Fencing Systems

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What types are appropriate for grazing systems?

- **Physical Barrier**

What types are appropriate for grazing systems?

- **Psychological Barrier**
  - Electric or Power fence

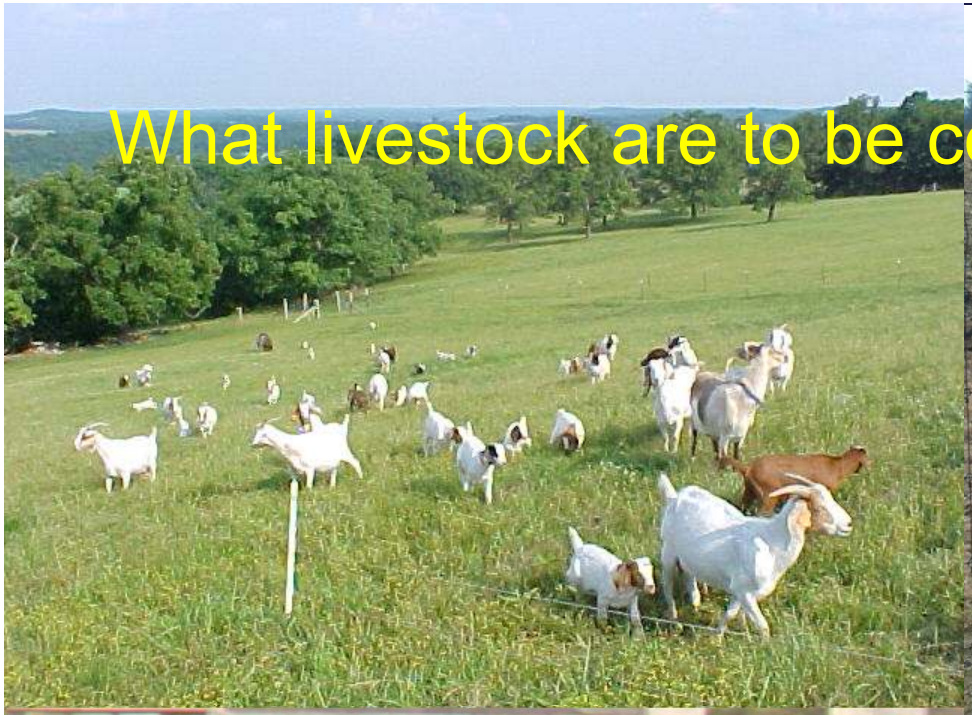
How do I decide which to use?

- Existing fences
- Livestock to be controlled
- Cost
- Ease of construction
- Intensity of rotation grazing
- FLEXIBILITY

What is the right fence?

- Any fence that keeps livestock where you want them.

What livestock are to be controlled?



Electric Fencing

- Cons
  - Bad experiences
  - Most misunderstood
  - Least familiar
- Pros
  - Least expensive
  - Durable
  - Easy to install
  - Most Flexible

Components

- Charger
- Fence
- Ground

Charger or Energizer

- Heart of the system
- Low impedance
  - minimum 5000 volt output
  - pulse < 300 mAmps 0.0003 se
  - 35 - 65 pulses per minute
- Size - miles, joules, acres
- Solar, battery or 110 volt
- Surge protection
- Lightening choke or induction coil

How To Select An Energizer

- Seek advise from others
  - Experienced grazers
  - Sales people
  - NRCS or SWCD staff
- Always go with a bigger charger than you think you need, as price allows.
- Keep an open mind
  - Almost all companies make good stuff, as well as junk!

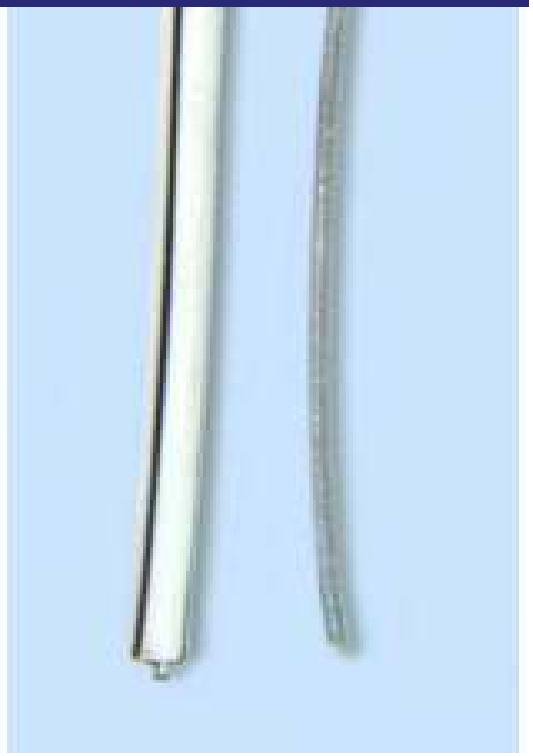
Installation of Energizer

- Read and follow the manufacturers recommendations for the installation.
- Ask local agency (NRCS / SWCD) personnel to assist in installation of energy
- Use only galvanized ground rods
  - Copper rods will cause corrosion and bad connections
- Make sure that lightning protection is installed correctly
  - Manufacturer may not honor warranty if not installed properly

Permanent Power Fence

- Wire (permanent)
  - 12 1/2 ga High Tensile (smooth)
    - Minimum 140,000 psi
    - (around 170,000 psi is good to work with)
  - Class III galvanizing

Plastic-coated horse wire (left) and 12.5 gauge high-tensile, galvanized wire are examples of permanent fencing wire. Plastic-coated horse wire is more visible and less likely to cut a horse that may run into it.



