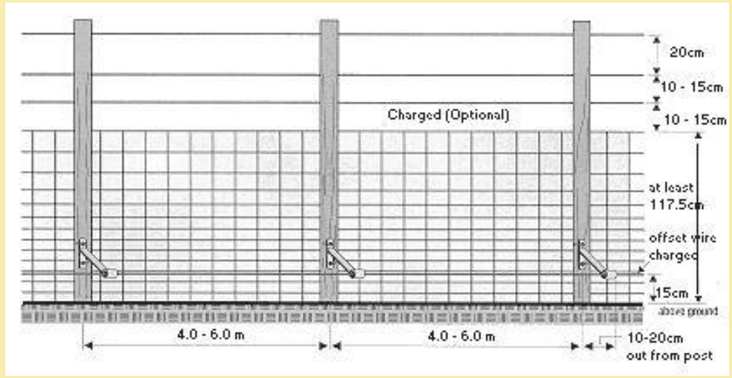
Small Ruminant Power Fencing

Fact Sheet

Small Ruminant Power Fencing

Page wire electric fence

- Galvanized, high-tensile mesh wire should be used for this design of predator control fence. This wire is more versatile and longer-lasting and can be stretched tighter than standard farm mesh wire.
- Galvanized mesh at least 1.2 m (4 feet) high with predator-proof spacings (smaller spacings on the bottom section of the mesh than at the top section) is required.
- The fence wire must be tight to the ground to reduce the chances of a coyote digging under.
- Post spacing must be a maximum of 16 feet for flat terrain, and closer spacing in areas with uneven terrain.
- If post spacing is less than 16 feet apart, cost of extra posts will be covered up to the maximum rate per mile.
- A charged offset wire (see diagram) must be placed 15cm (6 inches) off the ground using brackets; however brackets aren't required if posts are 10cm wide or more. The offset wire can be attached (with insulators) directly to the opposite side of the post that the galvanized mesh is attached.
- All charged wires must have insulators.
- Single strand, 12.5 gauge high-tensile wires or barbed wires may be placed 15 cm or less apart above the mesh to increase the height of the fence to 137 cm (4.5 feet) or more.
- The estimated cost to build this fence is **$6100/mile** which includes labour and equipment usage costs.
- (Agri-Facts Agdex 684-7 Protecting Livestock from Predation with Electric Fences. Alberta Agriculture and Rural Development. 2005)



Where To Begin?

Before starting your fencing project, take the time to evaluate your whole operation. The following is a list of things to consider.

1. Plot out your project on satellite images or simple hand drawn maps. Try to show all available and future water sources, gate-ways, road-ways or easements, undesirable areas, adjoining lands, and your ideas for cross-fencing or portable fencing systems. This will make ordering products, and setting up grazing plans much easier.
2. Consider the type of animals in your operation. Animals nursing young need more protection than dry animals. Predation concerns may influence decisions for your perimeter fences. Cross-fences can be constructed with fewer strands and have larger post spacing to save you time and money.
3. Lay out your paddocks (pastures) on your maps, remembering that square paddocks are grazed more evenly. Will you be around to move animals every 3-4 days or is a 7 day graze per paddock more realistic? Size may also depend on the type of grasses available, soil type, water, and or how many animals will be utilizing the land.
4. Consider 5yr expansion plans, and how you might incorporate this into your current grazing system.
5. Lay out where your power source is going to be for your energizer, and where you will establish your ground field. Make certain that you have a minimum of 3 galvanized ground rods to start, and be prepared to add more. Energizers should be accessible but not tempting to passers by!
6. Choose the proper energizer for your project – You should have 8-9000v at the far end of your fence system to control small ruminants and predators. You may not have 110v power, and may need a battery style energizer.
7. Purchase the best products you can afford, they will last as long as any post (sometimes longer!)
8. Attend a fencing clinic or school – This is knowledge that you will use everyday.

Why It Works

If animals (humans included) are aware that some area or place is uncomfortable they will try to avoid contact with that place. This creates a mental barrier that's effectiveness comes with animals knowing there is a sharp "pinch" when they touch the fence. They avoid the "pinch" in their mind and in-turn avoid the fence at the same time. This process is nullified when they contact fences with no power on the wire, and learn to put pressure onto the fences again.
Physical barriers such as wooden fences and steel panels/gates have their place but are limited due to the high cost. We usually see these products used for handling corrals and feeder pens.

