Effectively Using Electric Fences in Pasture-Based Livestock Systems

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NC STATE UNIVERSITY'S

Pasture-Based Livestock Education Program

Components to an electric fence

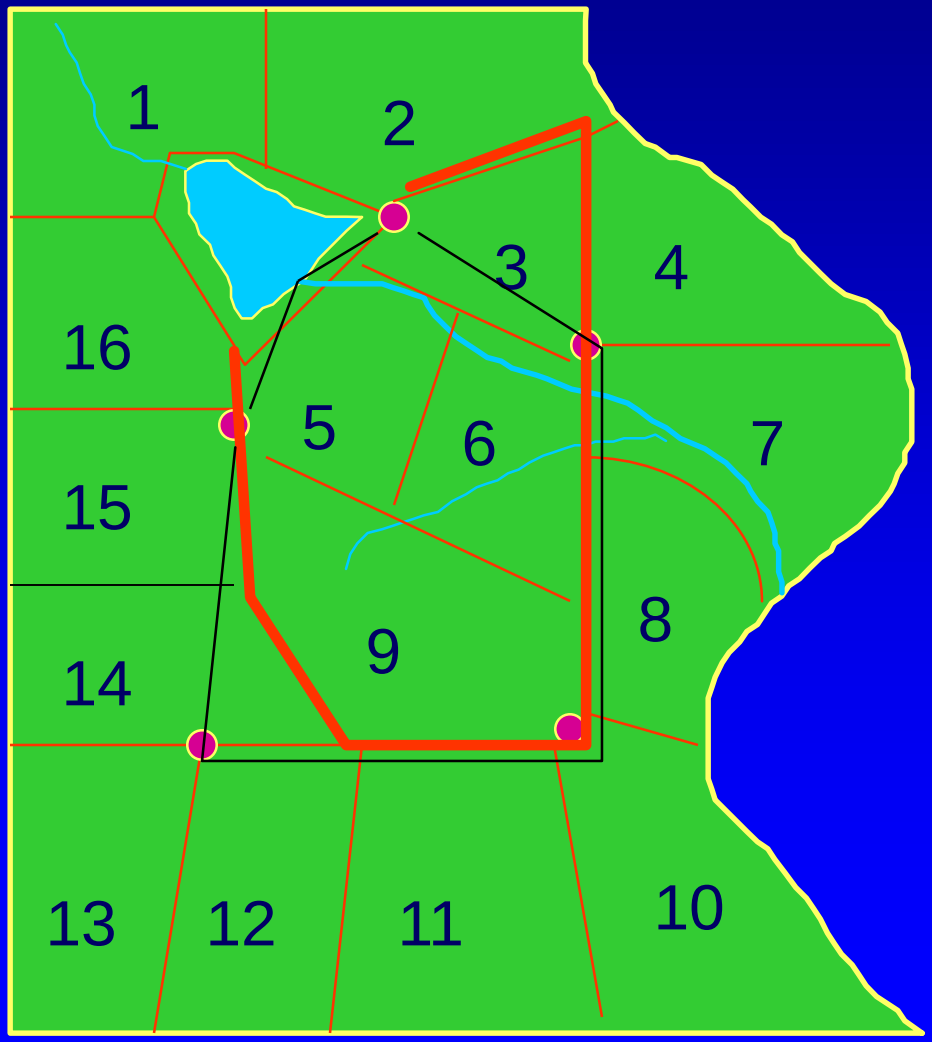
- Energizer
  - Get Plenty of Power
  - Joule rating is not consistent between manufacturers but is your best guide. Small acreages 2.5 joules, large acreages >20 joules. 1 joule for 10 to 40 acres depending on expected conditions
- Lightening Protection
  - A well grounded energizer
  - A well grounded electrical service
  - A “spark gap” between the box and the fence
  - Possibly an induction coil between the spark gap and the energizer

Components to an electric fence

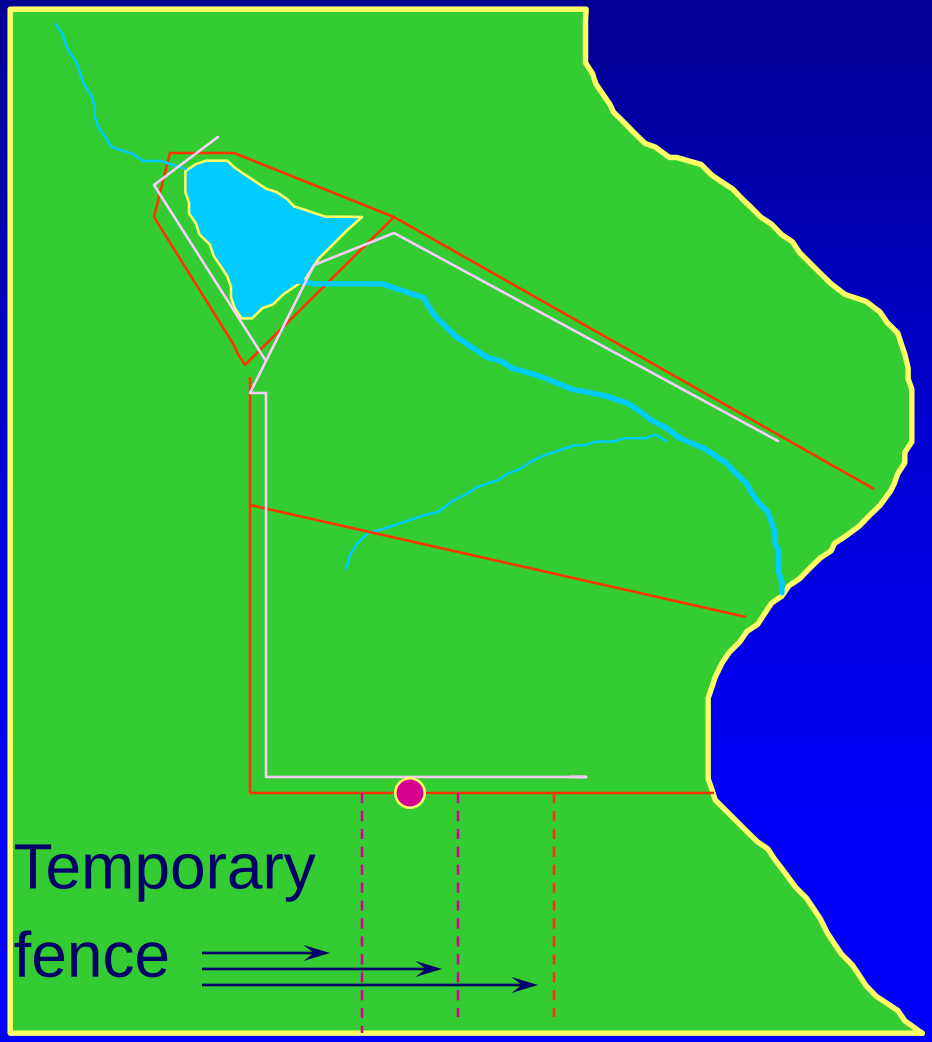
- **Permanent Fence**
  - Put most of your effort into braces
  - Avoid using steel posts
  - Use good quality insulators
- **Temporary Fence**
  - Use polywire in most cases for cattle (rather than tape)
  - Use medium to high price poly wire (9 strand)
  - Use good quality reels
  - Stabilize with temporary corners/stretch posts