And you thought you didn't need a spinning jenny

Posts

- Corner posts and Bracing
- Line posts
  - wood, steel, fiberglass, composite, UV stabilized plastic
  - 100 - 150 foot maximum spacing

Corners

- Floating Angle Brace
  - Easy to install
  - Brace needs to be 2 times as long as the height of the top wire
- Knee Brace
  - Good for 1 – 2 wire fences in easy to dig soils
- H Brace
  - Most common
  - Overkill on most electric fence
- Single Driven Post
  - Post must be 2 7/8” pipe driven greater than or equal to the height of the top wire
- T-post
  - Good for short runs of fence
  - Can be permanent

Floating Angle Brace

Effective for 1 to 8 wire fences

Knee brace
•effective for 1 & 2 wire fences

Steel T-post floating angle brace
Effective on 1 to 2 wire

Steel Pipe, minimum 2 7/8” diameter,
driven as deep as amount of post above ground
Effective on 1 to 3 wires

Line Posts

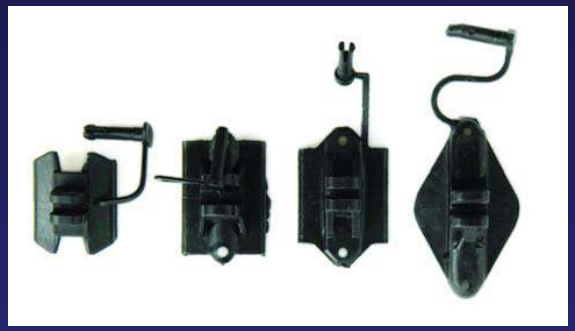
- Composite Posts
  - Pros
    - No need for insulator
    - Self insulating
    - Good for multi-strand
  - Cons
    - Can be difficult to get in ground at times
    - Will give some if under stress
      - May need to use t-post if there is a slight bend in fence

Line Post

- T-post
  - Cons
    - Extra cost of insulator on top of post price
    - Dead short if insulator comes off of post
    - Expensive for multi-strand fences
  - Pros
    - Common
    - Rigid
    - Insulators are common and easy to get


5 Strand 12.5 gauge
High tensile fence
Multi-strand
Gate
Composite
Post
Floating Angle Brace

Insulators



- Plastic
  - UV stabilized
  - High quality HDPE or HDPP (black is better)
  - 10 year warranty
  - Pinlock
- Porcelain
  - Gray - good
  - White seem to break down sooner

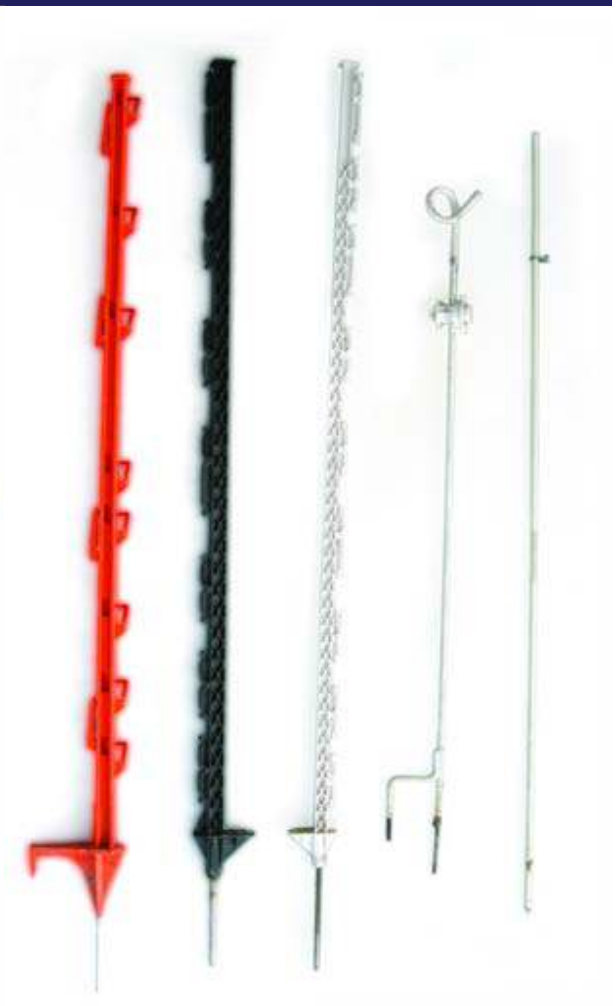
Offsets

- Can be used to carry electricity out to system
- Attaches to existing fence
- Can allow temporary fence to be used where there is already existing non-electric fence
- Can become a problem if existing fence isn't tight enough to hold offset up