Tools To Make Your Life Easier

Digital Volt Meters – Hands down one of the most important tools when utilizing power fencing.
Lineman Pliers – Whether you are comfortable working with high-tensile wire or just learning the ropes, these are essential for the tool kit.
Chain Style Fence Strainers – These tightners will not ever let-loose or slip, and pack away into a small area for easy storage.
Tightner Handles – Used to tighten/loosen in-line strainers, much safer than a ½" drive ratchet.

Tools Not To Forget

Hammer or Drill – You can nail on insulators or screw them into place on the posts.

Adjustable (Crescent) Wrench – Needed to tighten joint clamps, ground rod clamps, end-strainers etc.

Measuring Tape – Marking wire heights, brace spacings, wire for gates.

Spade for digging under gates etc.

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Thank you to Jason Williams of Vintag Services Ltd. for providing your expertise and time on this fact sheet!

This fact sheet has been prepared in conjunction with Vintag Services Ltd. and the Saskatchewan Ministry of Agriculture.

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Canada

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Construction

Proper fences start with proper corners. Use heavy 8' posts for corners, properly braced to handle tension. If you are utilizing an "H" style brace, you must make sure the brace-post is 8-8.5 feet from the corner post. This will prevent the corners from pulling inward as pressure is applied to the wire. Poly-glass filled insulators should be used at each corner to avoid power leaking through to the post.

String a wire to guide you in the straightest line from corner to corner, custom fencers may not require this but you might! Pound your posts along the guide wire to keep everything in-check. Space your posts between 20-80' apart, depending on topography, the number of strands, and if using page or high-tensile wire. Do not over tighten the wires on your fence. You should see approximately 6-8" of sag between posts to ensure the fence will flex and shrink.

The number wires on your fence will depend on what you are keeping in or out of your paddocks. Lactating animals need 6-8 strands of high-tensile wire around the perimeter. This keeps the young in with mom, and acts as a deterrent for wandering predators. Dry animals usually require 4-5 around the perimeter, and 3 strands for cross-fencing. Predator style perimeter fence can be used in areas seeing extremely high interactions with predators. The design prevents digging under and or jumping over by feral dogs or coyotes. 9-11 strands are regularly seen in these systems (also consider woven high tensile wire) and seem to work well.

You must insulate every strand that you plan to keep electrified, this prevents power loss to the fence post. You can do this with nail/screw-on insulators or by using new plastic/wood composite posts that require no insulators at all.

Insulated aluminium undergate cable is needed to bring power from one side of the gateway to the other. This ensures constant, un-interrupted power on both sides of a gate or roadway.

Steel gates are perfect for small ruminants, even though we can make electrified gates for a fraction of the cost. Sometimes the security of a lockable steel gate allows us to sleep a little easier.

Keep in mind that if you are trying to use any strands of wire as a "negative or cold" wire, you have to connect these wires back to the negative terminal on your fencer. This will mean running another insulated cable under each gate etc.

Ground-Field

The ground field is where 90% of our problems in power fencing originate. Everyone overlooks the fact that electricity is just wanting to complete a cycle by seeking the path of least resistance. Our job is to make it easier for the power to travel down the fence than anywhere else. How we achieve this is by using enough galvanized ground rods for our fencing system. If we do not use enough ground rods, the power finds it easier to go to the rods than down the fence wire where it will deter animals. You need power on the fence so that when an animal contacts the wire, a shock travels down its body to the soil, and then runs through the mineral in the soil back to the ground-field. This completes the cycle and allows power to be maintained on the wire in case more animals contact the fence.

Energizers

We now have easy access to the highest quality energizers (fencers) in the world, and the rising interest in power-fencing is growing. When selecting what is the right fit for your operation, please consider the following..

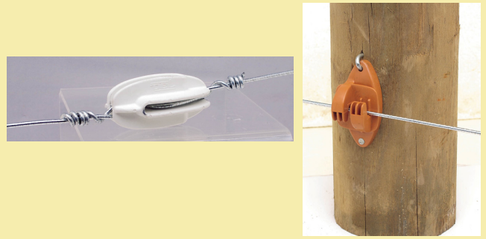
How many acres will I have to fence in 5 yrs?
How much cross-fencing will I need?
Will I require Mains (110v) Power, or Battery (12v), or both (newer energizers provide both)?
What is the warranty?
Who will service this?

