

FREE REPORT: AGRICULTURAL FENCE WIRE TIGHTENING / TENSIONING / STRAINING

By: Research Dept. at Jake's Wire Tighteners

What It's All About

Farmers need solid structural barriers to keep livestock in paddocks. Failure to provide such barriers leads to the obvious problems and hazards of wandering stock. Be it into the neighbour's soon-to-be-harvested wheat crop, the neighbour's prized heifer paddock or, more seriously, onto a busy road. The structural integrity of agricultural fencing is dependent on having solid posts, strainer/pull posts and well tensioned wire and netting. In this report we will be focusing on how to keep the wires tight. But first, some background.

What Makes A Good Fence?

Fences need good solid posts, strainer/pull posts and well tensioned wires to maintain their structural integrity. A strainer/pull post is a larger, more solid post or series of posts with braces at the end of the run. It acts as an anchor point heavy enough to maintain the tension of the wire without being pulled over or out of the ground. There are many variations on how strainer/pull posts are created, suffice to say they must not move or the tension will be lost.



The picture above shows a typical corner configuration. Note the diagonal wires bracing the posts and giving strength to the corner post/strainer post.

The posts in between strainer/pull post provide the support for the wires and when spaced correctly, also keep the wires the right distance apart. If the posts are too far apart, the wires can separate and it becomes easier for livestock and wildlife to put their heads through and then push through the wires of the fence.

In some cases, if posts are too far apart or there is a lot of pressure from livestock or wildlife on fences, then "fence stays" are used. These are timber or metal spreaders that are attached to the wires vertically between the posts and which keep the wires at the right distance apart.

If the wires are loose, smaller livestock and wildlife such as sheep and deer can push their way through. So you need well tensioned (tight) wires to keep animals from pushing through the wires in the fence. Well tensioned wires also give the posts lateral support in that they make it harder for larger animals to push individual posts over. This is more likely to happen when the ground is wet and soft or the fence has older timber posts that have become weaker over time and are more prone to snapping off at the base.

So the posts support the wire and the wire gives lateral strength to the posts. As you can see, the tension of the wire is important and over tightening is not recommended, especially with barbed wire.

Pressures On Fencing (“Don’t Fence Me In!”)

Fences are under constant pressure from both the residents of the paddock, wildlife passing through, along with tree branches falling on wire, etc. As we all know, the grass is always greener on the other side of a fence, so we have pressure from livestock pushing up against the wires trying to get that tasty bit of grass just out of reach. Sheep and smaller livestock push to get between and under wires and larger animals such as cattle and horses push to get between and over.

Wildlife is more of an issue as they are not only chasing the green grass but they often need to get through as a matter of survival, so they will push until they get through. So, loose wires make it easier for livestock to push through and get that tasty morsel and for wildlife to get in and out of paddocks.

Obviously some of these issues can be alleviated by using barbed wire to keep cattle off fence (although barbed wire still needs to be kept tight); by using wire netting to control smaller animals; and by using electric fencing. The problem with electric fences is that if a branch falls on the wire or there is a cut in the power supply, you are then back to relying on your fence.

So the fact remains that the wire in all of these cases must be kept tight to maintain a strong physical barrier. The problems with livestock and wildlife putting pressure on fences are magnified when fences come into watering points.

Fence Construction Principles

The basic fence has a strainer/pull post at each end of a run. In the case of a smaller paddock, that could be the width or length of paddock in which case there would be a corner post or strainer/pull post. With larger paddocks, the fence would continue in the same direction with a strainer/pull post at spacing designated by the terrain or the manufacturer’s specifications.

At each point where the fence changes direction or the terrain starts to rise or fall, there needs to be a strainer/pull post. Between each tensioning point, the fence posts are spread equally along the run. It is critical to keep the fence as straight as possible both laterally and horizontally.

When tensioning a fence that is not in a straight line between strainer/pull posts the tension will tend to pull the out-of-line posts over to the straight line or if the fence is up and down, the tension will have a tendency to pull the lower posts up out of ground.

So Now We Get To The Fencing Wire

With a properly tensioned fence there is always some give. This in itself is not a bad thing as it allows animals to “bounce” off of it. The trouble is that after a while the wire “stretches” and becomes loose. The degree to which this happens depends on the type of wire and the length of tension or run.

The longer the run, the more elasticity (recoil of wire when released is another way of describing this effect) there is and as a consequence it’s more difficult to achieve and maintain the tension in a shorter length of wire due to the lack of elasticity or “stretch” in the shorter length.

There Are 3 General Categories Of Wire.

1. The most common wire in agricultural fencing today is high tensile wire and is found in most new fencing. This wire has a low rate of stretch because of its tensile strength.
2. The second is a soft mild steel wire which most of the time is galvanised and is typically found in older fences or used for tie wire. The softer wire tends to lose its tension quite easily as it has low tensile strength, and because of this requires more maintenance.
3. Thirdly, there is barbed wire. There are different types of barb but typically it is higher gauge (thinner) wires twisted together in a fashion similar to rope, with barbs attached. Because it’s twisted, if it’s over tensioned it can “pull” out the twist, which not only deforms the barb but also takes the tension out of the fence. Care must be taken not to over tension.