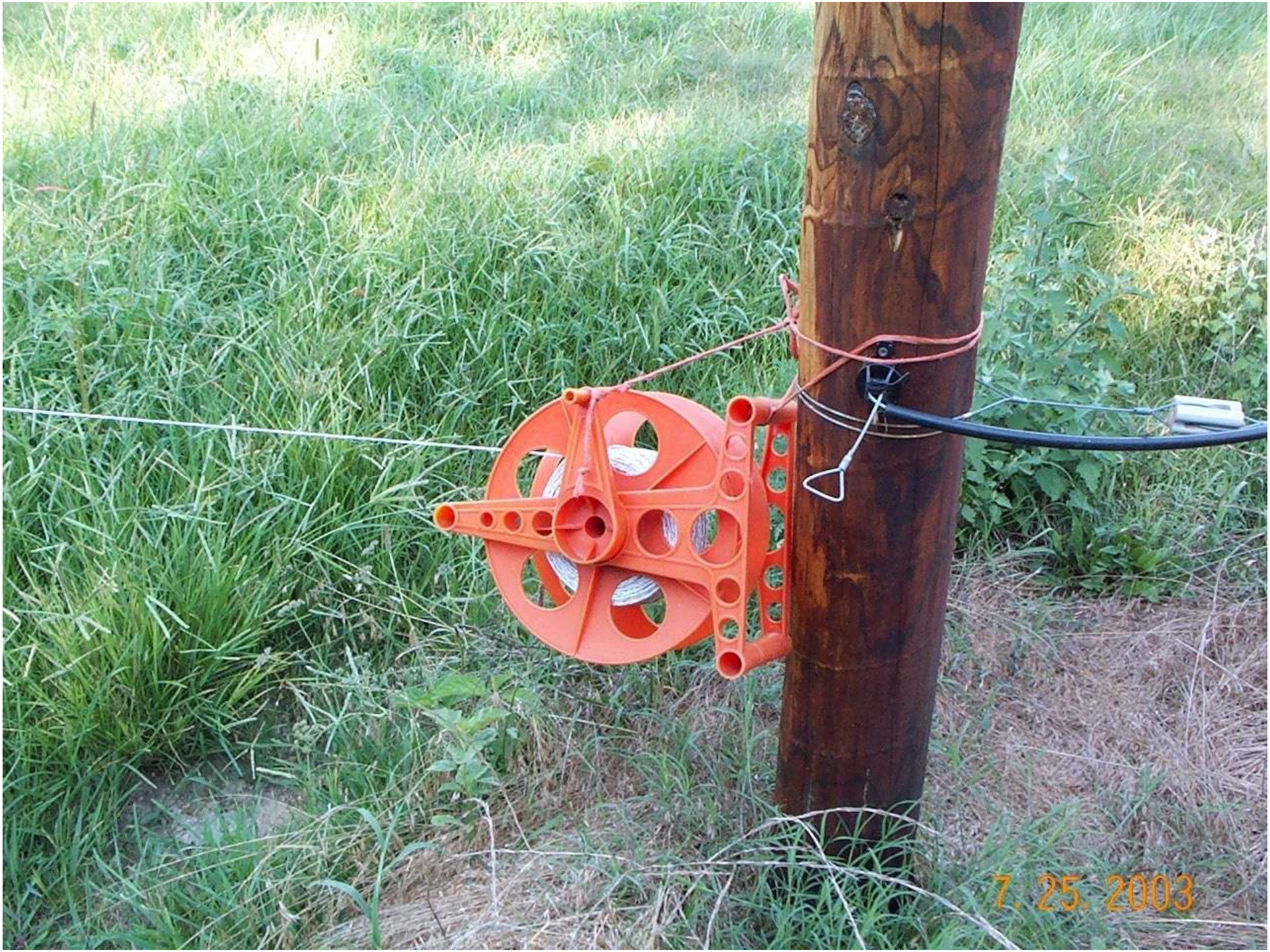
Temporary Power Fence

- Polywire / Polytape (temporary)
  - good conductors for less than ¼ mile
  - add flexibility
  - white holds up better & more visible
  - at least 6 conductive wires

Temporary Fencing Products



Electric Netting for Sheep, Goats & Poultry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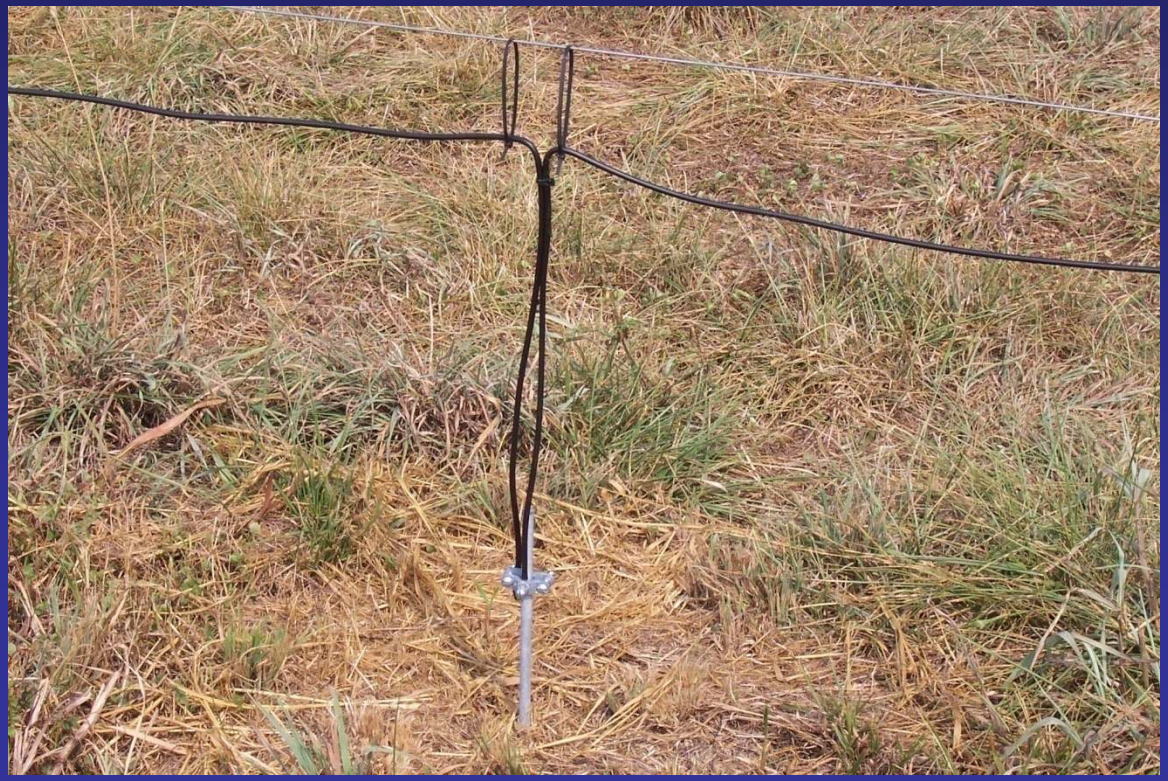
Ground

- 90 % of electric fence problems are from poor grounding system.