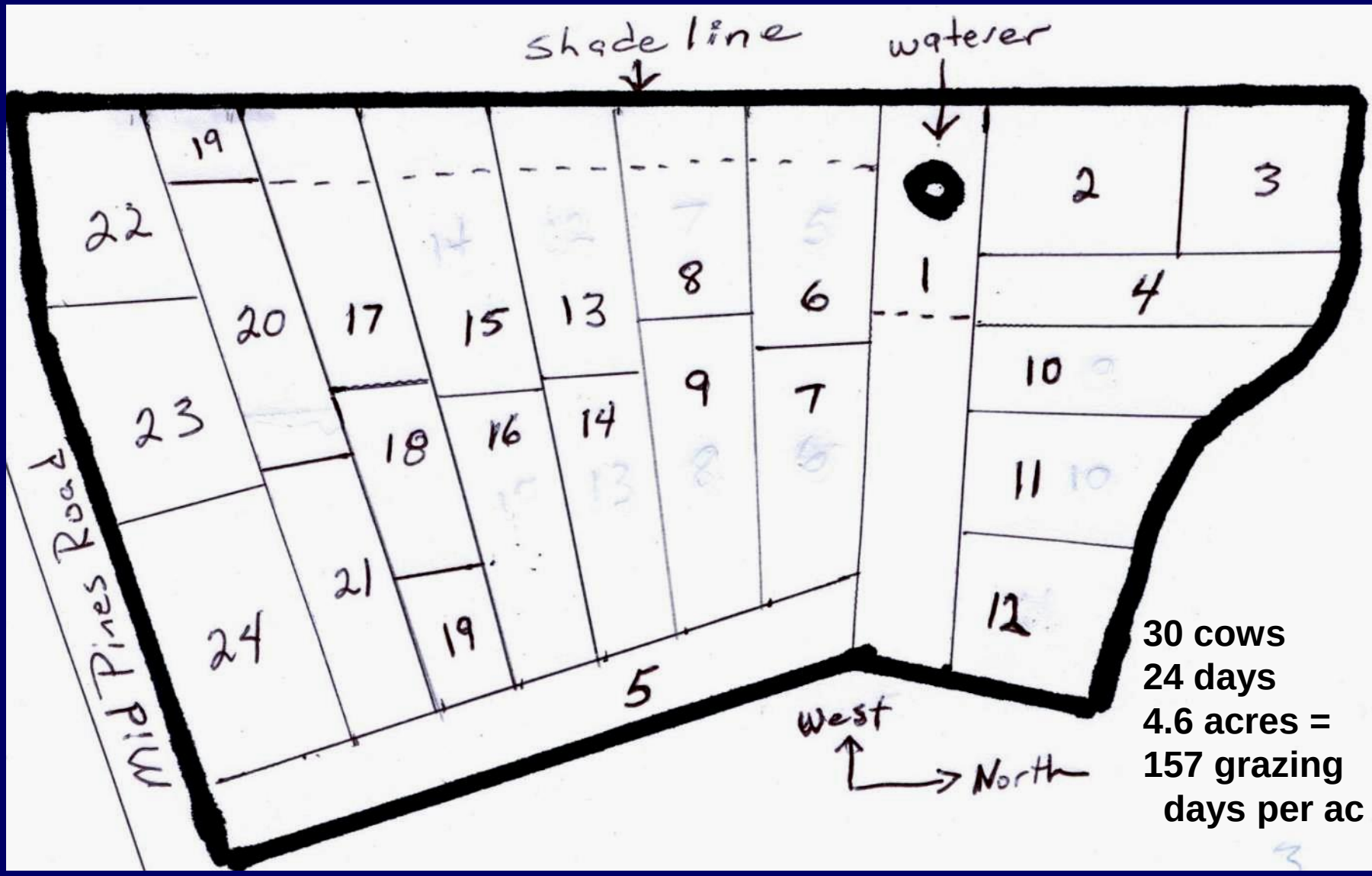
Fixed System Design

- 16 paddock system
- Water available in every paddock
- Alleyway for ease of livestock movement

