



Fencing Considerations for Beef Cattle Operations

Tripp Morgan, Assistant Extension Agent, Livestock and Forages

Introduction

Fencing represents a sizeable investment that is crucial to cattle operations. A fence serves to contain your cattle and keep undesirable animals out. Cattle escaping due to neglected fencing may result in legal liability and the loss of livestock, causing an instant reduction in profits. Proper fencing also keeps undesirable animals, such as predators and other livestock, out of the herd. A key example of the latter is a neighbor's bull entering your property due to poorly constructed fences. This can introduce disease and undesirable genetics into your herd that may have serious long-lasting consequences.

On the surface, livestock fencing may seem simple. When you begin examining your cattle operation and asking questions to determine which fence best suits your needs, the options become vast. Some of these important questions include:

- What class of livestock do you intend to contain?
- Is the fence intended to be permanent?
- Am I able to improve an existing fence?
- What is my budget?
- Which types of braces best suit my needs?

Careful considerations should be made before starting any fencing project.

Fencing Types

The first thing to clearly define is what class of animal you intend to house. Typically for cattle, there is either net wire or a combination of net wire and barbed wire being used. If both cattle and small ruminants are being contained, net wire should be used to prevent sheep or goats from slipping through gaps in the barbed wire. Also, with sheep, barbed wire quickly becomes ineffective as the barbs become coated with wool. For horses, board fencing is best as it provides great visibility and will not pull out a horse's mane and tail. Keeping swine contained is challenging. Swine fencing needs to be sturdy and low to the ground to prevent them from rooting.¹

Before selecting a fencing type, it is important to understand some of the terminology used in product marketing. For example, high carbon/high tensile versus low carbon/low tensile, gauge sizes and what a wire coating is.

High carbon/high tensile and low carbon/low tensile are probably the most confusing phrases commonly discussed in fencing materials. High carbon and high tensile are often used synonymously, as high-tensile wire is made of high-carbon steel. The same is true for low carbon and low tensile. The carbon content of the wire has a direct relation to the capacity of the wire to stretch.

Low-carbon wire was the first wire commonly used in field fence. Low-carbon wires have some ability to stretch which makes the product easier to work with than high-tensile wires. It also comes with a lower up-front cost. A negative effect of having the capacity to stretch is that over time, due to animal pressure, you will notice dips and bows in your fence.

High-tensile wires are much more rigid than low-carbon wires. While it is somewhat harder to work with than low-carbon wire and comes with a higher up-front cost, high-tensile wire is expected to have a longer lifespan than low-carbon wire. The added rigidity of high-tensile wire results in a higher breaking point, creating a stronger fence.

When selecting wire, you will notice several different gauge options. Typically for high-tensile barbed wire, gauge options range from 14 to 15.5. For low-carbon barbed wire, you will see gauge options ranging from 12 to 13. When evaluating different woven wires, two separate gauges are commonly listed. One gauge — the larger one — represents the top and bottom strands, and the smaller gauge represents the wires that make up the mesh between the top and bottom strands. Do not get confused by the gauge number. The smaller, the number the bigger the wire.

Wire coatings are typically made of zinc or aluminum. These metals will slowly rust and deteriorate over several years, protecting the steel that the wire is made of. The amount of coating on wire correlates to the amount of protection that it will provide against the elements. To determine the amount of coating and level of protection, refer to the wire's class. Class 1 provides the lowest level of protection while Class 3 has the highest amount of coating applied, providing the most protection. Class 3 wire is recommended to help combat humid climates.²

When selecting a fence wire for livestock, producers have three main options: smooth high-tensile wire, barbed wire and net wire.

Smooth High-Tensile Wire

Smooth high-tensile wire is a very common choice for producers that are primarily interested in housing horses. The smooth wire is easy to work with and will not pull a horse's mane and tail out like barbed wire can. Cedar stays can be placed between T-posts to increase visibility and make it harder for the horse to stick its head through the wire to graze. Smooth high-tensile wire is also commonly used in permanent electric fencing applications.

Barbed Wire

Barbed wire is a very popular option among cattle producers, especially for internal cross fencing. Barbed wire is easy to install and repair. Producers have the option to purchase both high-tensile and low-carbon varieties of wire in all coating classes with multiple gauge options. Barbed wire does an adequate job of keeping cattle in but does little to deter feral hogs and predators.



Barbed wire fences are a popular option.
Photo by Abby Dunn

Net Wire

Net wire is also commonly referred to as field fence or woven wire. Net wire comes in rolls that are typically 330 feet in length. The roll will contain a top strand and a bottom strand of wire that is slightly heavier than the wire that spans between them. The wire

that spans between the top and bottom strands is woven together in a net pattern that makes up different size squares or rectangles. At every point that wires cross in the midsection, there is a knot affixing the wires together. Most products today utilize a fixed knot that permanently holds the wire in place, but some manufacturers still produce wires that use a hinge joint that allows the wire to slide when pressure is applied to it.

The sizing of net wire is another factor that can be confusing. For example, ST 949-6-330 is a StayTuff wire size.