Ground

- Charger Grounding System
  - 3 feet of 1/2” rod per joule (3 – 4 eight foot rods)
  - Spaced 10’ apart in moist area
  - Use galvanized ground rod, clamp, wire
  - Avoid mixing metals, such as copper and galvanized. Causes corrosion and poor conduction.
  - 25 ft from utility ground or well casing
  - Keep ground rod ends, connecting wire and clamps above ground

Installation of Ground Rods

- Make sure that ground rods are driven all the way in the ground
- Rotary hammer driver can be used to install ground rods
- Some NRCS/SWCD offices will assist in installation

Testing Your Ground Field

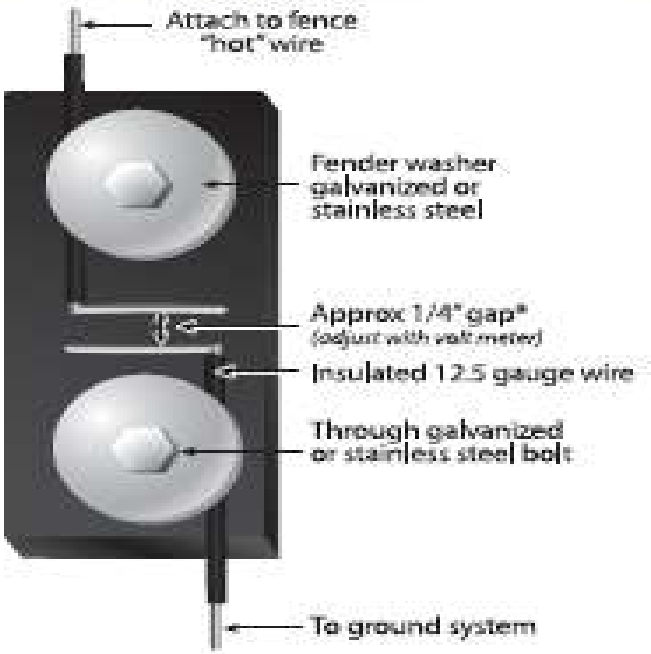
- Go out 300 feet on your fence from the charger
- Short fence out to 2,000 volts or less using t-posts or anything metal
- Go back to the ground field and place a digital volt meter on the last ground rod
- Reading should be zero, but up to 300 volts is tolerable
- If reading is higher than that, more ground rods need to be installed

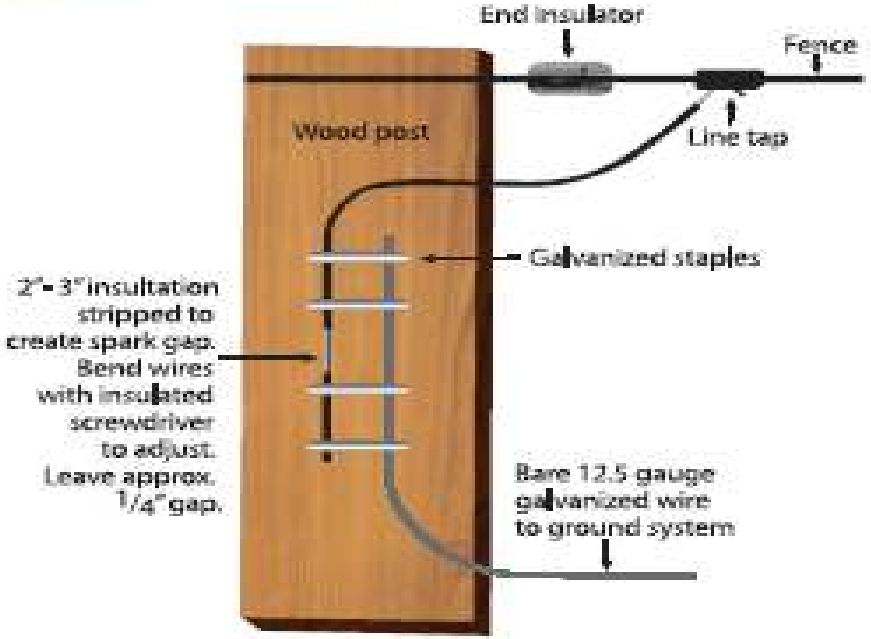
Lightning Protection

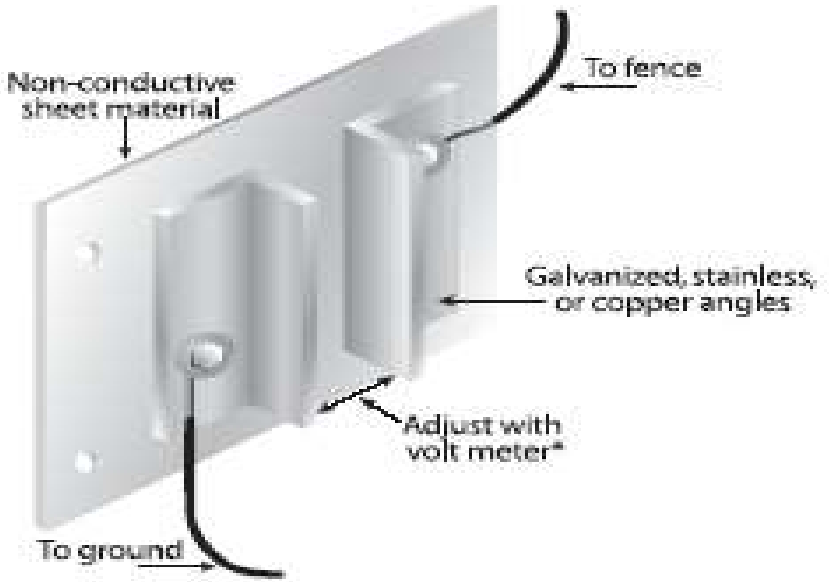
- Lightning choke
  - Home-made / bought
- Lightning arrestor
  - Separate ground field
  - At least 65’ from any other ground field
  - Need to have at least 1 more ground rod than your charger