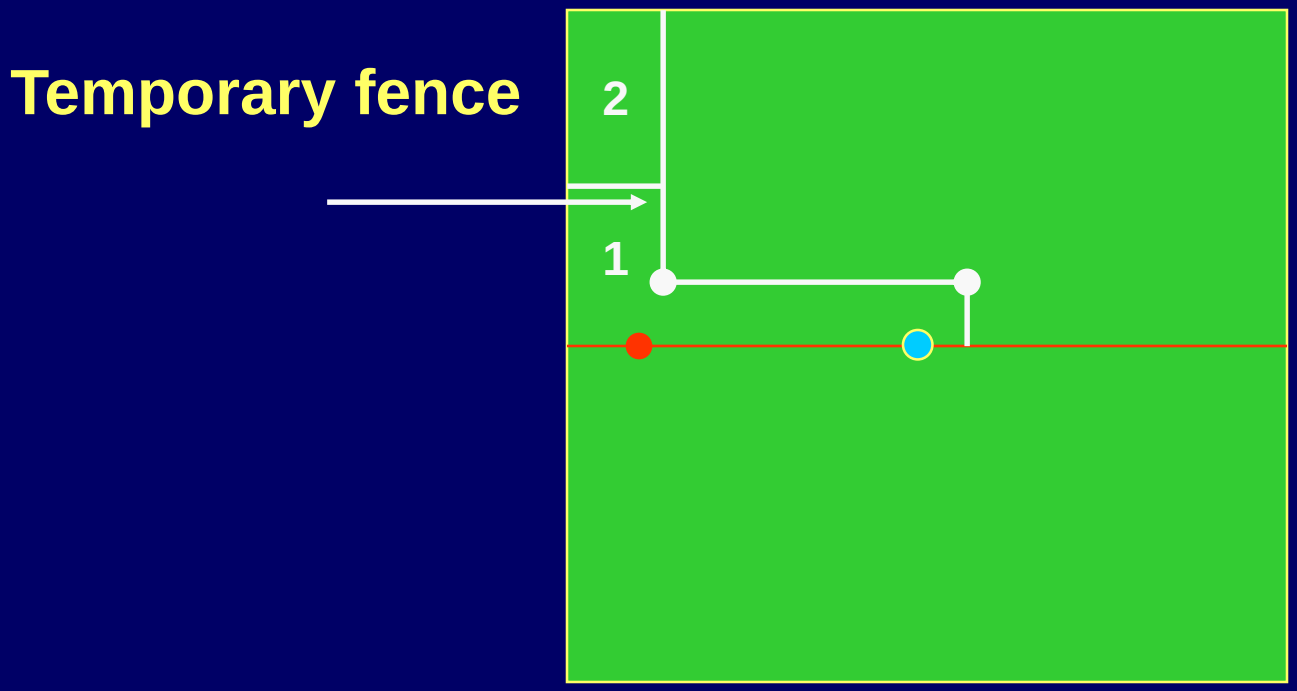


Flexible System Design

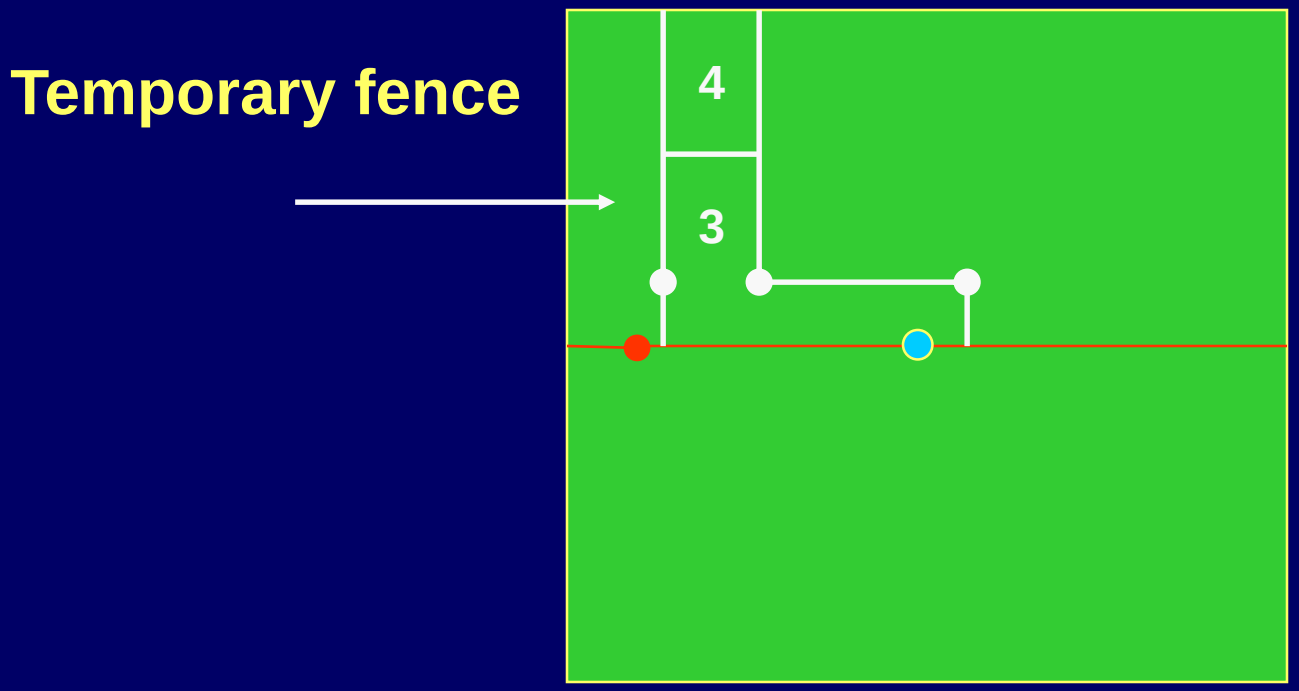



shade line
waterer
Mid Pines Road
West
North
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
30 cows
24 days
4.6 acres =
157 grazing
days per ac

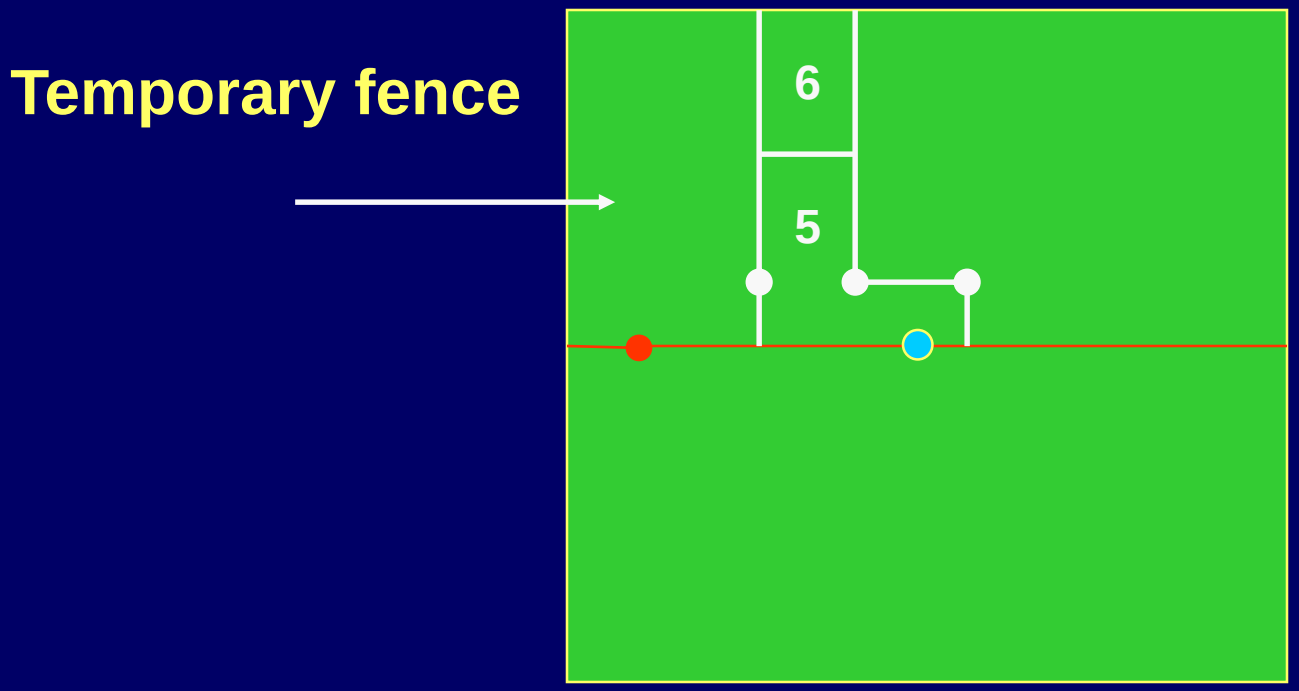
Using temporary internal subdivision for daily movement



Using temporary internal subdivision for daily movement



Using temporary internal subdivision for daily movement



Temporary Fence Options for Alternative Livestock Species

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Alternative Livestock Species?