- ST represents the brand StayTuff.
- The 9 represents the number of horizontal wires.
- The 49 represents the height in inches.
- The 6 represents the spacing between the vertical wires in inches.
- The 330 represents the roll length in feet.

Other companies, such as Bekaert, Red Brand and OKBRAND, utilize similar sizing codes, but some companies exclude roll length, while some companies include wire gauge. Selecting the appropriate size is an important decision that impacts the effectiveness of the fence and total cost of building it. Producers that are exclusively raising cattle can opt to go with a larger mesh size, but if you intend to graze small ruminants in the same pasture, it is advisable to use a smaller mesh size. Another thing that mesh size impacts is predator control. Smaller meshes can help deter predators and hogs from entering a property.



A net wire fence may also be called field fence or woven wire.
Photo by Abby Dunn

Electric Fences

Electric fencing should be considered as a part of any fencing project. Power units are affordable, reliable and easy to install. Electric fencing has applications as new permanent fencing, mobile temporary fencing and an addition to increase the effectiveness of older fences that have fallen into disrepair.

There are two methods for energizing a stretch of electric fence. If the power unit is going to be placed near a barn or some other structure that has electricity, it can simply be plugged into the existing power source. If the power unit is to be deployed in a

remote location that has no preexisting electrical infrastructure, then solar panels and/or batteries may be utilized to provide energy for the fence. An energized stretch of high-tensile wire running over net wire can help protect your investment by preventing cattle from reaching over the fence to graze.

Another application for electric wire is to retrofit an existing fence. This may be done by placing an electric wire about halfway up the height of the fence. The electric wire may be placed using offset connectors 6-15 inches off the existing fence. This will prevent animals from pressuring the permanent fence, thus extending the life of the fence as well as providing added protection in high pressure areas.



Temporary electric fencing. Photo by Abby Dunn



Solar power may be used to provide energy for an electric fence. Photo by Tripp Morgan



Electric fencing can be added to older permanent fencing to increase effectiveness. Photo by Abby Dunn

Post Types

Posts play a key role in livestock fencing both as corners/braces and fence posts. There are numerous options for electric temporary fencing. Electric fence systems often involve temporary posts made of either plastic, coated metal or fiberglass that can be easily moved to adapt to the producer's needs. Permanent fences commonly have two basic options: T-posts and wooden posts.

T-posts come in two different weights and a variety of heights. T-posts are a very popular option because they are economical, uniform, readily available and easy to install. T-posts should not be used alone in fencing runs but rather as a part of a system. You should install a traditional 6-8-inch wooden post or pipe post every 75-150 feet when using T-posts to limit lateral movement of the fence. Soil type will dictate the distance between these wooden posts when combined with T-posts.

Wooden fence posts are still an option for many Louisiana producers whose properties face high soil moisture levels for prolonged periods of time. Treated wooden posts in moist environments will experience a longer life span than steel T-posts because corrosion will quickly take its toll on the metal T-post. Wooden fence posts are also popular among producers who are selecting posts for aesthetic purposes.



Wooden line post. Photo by Abby Dunn



Wooden H-brace. Photo by Abby Dunn



Pipe H-brace/corner. Photo by Abby Dunn

H-braces or corners are a key component to sturdy fences. These can be made from either wood or pipe. Producers may purchase prefabricated pipe H-braces or corners if they do not own a welding machine. When using wood for H-braces or corners, it is advisable to use round posts to eliminate extra pressure on the wire from contacting the hard corner of a square post. It is also important that wooden posts be treated to prolong the investment. Fencing should always be seen through the lens of a long-term investment. Purchasing lower priced products can increase the price of the fence in the long term due to increased repair costs and earlier replacement.

Regardless of the material the brace is built from, it is important to keep a few things in mind to ensure that it is strong enough to do the job it is intended to do. First, the brace's

length should be two and a half times its height. For example, a 5-foot-tall brace should be a minimum of 12.5 feet long. Another thing to keep in mind when setting a post is ensuring they are set deep enough to accommodate the strain placed upon them. A good rule of thumb to go by when setting a post is that you want half in the ground and half out of the ground.

One common mistake made when setting posts is adding too much concrete. It is easy to believe that more is better but not in this case. If dug to the proper depth and slightly bell shaped, six inches of concrete is adequate. Filling dirt on top of the six inches of concrete allows the concrete base to act like an anchor, preventing the post from rising out of the ground. After setting posts, wait two days before connecting wire to the posts to give concrete sufficient time to set.

Summary

Choosing the correct fencing for your livestock operation is an important decision that represents a significant long-term investment. Horses, cattle, sheep, goats and pigs all have unique fencing requirements. Consider what level of investment is appropriate for the context of the operation. There are many different types of fencing to choose from, and each serves a unique purpose. If you need help selecting a fencing type or more information about what style of fencing best suits your needs, please reach out to your local extension office.

References

¹Green, Dominique and Taylor Chavis. Livestock Fencing. NC Cooperative Extension News. 6 2023. <https://robeson.ces.ncsu.edu/2023/07/livestock-fencing/>

²University of Georgia Extension. Fences for the Farm. 2024. <https://extension.uga.edu/publications/detail.html?number=C774&title=fences-for-the-farm>



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