Drawing 6

Home-Built Lightning Arrestors







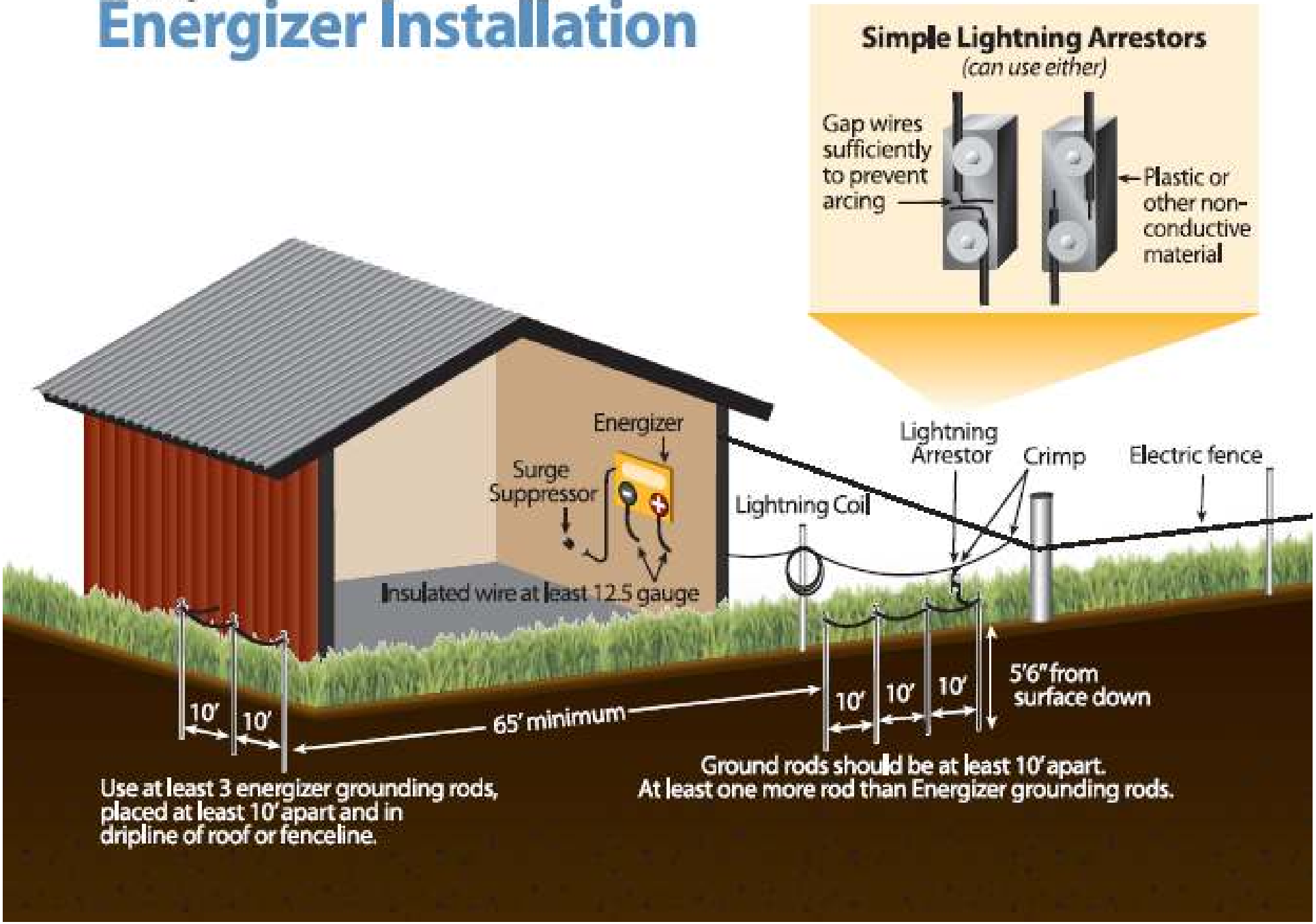
*Adjusting Gap with a Volt Meter

1. Set energizer to highest setting.
2. Secure lead from fence.
3. Leave lead to ground loose enough to slide.
4. Leaving lead to ground unattached at grounding end, clip volt meter to ground system then to end of lead.
5. Slide lead at arrestor apart until voltage is no longer read on volt meter.
6. Tighten lead on arrestor and then secure to grounding system (after removing volt meter).

Another method is to slide leads apart until arcing no longer occurs, then check with volt meter.

Drawing 1

Energizer Installation




Electric Gates:
-Insulator used at hinge end
-Electrified through handle
-Gate dead when opened
-Small diameter cable makes excellent gate
-Screen door spring at hinge end

Gates

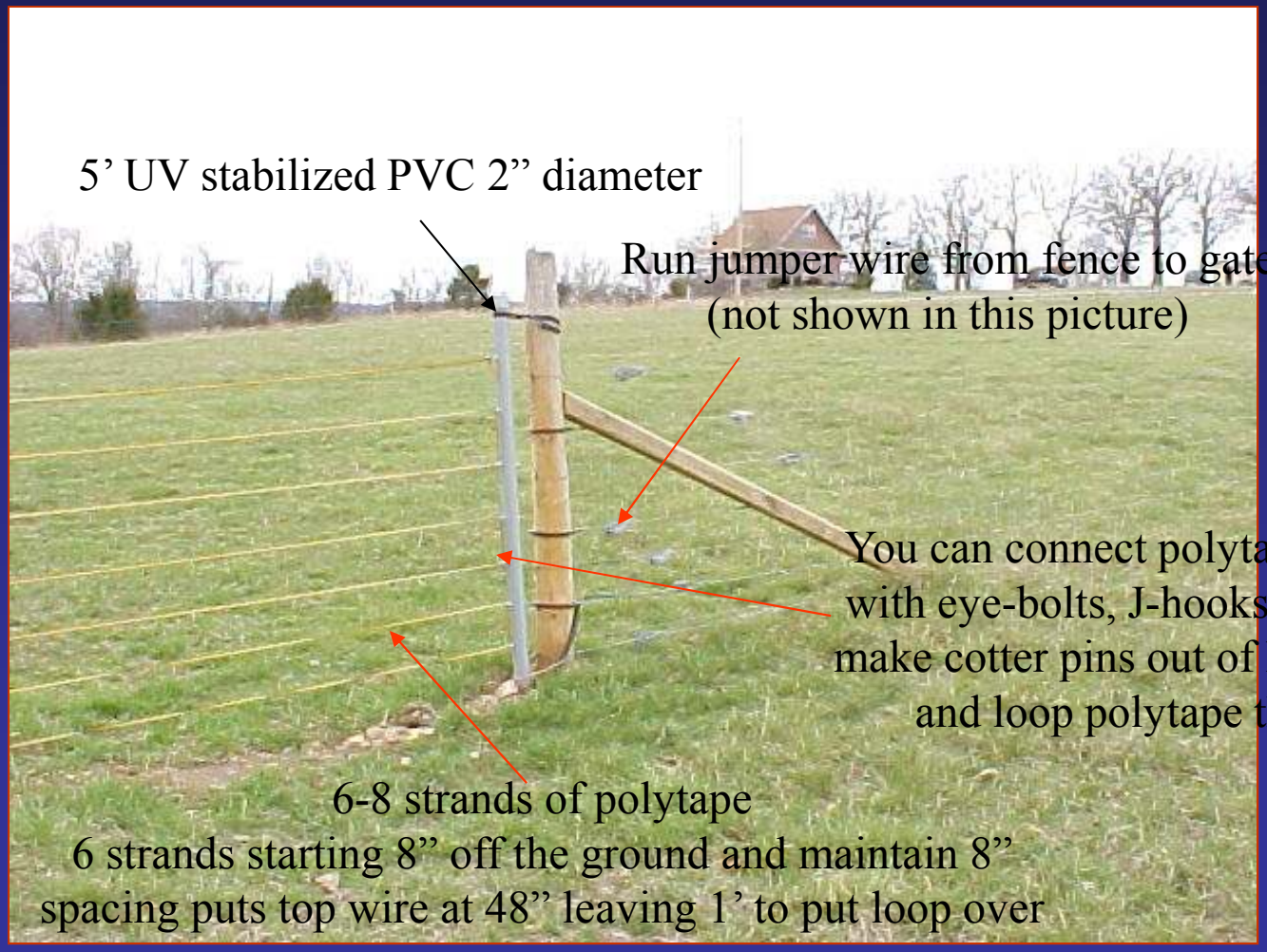
- Choose a gate material that is durable
  - 1/8” cable
  - Can drop it on the ground and run over it with vehicles and machinery
- Make sure to use gate handles that have a compression spring
  - Other handles have a tendency to pull out

