet or even greater. The reel capacity should be sized to the situation. If a 20 acre field that is 660 feet wide is to be strip grazed, there is no need to purchase a reel containing a half mile of polywire. If stretches of 1,000 ft are typically used, one reel with at least that much capacity will be more cost effective than using two reels of lesser capacity. With a little forward thinking, having an excessive amount of reserve capacity or coming up short can be easily avoided. Just size the equipment to the job to be done.

If fences are put up and taken down with regularity or if numerous portable fences are used, a geared reel is helpful. While most reels work with a 1:1 retrieval ratio, a geared reel can retrieve tape or polywire at a much more rapid rate. The usual ratio is 3:1. A geared reel will cost more than a 1:1 reel of comparable quality, thus there should be valid justification for the time saving investment in the geared reel.

Step-In-Posts

Plastic step-in-posts are the most common linepost used with the poly-products. Some people use metal re-bar or

fiberglass rod posts with poly-products but each has their limitations. The weight of re-bar and the need for insulators limit the efficiency at which re-bar posts can be used. The fiberglass posts are useful as long as soil conditions allow the posts to be easily pushed into the ground by hand. When the soil is hard, either from freezing or drought, the posts must be hammered. To prevent the fiberglass from splintering, a driving cap must be used. Beating a post with a driving cap on it with a hammer does not lend itself to easy fencing.

Numerous models of step-in-posts are available with a wide range in appearances and characteristics. One desirable characteristic is a broad enough step such that the person's foot will actually fit on the step and allow the post to be pushed into the ground. Many posts have only enough space for the edge of the shoe which is fine if the ground is moist but it is wholly inadequate if the ground is hard. The spike should be of sufficient diameter to resist bending but not overly large. It is much more difficult to push a 3/8 inch spike into hard ground compared to a 3/16 inch spike. The post should have sufficient rigidity to stay erect through wind storms and under slight fence pressure but flexible enough to bend under excessive pressure.

Using portable fence in winter conditions to graze stockpiled pastures, corn stalks, or budget out hay feeding requires some special attention. If the ground is frozen, no step-in-post goes easily into the ground. If the step is sufficiently broad and the spike sufficiently narrow, a gentle rocking motion of the foot applied with downward pressure will usually get the post into the ground sufficient depth to hold the fence. If the fence makes a corner, the post may not get deep enough in frozen ground to hold. A two inch thick concrete circle with a tube in the center to hold the post spike can be used as corner assemblies. The circles are made slicing five-gallon plastic buckets into two inch wide rings and using these rings as concrete mini-forms. A piece of rubber or plastic tubing with an inside diameter slightly larger than the post spike is placed in the center while the concrete is still wet. A handle can be put in the top side using almost anything. Some people have used a ten inch square piece of three inch bridge plank for corner anchors with a center hole drilled to accommodate the post spike. The imagination is the only limit to using portable fence in the winter.

Summary

Portable fencing is a powerful management tool for the livestock producer. As with any tool, portable fence can be expensive and must be justified in its use. Numerous options are available and the right combination of materials can be selected to accomplish almost any task.

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