- Sheep
- Goats
- Pastured hogs
- Pastured poultry

Why Temporary Fence?

- Grazing management
  - Forage utilization
  - Protection of the forage resource
- Parasite issues with small ruminants (sheep/goats)
- Protect the livestock from ground predators
- Protect the forage/woodland resource (hogs)
- Landscape Management/Vegetation Control (sheep/goats)

Terminology

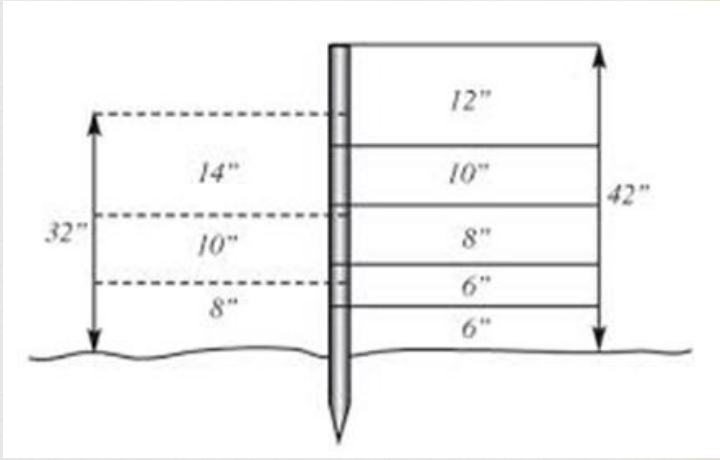
- Temporary fence: moved daily or weekly
- Semi-permanent fence: moved once per season
  - With reels
  - Without reels
- Permanent fence: never moved
- Mental vs. Physical barrier?

Types of Fencing

- Polywire (a.k.a. polytwine)
- Polyrope
- Polytape
- Power source:
  - Jump electricity from permanent fence
  - Use alternate energizer (battery/solar)

Multi-Strand Polywire

- Temporary or semi-permanent
- Grazing management:
  - Residual forage?
  - Temptation?
- Spacing options: 8’’; 18” and 32”
  - Ewes and lambs
  - Mature goats
  - Pastured pigs
- Additional wires for goats/kids
- Lower cost: $0.18/foot
- Offers minimal predator protection



Net Fence:

Polywire version of woven wire/field fence

Net Fence:

Polywire version of woven wire/field fence

- Name: ElectroNet® 9/35/12
  - 9 horizontal strands
  - 35 in. tall
  - 12 in. between vertical strands
- Numerous options
  - Length (50 or 100 feet and 82 or 164 feet)
  - Height (30 – 48 inches)
  - Horizontal strands (number and spacing)
  - Vertical strand spacing
  - Post size/spacing

Net Fence Experience

- Easy to use if you follow directions
- Tall forage should be mowed or ridden down
- Wooded areas will challenge your patience
- Excellent ground predator control
- Entanglement issues will lambs/kids
- Always keep the net electrified

Installation/Storage

- http://www.premier1supplies.com/img/product/pdf/401.pdf
- https://www.youtube.com/watch?v=g-zEHPNqE0w
- https://www.youtube.com/watch?v=ADpXenWfPuk

Net Fence Experience

Net Fence Experience

Net Fence Costs

Sheep/Goats

- Premier Supply ElectroNet® 9/35/12
  - 164 feet = 13 lbs.
  - 82 feet = 7 lbs.
  - $0.70/foot

Poultry

- Temporary Poultry Net® 12/42/3
  - 164 feet = 26 lbs.
  - 82 feet = 14 lbs.
  - $0.94/foot

Summary

- Temporary fence:
  - Allows for improved grazing management
  - Enhances livestock health/performance.
  - Opens new grazing opportunities.
  - Makes pastured poultry feasible.
  - Minimizes predator losses.
  - Lets small ruminants control vegetation in urban areas.


Questions?

Troubleshooting Electric Fence

Troubleshooting Electric Fence

- Scenario 1. Low power on the fence.
- Scenario 2. Frequent lightening damage.
- Scenario 3. Deer constantly tear down temporary fences.

Problems could be from a weak charger, shorts on the fence, poor ground, or probably a combination

“1 joule for 10 to 40 acres depending on expected conditions”

Energizer should keep at least 5 kV on the fence during good conditions for cattle and 7 kV for small ruminants:

Needed to control:

Horses < 3 kV
Cattle – 3 kV
Sheep and goats – 5 kV
Deer and wildlife > 5 kV

Successful use of temporary fence will require controlling deer in most environments

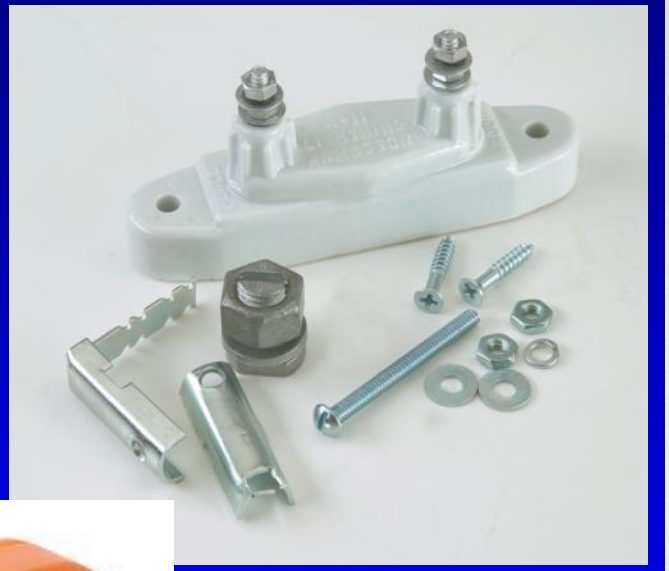
Avoid things that might cause bad shorts during construction