Gate Handles and assemblies

Gates

Electric Gate – Ozark Style

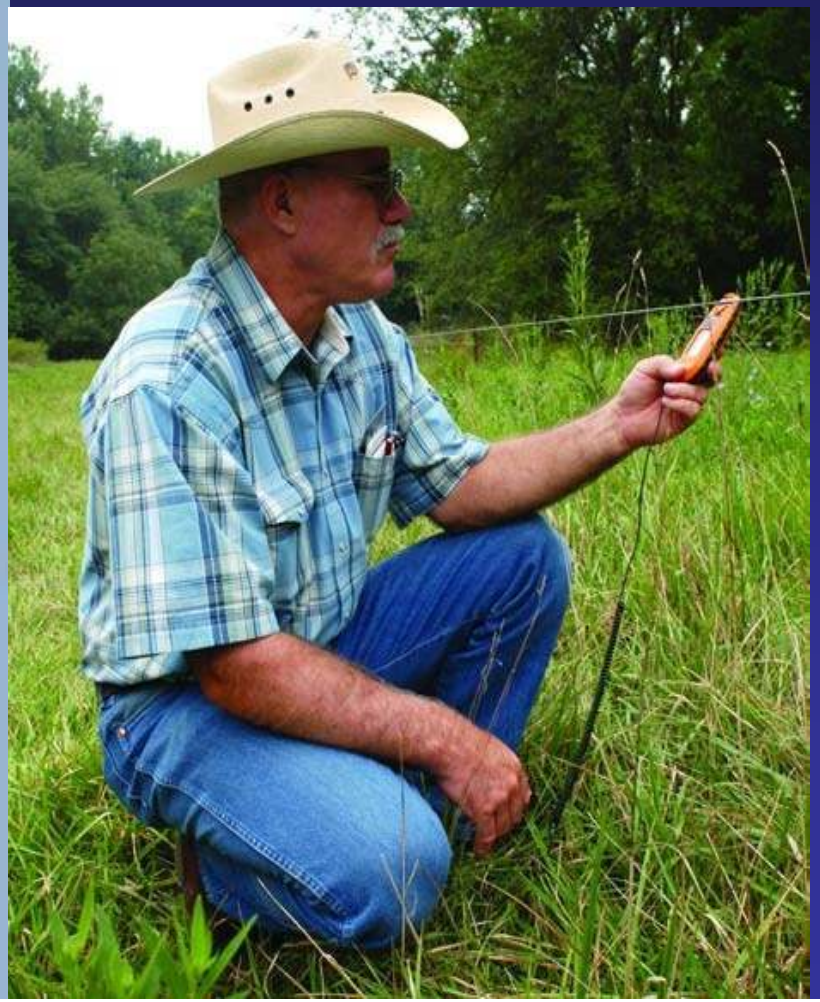
utilizing 6 - 8 strands of polytape and UV stablized PVC pipe



Switches & Volt meters

tip:

