Introduction

Producers in southern BC have been using electric fencing as one of their primary mitigation strategies. This fencing is more affordable than woven wire fencing and, therefore, can be used to protect more acres than just feed yards. The high tensile wire is also much easier to repair than woven wire when damaged.

Electric fencing is not common in the Peace Region as producers here may have larger tracts of land which makes fencing it more expensive. However, if current wildlife pressure continues to increase this may become a viable option to protect standing forage and cereal crops.

In the Peace, this fence could be used around high value crops to protect from light to moderate wildlife grazing damage. Unfortunately, electric fences cannot withstand high levels of pressure and may not be effective around stored feed. This fencing may not be effective enough to keep hungry or frightened wildlife out of an area. Producers in southern BC do still experience a low level of grazing damage but truly believe it would be much worse if they did not have an electric fence.
Electric Fence Design

Wire: 12.5ga High Tensile Smooth Wire

- String wire on the wildlife side of posts.
- Tighten wires to about 150lbs of tension so the “hot” and ground wires do not touch and lose power.
- Use pressure treated posts to extend the lifetime of the fence.
- Be sure to anchor the fence down (every 40ft or closer) over rough terrain so wildlife cannot climb under.
- This design has 10 strands of wire. Wires 2, 4, 6, 8 and 10 are “hot” (electrified).
- Fence height could be increased to 8’ as long as a couple strands of wire are added and slightly larger posts.

Options for spaces between wires

After looking through a variety of fencing literature it is apparent that there is no standard to how many strands of wire there are on your fence and how far apart they are spaced. These decisions are made by you, the producer, depending on your wildlife situation.

The table below summarizes some of the options presented in literature. Use it as a guide to help you assess the number of strands and the spacing that will work for your unique situation. All of the sources mentioned are available to look at in more depth on the PRFA website. One consideration is that adding more strands of wire will increase the cost of the fence along with the effectiveness.

<table>
<thead>
<tr>
<th>Wire Spacing (Top/Middle/Bottom)</th>
<th>Reasoning</th>
<th>Source</th>
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<tbody>
<tr>
<td>Wires all evenly spaced apart</td>
<td>Very basic fence design and easy to construct</td>
<td>Alberta AgriFact: Using Electric Fences to Protect Stored Hay from Elk and Deer</td>
</tr>
<tr>
<td>Tight configuration of wires near bottom of fence</td>
<td>Since these fences are a psychological barrier, wires closer together are meant to look impenetrable.</td>
<td>B.C. Ministry Agricultural Fencing Handbook: Fencing Factsheet No. 307.252-2</td>
</tr>
<tr>
<td>Tight configuration of wires near bottom of fence (hot bottom wire)</td>
<td>Hot bottom wire meant to shock those animals that burrow under the fence. This design is mainly used to deter predators.</td>
<td>Alberta AgriFact: Protecting Livestock from Predation with Electric Fencing</td>
</tr>
<tr>
<td>Bottom wire at least 16” above ground or top wire lower</td>
<td>If it is a high traffic area for wildlife where they are continually getting caught up in fence then these designs may save time fixing fence</td>
<td>Fencing with Wildlife in Mind</td>
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Fencing for Thought

* The horizontal post in brace opt. 1 can either be notched into the two vertical posts or attached using 3/8” rebar in drilled holes.
* Use inline braces every quarter mile to keep fence solid (double span brace opt. 1 → 3 posts and 2 horizontal rails).
* If tying wires off at a corner use brace opt. 1 over opt.2 for more support tightening.
* 10 strands of wire will create lots of “pull” on corners so be sure to use large, heavy brace posts.
* The horizontal rail sits at approximately 3/4 of the overall fence height so if the fence is modified to 8ft tall it would sit at 6ft.
* If heavy gates are being attached to brace opt. 1 then consider larger tie posts so the weight of the gates do not pull the posts over.
* Always charge top wire to deter wildlife from putting their head over the fence.
* Hot wires close to the ground are effective at controlling wildlife that burrow under fences; but vegetation can short out the fence or snow could insulate wires and prevent delivering a proper shock. The first hot wire should be at least 2’ above ground.

Brace Assembly - Option 1 (Gates & Corners)

Brace Assembly - Option 2 (90° Corners)

Continuing Electricity By Gates

Two ways that electricity can continue past and/or beyond gates are:
1. Burying a wire (make sure in a protective casing so it doesn’t short out 4 - 6” underground.
2. String wire high above gate in order to get animals and/or equipment under.

Picture from Fencing Factsheets 307.252-2
How Does Electricity Work?

Electric fencing is a valuable tool that provides producers with many options on fence size and whether their fence is permanent or temporary. This type of fencing is also cheaper than conventional permanent fences but needs to be maintained properly or it is completely ineffective.

Electric fences are different from non-electric fences in that they are a psychological barrier not a physical barrier. If they are not electrified then they do little to prevent wildlife from crossing them. This means the key to their success is electricity and how effectively they deliver a shock to the animal.

For those who have little experience with electric fencing, there is an initial increase in the level of management while you are experimenting with different materials and designs. There is a whole world out there revolving around what posts, insulators, wire and energizers to use. Many of the decisions of which to use hinge on what the end use of your fence will be.

### Basic Fence Materials for Permanent vs. Temporary

<table>
<thead>
<tr>
<th></th>
<th>Permanent</th>
<th>Temporary</th>
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<tbody>
<tr>
<td>Posts</td>
<td>Wooden or rebar (pound in ground)</td>
<td>Plastic (step in ground)</td>
</tr>
<tr>
<td>Wire</td>
<td>High tensile smooth</td>
<td>Polywire or polytape</td>
</tr>
<tr>
<td>Insulators</td>
<td>Porcelain, plastic, tube or off-set</td>
<td>Plastic</td>
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| Energizer | Attached to main power     | Battery or solar (sun/wind) |}

Where to Successfully Shock an Animal:

The best place for animals to receive a shock is on the nose when they check a fence out. This is their most sensitive area. According to McKillop and Sibly (1988) the point of electric fencing is to create a negative experience so the animal will develop a conditioned avoidance to the area. They also found that those animals that do not investigate the fence and just push through will get shocked on their neck and chest. These shocks are either not effective or propel them through the fence and trap them on the other side. Enticing the animal to investigate the fence with their noses by using attractants will increase the effectiveness of the fence.


### Effective Electric Wildlife Fence - Six Rules

(From David Kennard in publication: Fencing Options for Wildlife Control)

1. While erecting fence, energize the wires at the end of every workday because the wildlife’s first encounter with the fence is very important.
2. **Always keep the fence energized** and properly grounded.
3. Keep a clear lane on the outside of the fence so it is visible to the wildlife. At least 6-feet from the edge of the woods.
4. Keep the vegetation off the fence line.
5. Bait the fence with scent caps or peanut butter wrapped in tinfoil and stapled around the fence wire, or smeared directly onto the tape.
6. Maintain the voltage (at least 3500 volts; use a fence tester).