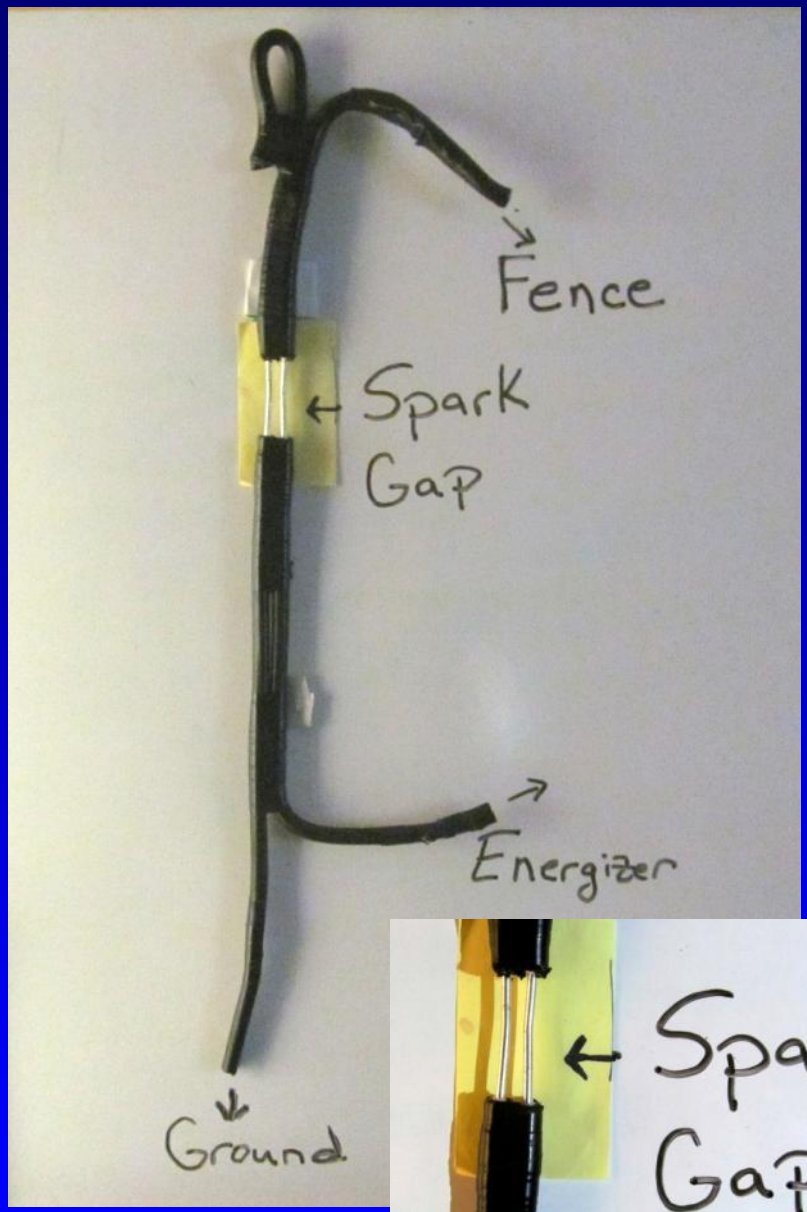
-Well grounded metal
-Old fences
-Wires very low to the ground

Don’t use t-posts and stay away from old barbed wire if at all possible

Very few energizers can hold up to this kind of challenge

Do what you can to prevent lightening damage





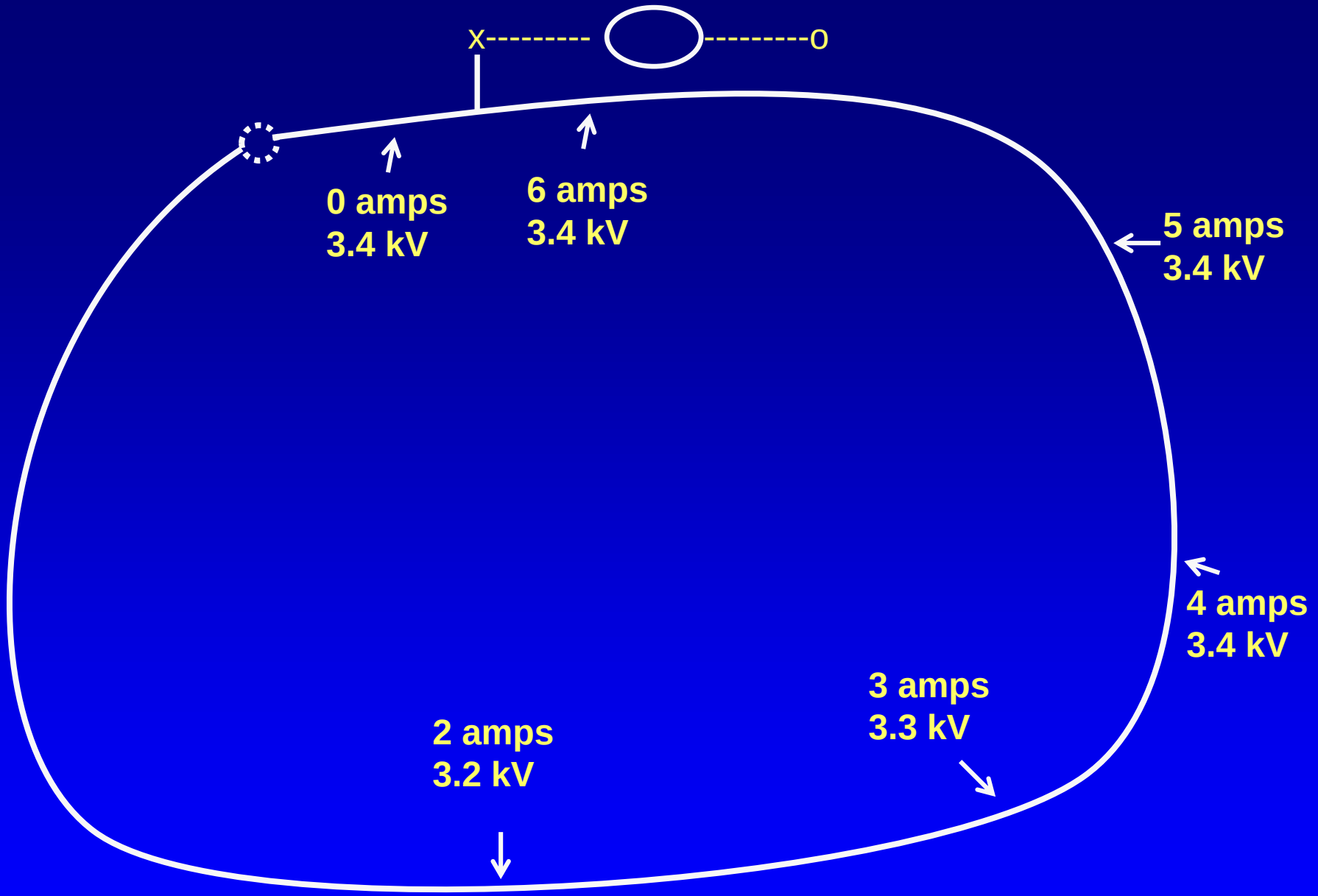
Fence Testers Have Greatly Improved!