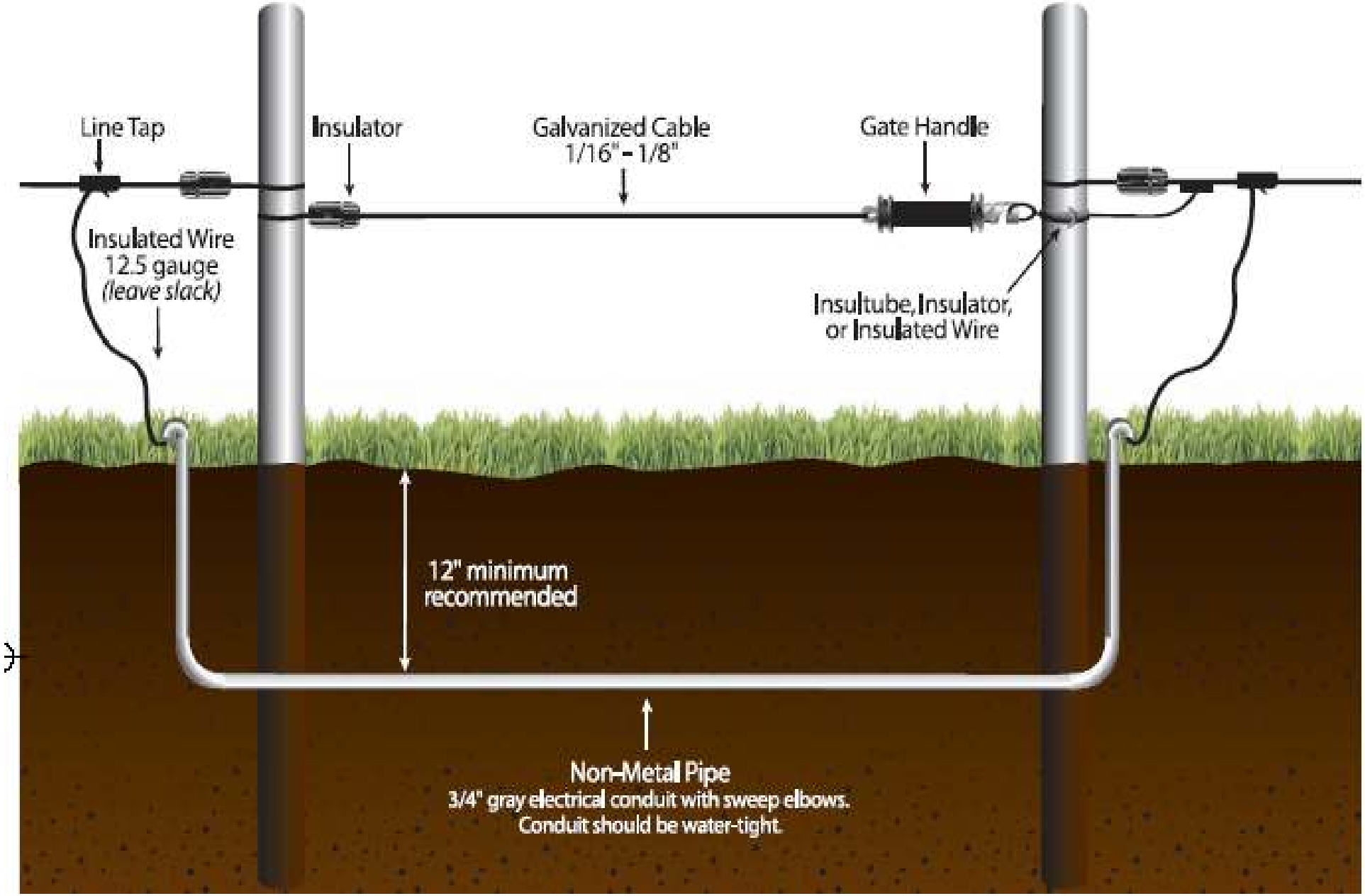
Installing switches in fencing systems can save time because they can be used to isolate areas. They also allow a grazier to shut off one section of a fence to make repairs, instead of having to go back to the energizer and shutting down the whole system.



Check voltage regularly

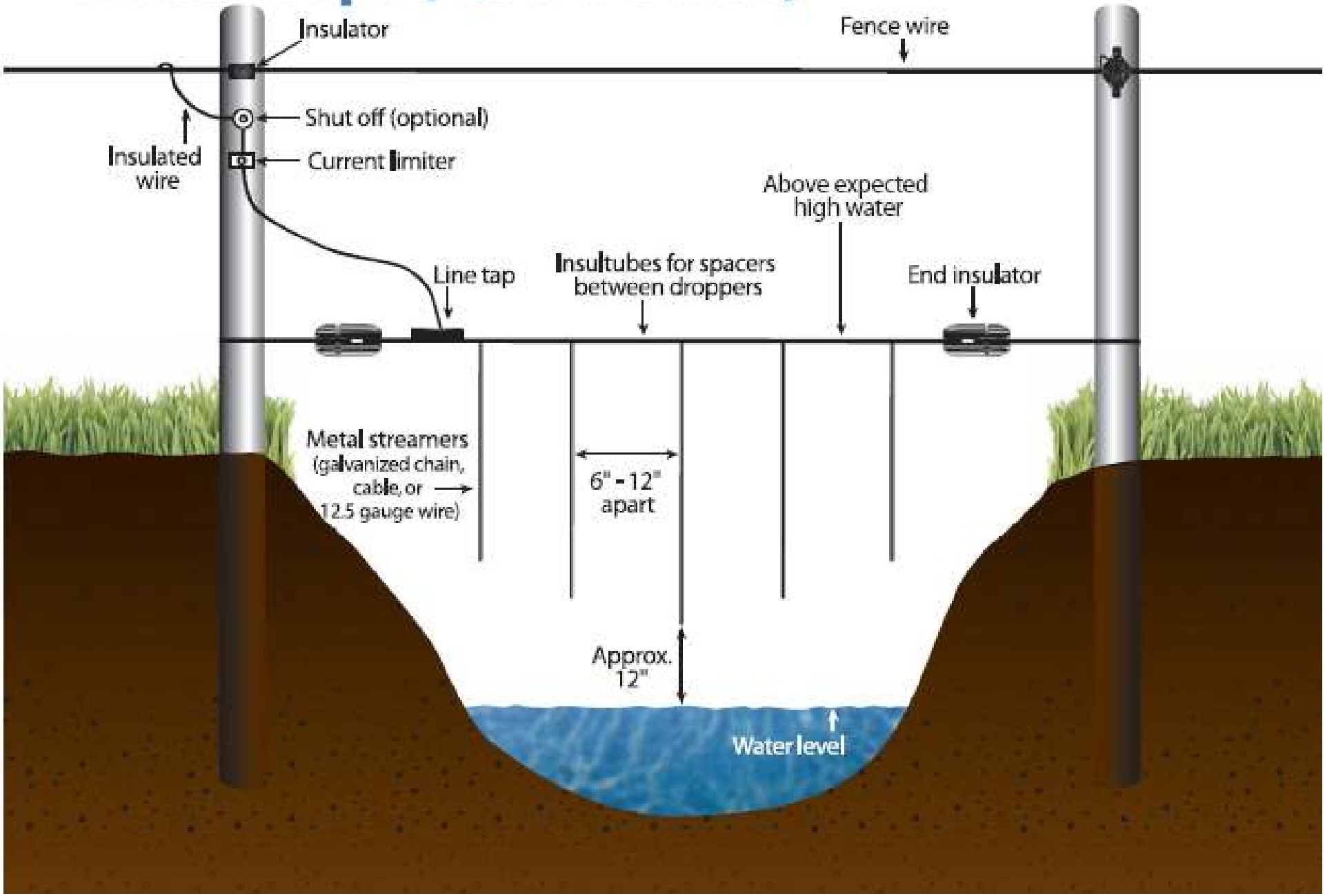
Drawing 7

Electric Gate (not hot when unhooked)