Tensioning Fences--Overview

There are many and varied ways of tensioning fence wires. From using the tractor

(no kidding, some people do this) --<http://www.youtube.com/watch?v=Y2waC1RtrDA>

and another video, but, be careful this one comes with a **LANGUAGE WARNING**
*** BEWARE***. <http://www.youtube.com/watch?v=hcxoP9IkVF0>

to pulley blocks; to “come-a-longs”; to the latest technology -- the **Jake's Wire Tightener**. Here in the United States, one of the most common wire tensioners used is the chain strainer and these have been around for many years.



These are all ways that fences are tensioned with tools that are not part of the fence and they typically use a system that relies on the tool gripping the wire in some way.

Now the problem here is that anything that grips the wire can damage the wire. This is of particular concern with high tensile wire. Because of the nature of the material used in high tensile wire, the wire has a very high degree of tensile strength but is somewhat brittle if damaged.



The photo on the left shows the chain strainer loose and the one on the right with pressure applied. Note how the wire is bent and if the clamp is worn it can slip on the wire.

So if a high tensile wire is tensioned up and damaged, the damage can create a weak point at that spot. If a cow or large animal hits the fence with any force, the wire may break because the wire has been weakened at that point.

So care must be taken to ensure that no damage occurs to the wire when tensioning with these tools. The beauty of the **Jake's Wire Tightener** is that it does not damage the wire in any way. Instead, it rolls the wire and does not kink.



8 gauge wire on heavy duty **Jake's Wire Tightener** clip

Another way people maintain the tension in fences is to fit “inline strainers”. These strainers are typically fitted to each wire at the strainer post and they stay in the fence. They wind the wire up very much like a fishing reel except you use a spanner for the handle. These are ideally fitted when the fence is new. To fit to an existing fence, there are the obvious costs of the unit and the installation cost.



In-fence permanent wire strainer

Three Instances where fences need tensioning

But first a safety warning. Tensioning wires can be dangerous, especially when straining barbed wire. Wire under tension will whip back if it breaks. This is particularly dangerous when barbed wire whips back as it can peel skin back, take an eye out and generally make a mess—it's very sharp. So use caution and do not over tension wire.

There are three instances when you need to tension a fence:

- when the fence is new;
- when a wire has broken; or
- when the wire has stretched and needs tensioning.

1. New fences.

I would tend to use the chain strainers, because you are at the strainer post and the wires have not been tied off. It's relatively easy to attach the chain strainer to the post, tension up wire and tie off. Although, you could use the **Jake's Wire Tightener** by first pulling up wire with pliers until it is "plier tight", tying off wire, then use the **Jake's Wire Tightener** to get a final tension. Where the **Jake's Wire Tightener** comes into its own is if after the initial tensioning a wire becomes loose, it is an easy 60 second job to re-tension the wire with the **Jake's Wire Tightener**.

2. Broken wires.

Repairing wires with the **Jake's Wire Tightener** is a much easier and faster method than using any other wire tightener. As an individual raised up around cattle and fencing for many years, I was taught that the "correct" way to repair a broken wire was to go to the strainer/pull post, loosen off wire, pull back wire to join and rejoin with a figure 8 knot. Then you had to return to the strainer/pull post and then if required, splice in a new piece of wire to give back length lost to the previous knot, re-tension and tie off. Obviously, that's a fairly long and tedious time-consuming process.

Alternatively, the wire can be joined at the break. That can mean splicing in a new piece of wire at the break and then using chain strainers to pull wire together and tie it off. A demonstration of how to rejoin fence wire can be seen in the following video.

<http://www.youtube.com/watch?v=YIXW5DQVtqI>

Alternatively, after splicing in a new piece of wire, instead of using chain strainers, you can use a **Jake's Wire Tightener** as shown in Jake's Wire Tightener's "How To Repair Broken Wire" video.

<http://www.youtube.com/watch?v=HysRWIH-BGE>

3. Re-Tensioning Loose Wires

If using a chain strainer, the "correct" way to re-tension wire is to go to the strainer/pull post, undo wire, attach chain-strainer, re-tension and retie. This is a time-consuming job, especially if the wire from the run going in the opposite direction is wrapped over the top of the wire that you want!

So when using the chain-strainers, you are looking at a minimum of 10 minutes per wire by the time you get the wire undone, the chain strainers on, then tension up and retie the wire. Think even longer if you are dealing with barbed wire. Wires can also be tensioned from anywhere in the run using the traditional chain strainer, but this does involve cutting the wire and obviously more time and effort.

Restraining loose wires is where the Jake's Wire Tightener come into their own in saving time and effort, as you can see from the videos on the Jake's Wire Tightener website and the link below.

<http://www.jakeswiretighteners.com>

With the **Jake's Wire Tightener** you simply walk up to a fence and re-tension wherever you like. You simply fit the clip onto the loose wire, use the handle to give the clip a couple of turns to tighten....and you are done. In about 60 seconds or less. There is no untying or cutting of wires.

Have a look at the video on www.jakeswiretighteners.com and see how the **Jake's Wire Tightener** tensions farm fencing-- including barbed wire-- in seconds, making it the fastest and easiest wire tightener on the market. You'll save plenty of time, money and effort using this tool. Guaranteed.

We hope this article has been of benefit. If you have any questions or would like to comment please contact us at sales@jakeswiretighteners.com.

To have a closer look at the **Jake's Wire Tightener** and what it can do, just head to the website at www.jakeswiretighteners.com.

In the meantime, thanks for joining us here for the free report.

All the best,
Research Dept at **Jake's Wire Tighteners**