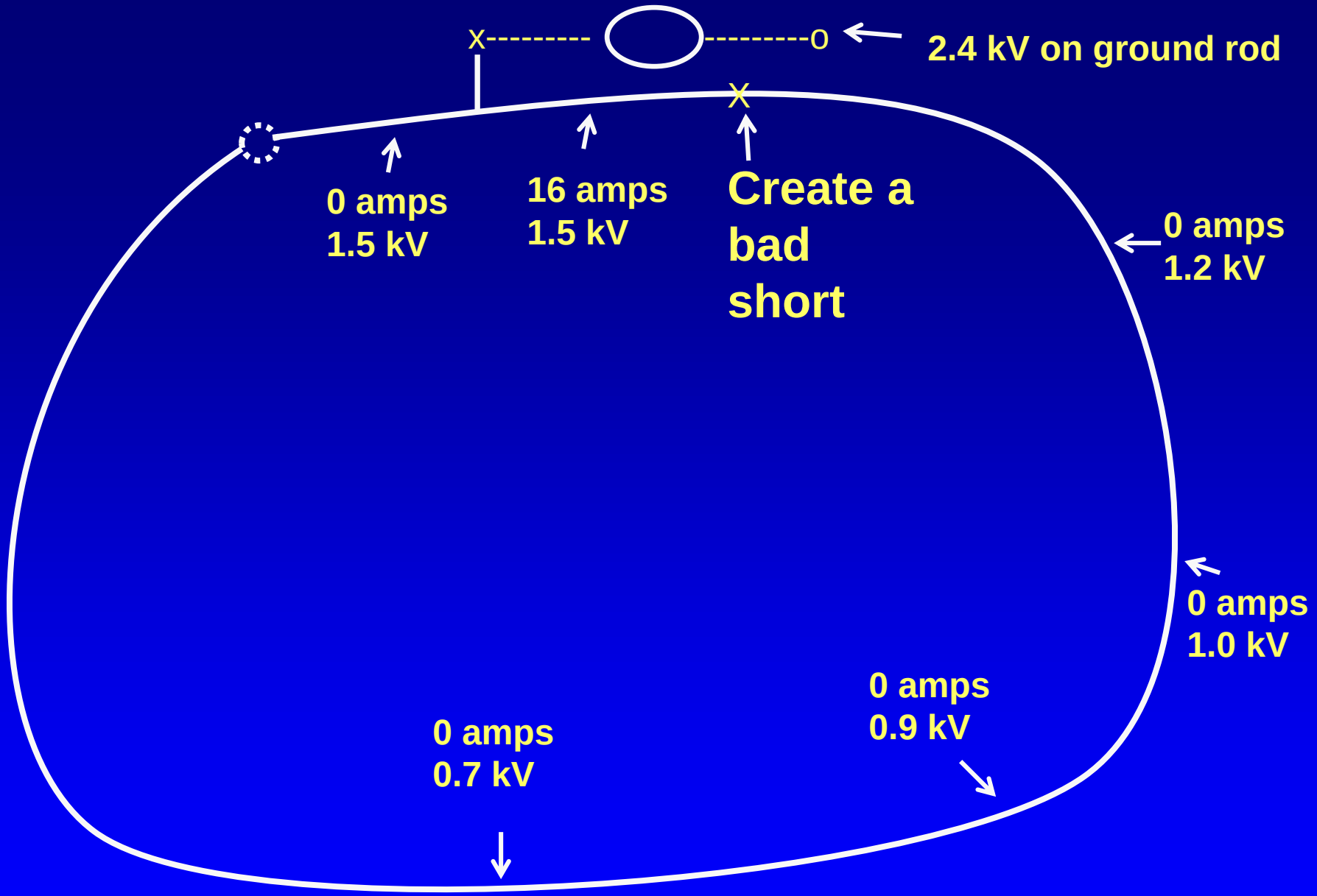
Voltage shows potential energy on fence

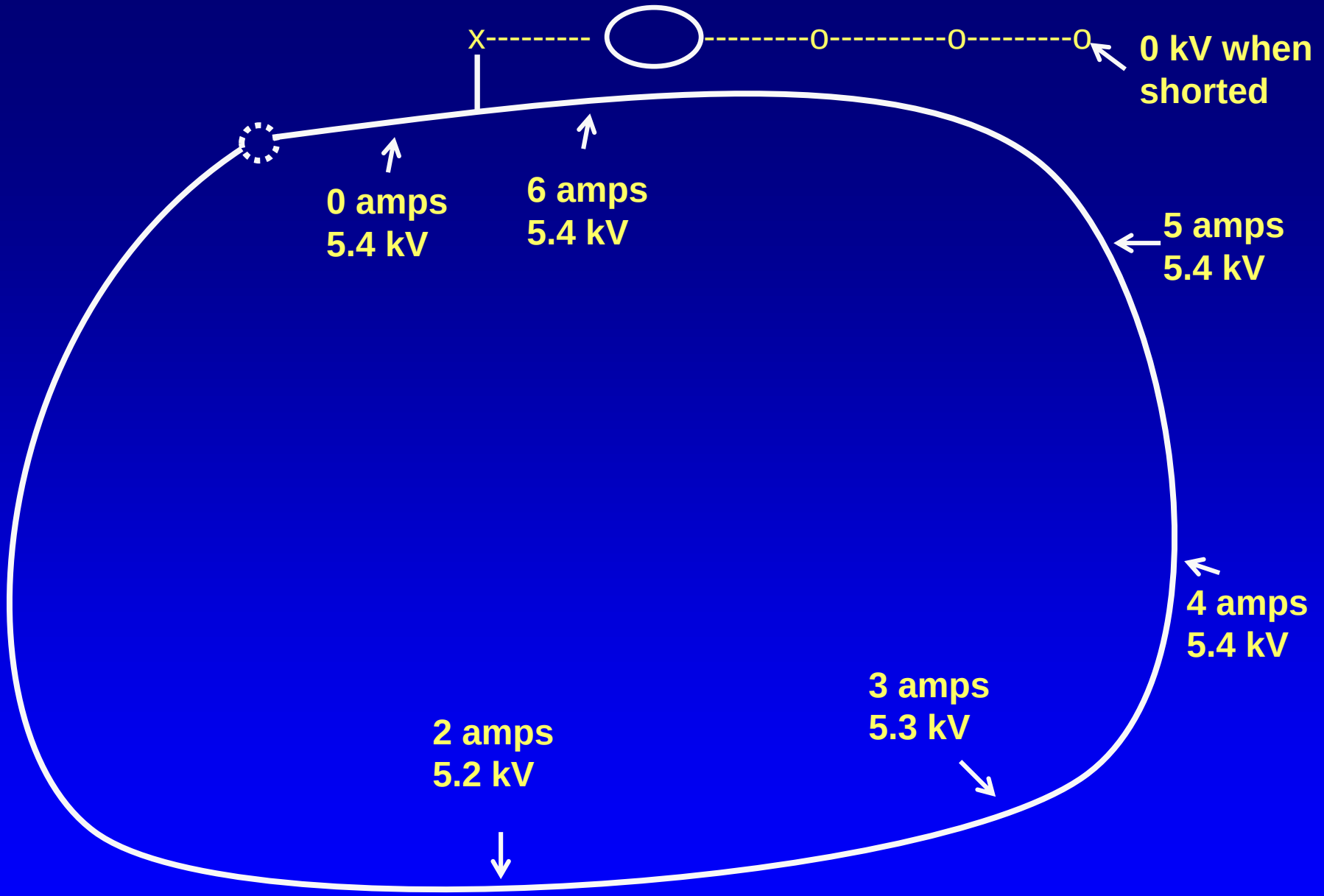
Amperage shows movement of electricity past the point of Checking

