

## What's the First Thing to Plant in Managed Grazing? ...a Post

*by Tom Cadwallader, University of Wisconsin-Extension (Lincoln/Marathon Counties)*

One of the first questions I'm often asked about modern electric fencing systems for managed grazing is – "What does it cost?" In typical Extension fashion, I answer the question with - "Well, it depends." I then continue to go into all the variables that can create significantly different costs. Of course most people who ask that question aren't thrilled with my answer because all they really wanted was a number. So, in keeping with that fine Extension tradition this is an article that will delve into some fence construction basics that help to answer the question – "What does it cost?" And the logical place to begin is planting the posts that hold the whole thing up. So let's get started.

There are three bits of technological development in fencing systems that have made managed grazing a viable option for livestock producers. One was the development of low-impedance energizers that safely deliver reliable high-energy pulses of electricity to a fence so animals would respect it. Another was the utilization of a previously developed technology, rust resistant high-tensile steel wire, to carry that power over vast stretches of terrain without fear of having it torn to shreds by animals and machines if the power was off for some reason. And finally, the development of conductors made of plastic and metal wire combinations that are light and flexible so that pastures can quickly and easily be divided up so that it is reliably rationed out.

But all of these technologies don't mean much if the posts that hold the whole thing up don't stay in the ground. For high-tensile electric fences commonly used in today's managed grazing systems there is an additional challenge that makes putting posts in the ground so they stay put even more important. Unlike barbed and woven wire style fences, where end and corner posts share the burden of keeping the fence in place with many line posts that the wires are fastened to, in the high-tensile fences nearly all of the tension is on the end and corners. The line posts are just there to keep the wires off the ground and separated. The wire is loosely fastened to the line posts allowing the system to contract and stretch with changing temperatures and to absorb the shock of something running into it. So how do you plant a post so it stays in the ground? There are really two choices, you can either dig a hole and put it in manually or you can use a machine and force it in. Without a doubt, if you have the equipment to do it, driving posts in the ground is definitely the easiest way to go. But unfortunately not everyone has a post driver at their disposal so for many the only option is to dig a hole and plant a post.

### Planting a Post So It Stays

Planting a post in the ground so it is nice and tight and having it stay there are two different things. It may seem pretty straightforward. Dig a hole 3-4 feet in the ground to get past the frost line and provide some stability, put the post in, put the dirt that came out of the hole back in the hole, tamp it around the post and ta-da, done. Geez it would be nice if it was that simple but unfortunately different soil types can make it very difficult to guarantee how well a post will stay in the ground, especially on high tensile wire fences where all of the tension is on the ends and corners.

One of the most common mistakes in setting a post is using native material and rocks to backfill around it. Not all soil types are good for holding in fence posts. Even if you know the general soil type for a field you're going to fence in you'll usually have to dig a few holes to find out what you have to work with. If the soil type is sand, sandy loam, gravel or a combination of all three, backfilling with the native material will work just fine. But if it's silt or clay, with or without rocks, it will be difficult to keep the post in the ground. Once the soil is disturbed and it loses its structure it will be difficult to have it set up around a post that has both vertical and horizontal forces constantly being put on it.

With a driven post in silt or clay type soils, the post is forced down through the soil profile squeezing the soil and rocks around it helping to hold it in the ground. A dug post, however, is difficult to tamp around and in the spring freezing and thawing conditions will actually push a post out of the ground. Putting rocks back in the hole thinking they will help hold the post in can actually make it worse. They can act as levers to help push the post out of the ground. So what should you backfill the hole with if you've got clay or silt type soils? Well the best thing to do is bring in some sand and gravel and use it to back fill in a ratio very similar to making cement. A ratio of two-thirds sand to one-third  $\frac{3}{4}$  inch rock is nearly ideal. It tamps in the hole nicely, allows for good drainage and significantly cuts down on heaving. It's also easy to find.

For most situations that's all it takes to plant a post that will stay put, but like anything, even that might not work at times. Next time I'll provide some tricks of the trade to help keeping posts in the ground before we get into some other parts of the fencing system.