Make sure you have a fencer with ample power for your demands. The fencer should be rated in joule power. A joule refers to the amount of energy required to produce 1 watt for 1 second. Stored joules are always approx 1/3rd higher than output joules, this accounts for some power lost in the workings of the machine.

Try to compare to engine hp and PTO hp on your tractors. Compare fencers by output power only as this is all they can put onto our fence. The more joules you have to work with, the more ability to push the power further down the fence line. Try to purchase the most powerful product you can afford. This will allow one unit to handle your whole operation, and still be cheaper than buying multiple smaller units.

Insulators

Whether you are using wooden posts, rebar, t-posts, or sucker-rod, there are good quality insulators to help make your fence more effective. Many high quality products offer 10-15yr warranties, and are now priced the same as lower quality items. Corner insulators should always be poly-glass filled to prevent power leakage through to the posts.



Wire

12.5ga high-tensile wire is recommended for perimeter and cross fencing because of its strength and its ability to carry power. Compare manufacturers to find products with better quality galvanization, thus ensuring a longer lifespan. Thinner gauged wire may be cheaper but it doesn't carry power as easily, and will not last. Properly woven high-tensile wire is also a nice choice for predator or perimeter fences. Some of these products offer a special knot that allows flex and movement on the fence without distorting the overall shape. We have all seen how poor the old page wire looks if anything runs into or over it! Life spans of 20yrs are not uncommon in these high quality woven wires.

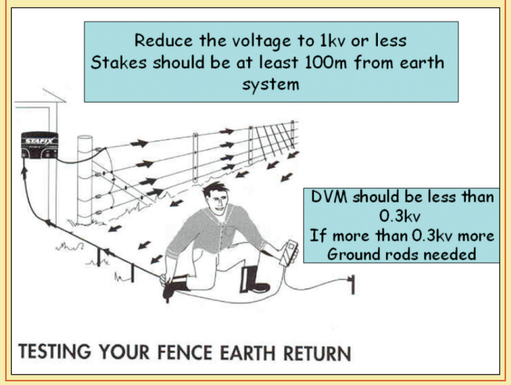
Safety

Remember that electric fences are powerful tools, and should be handled as such. These are not toys to play around.

- Never connect to barb wire (wildlife and children have been harmed)
- Avoid running parallel with overhead power lines (interference can occur)
- Never hook two fencers to the same wire
- Affix warning signs to electrified fences

Testing Power Fences

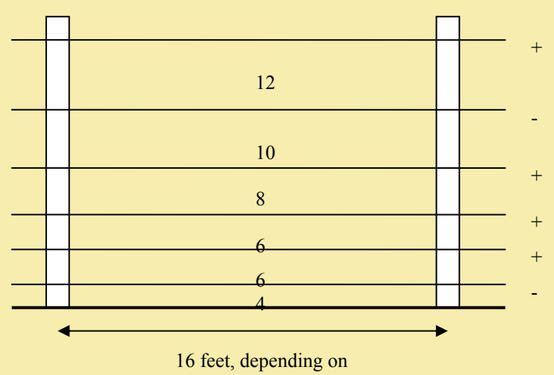
The goal is to have a minimum of 5000V for cattle and 8000V for sheep. If the fence is not meeting these voltages, start first by checking the fencer, check the power supply, lightning and fuses. Next test the ground. You should use 1 ground rod per 2 joules of power. Load the fencer until it is less than 1000V. If there is more than 300V at a rod, ADD MORE RODS!



Predator Control Fencing

There are two types of fences recommended for predator control fencing; A six wire electric fence and a page wire electric fence.

- Six wire fence to a minimum of 4 feet in height.
- Bottom wire must be 4 inches off the ground. It is optional to make this wire hot.
- The next 3 wires must be hot, with spacing of 6 inches, 6 inches, and 8 inches.
- The fifth wire is a ground wire, placed 10 inches from the previous wire.
- The sixth and top wire must be a hot wire placed 12 inches above the previous wire.
- Post spacing must be a maximum of 16 feet for flat terrain, and can be spaced closer in areas with uneven terrain.
- If post spacing is less than 16 feet apart, cost of extra posts will be covered up to the maximum rate per mile.
- All charged wires must have insulators.
- The estimated cost to build this fence is $4900/mile which includes labour and equipment usage costs.



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