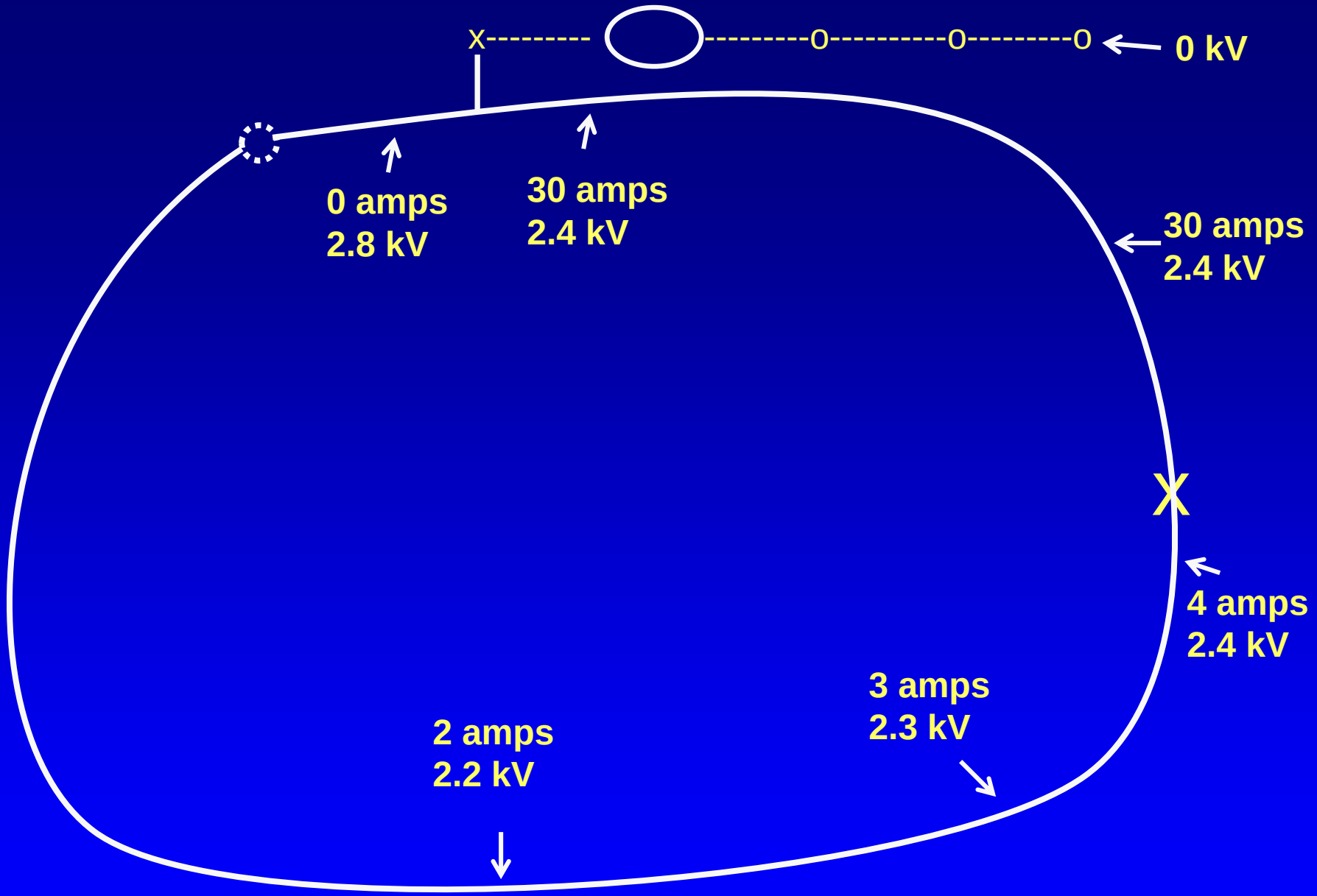
Arrows show the direction of short

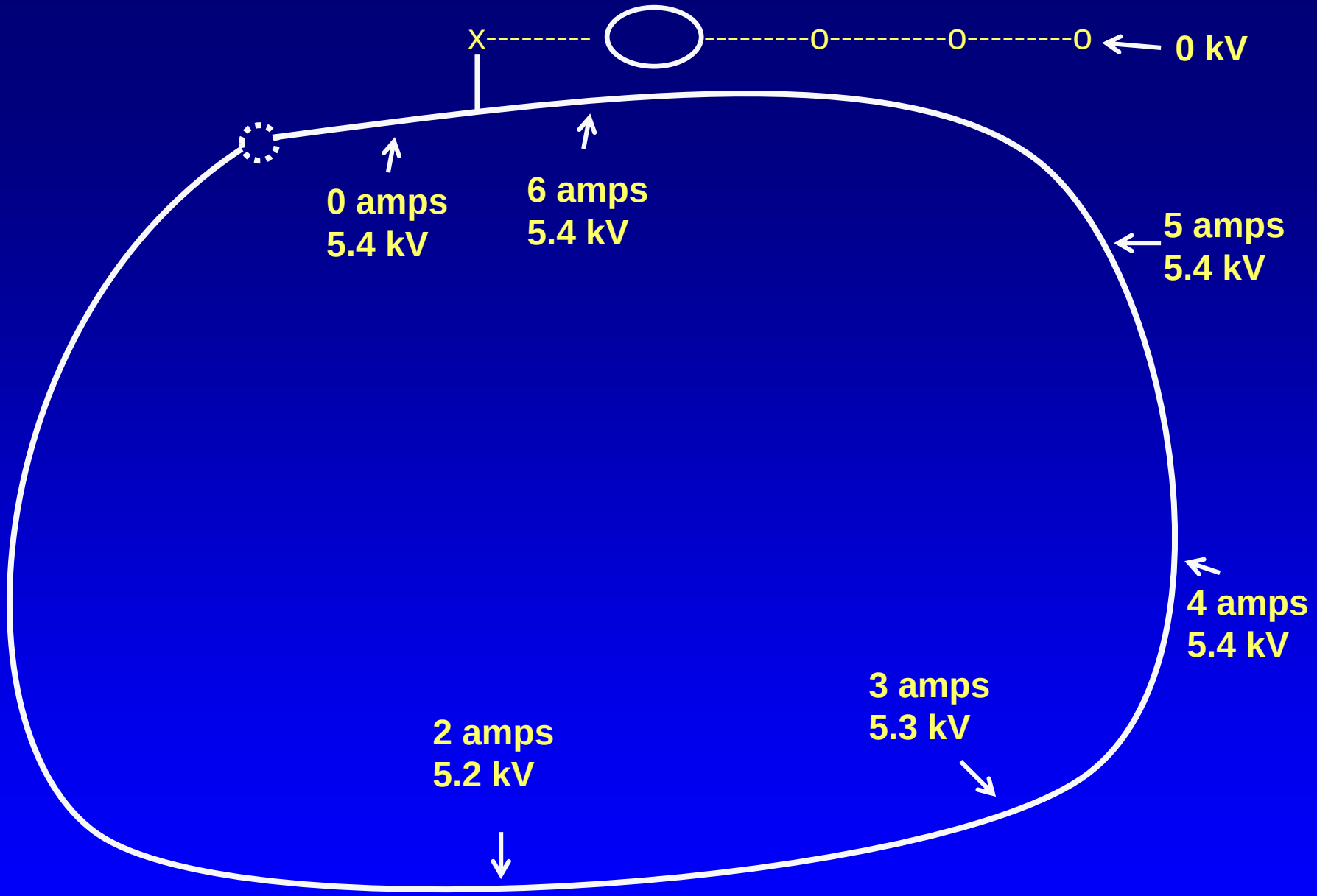
Fault Finders Dramatically Improve Your Ability to Track Down a Short!