Drawing 9

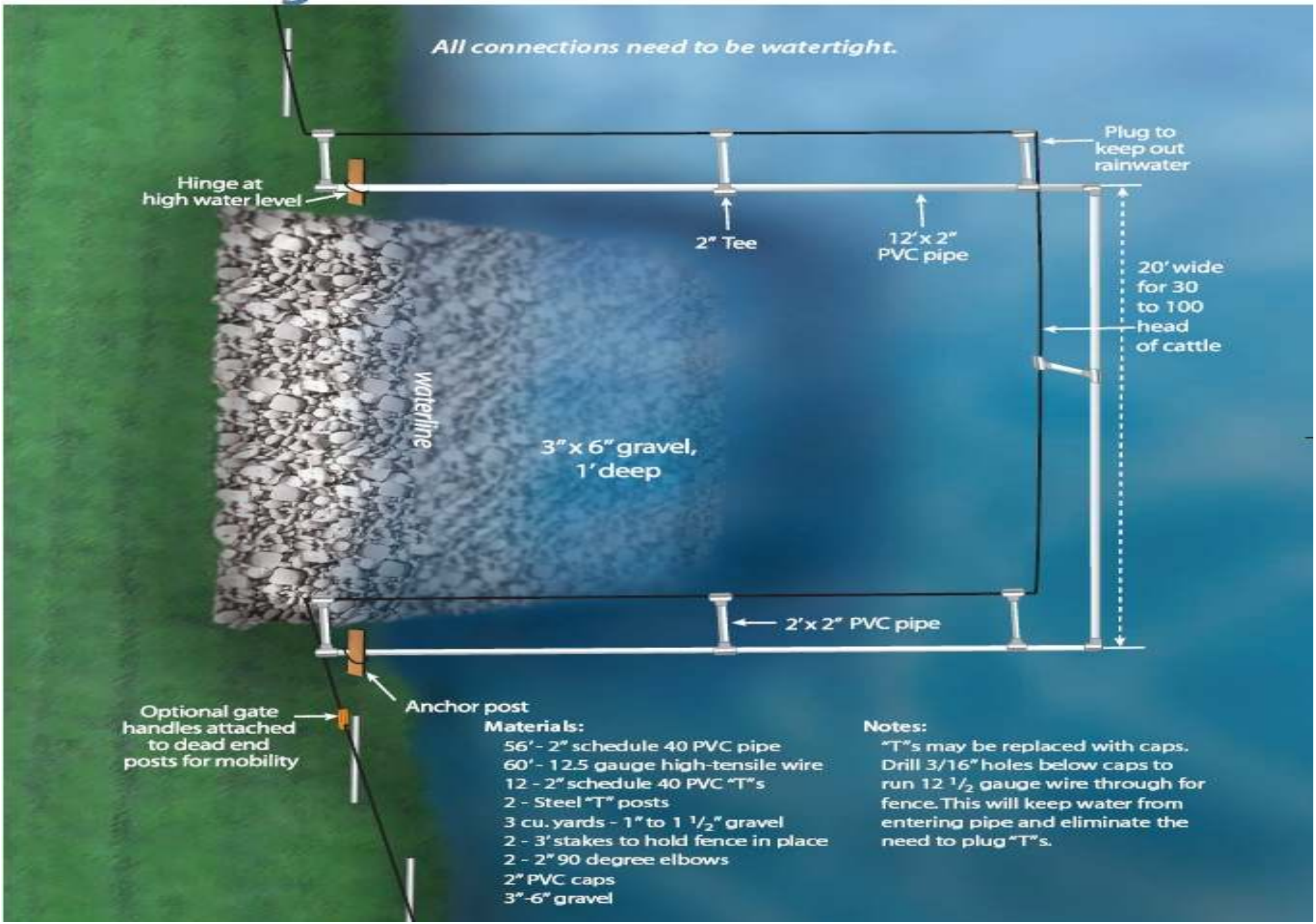
Water Gaps (Flood Gates)



Electric Water Gap

Drawing 11

Floating Electric Fence



Materials:

- 56' - 2" schedule 40 PVC pipe
- 60' - 12.5 gauge high-tensile wire
- 12 - 2" schedule 40 PVC "T"s
- 2 - Steel "T" posts
- 3 cu. yards - 1" to 1 1/2" gravel
- 2 - 3' stakes to hold fence in place
- 2 - 2" 90 degree elbows
- 2" PVC caps
- 3"-6" gravel

Notes:

"T"s may be replaced with caps. Drill 3/16" holes below caps to run 12 1/2 gauge wire through for fence. This will keep water from entering pipe and eliminate the need to plug "T"s.

Things to Keep in Mind

- When building fence for cost share, remember that the fence must be installed according to NRCS standards and specifications.
- This isn't barbed wire. We are building a psychological barrier. The wire doesn't need to be fiddle string tight!
- There is a bit of a learning curve with high tensile electric fence. Don't get discouraged.
- Don't be afraid to ask for help. Talk to other farmers and agency personal for assistance if you need it.

Summary

- Look around
  - learn from others experience
- Find a reputable dealer that knows their products and will stand behind them
- Shop around, find a good deal but don't cut corners and don't buy products just because they are cheaper