X---------
---------O
0 amps
3.4 kV
6 amps
3.4 kV
5 amps
3.4 kV
4 amps
3.4 kV
3 amps
3.3 kV
2 amps
3.2 kV

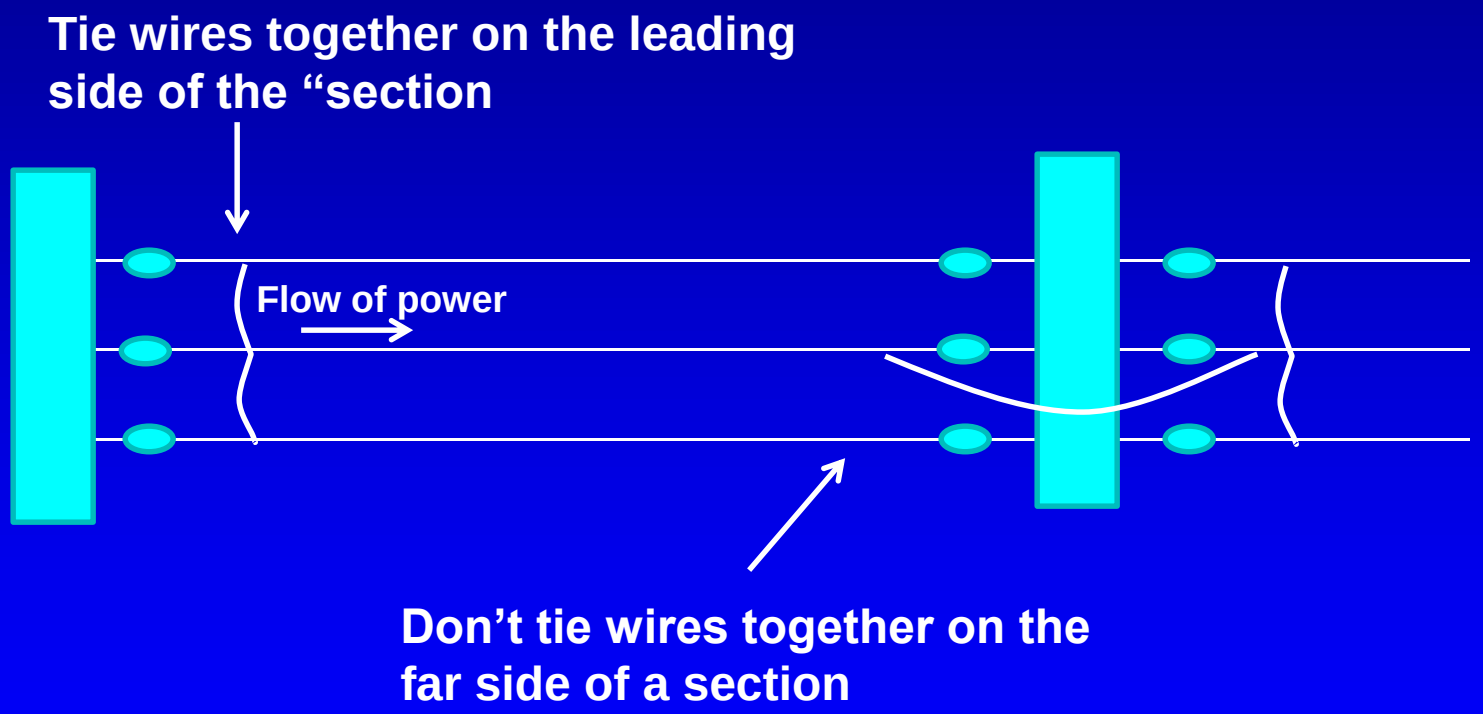

X---------
---------O
2.4 kV on ground rod
X
0 amps
1.5 kV
16 amps
1.5 kV
Create a
bad
short
0 amps
1.2 kV
0 amps
1.0 kV
0 amps
0.9 kV
0 amps
0.7 kV


X---------
---------o----------o---------o
0 kV when shorted
0 amps
5.4 kV
6 amps
5.4 kV
5 amps
5.4 kV
4 amps
5.4 kV
3 amps
5.3 kV
2 amps
5.2 kV


X---------
---------o----------o---------o
0 kV
0 amps
2.8 kV
30 amps
2.4 kV
30 amps
2.4 kV
X
4 amps
2.4 kV
3 amps
2.3 kV
2 amps
2.2 kV


X---------
---------o----------o---------o
0 kV
0 amps
5.4 kV
6 amps
5.4 kV
5 amps
5.4 kV
4 amps
5.4 kV
3 amps
5.3 kV
2 amps
5.2 kV

Design or modify the system so it is easy to trace the flow of electricity



Summary

- Well managed electric fence is critical to improved grazing management
- Keeping high power on the fence solves is key to success
- Do your best during construction to minimize future problems
- Learn to trouble shoot problems and teach producers how to check their system

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NC Choices

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Google: Amazing Grazing CEFS for website

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A&T State University
COOPERATIVE EXTENSION

Empowering People · Providing Solutions

CEFS

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