

Muscadine 101

Renovation & Pruning



Mark Hoffmann, NC State University

Muscadine Chores

Pruning & Renovation

How long does it take from
Site Preparation to first harvest?

It depends:
Location, Site Selection, Growth!

Year 1: Site Selection and Field Prep

Year 2: Planting and Trellis

Year 3: Establishment/First Harvest?

Year 4: First Harvest

Long-Term: Revenue > Total Cost

Make a business plan before you start

Set yourself goals

Be realistic!!!!!!!

It usually takes 7-10 years to be profitable.

So what needs to be in good shape
after 7-10 years?









How do we get to a good and healthy
Vineyard?

The four big ones

- Site Selection
- Correct training
- Correct pruning
- Good IPM

Site Selection

Questions?

1. Is the site suitable to your market needs?
2. Is the pH correct?
3. Water Drainage?
4. Air Drainage?

1. Market Needs

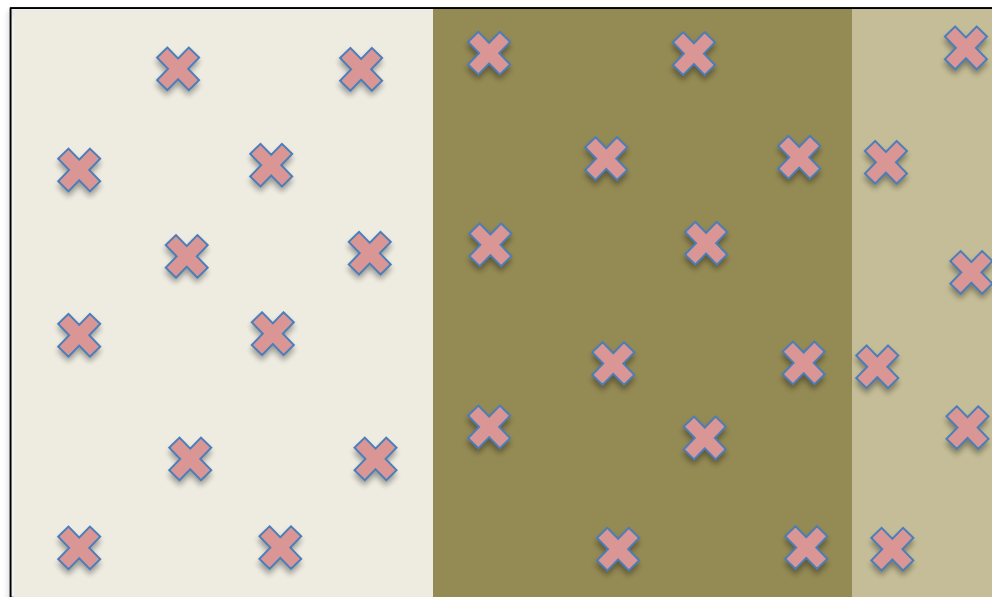
1. U-Pick: Easy access for cars; Parking Space; Space of Children/Activity?; Close to a road/busy neighborhood;
2. Processing: Easy access for heavy machinery; Turnaround space for heavy machinery; Even growth; Sturdy trellis and post;

2. Soil pH: 6.0-6.5

Soil sampling :

- **0-7 inches**
- **7-14 inches**

Summer before
planting



Combined Samples 1 and 2
(0-7;7-14)

Combined Samples 3 and 4
(0-7;7-14)

Combined
Samples 5 and 6
(0-7;7-14)

Adjust pH based on Soil Samples

Send soil samples to

www.ncagr.gov/agronomi/sthome.htm

Optimal pH: 6.0-6.5

3. Water Drainage

Photo Courtesy:
Connie Fisk



Standing Water is a red flag

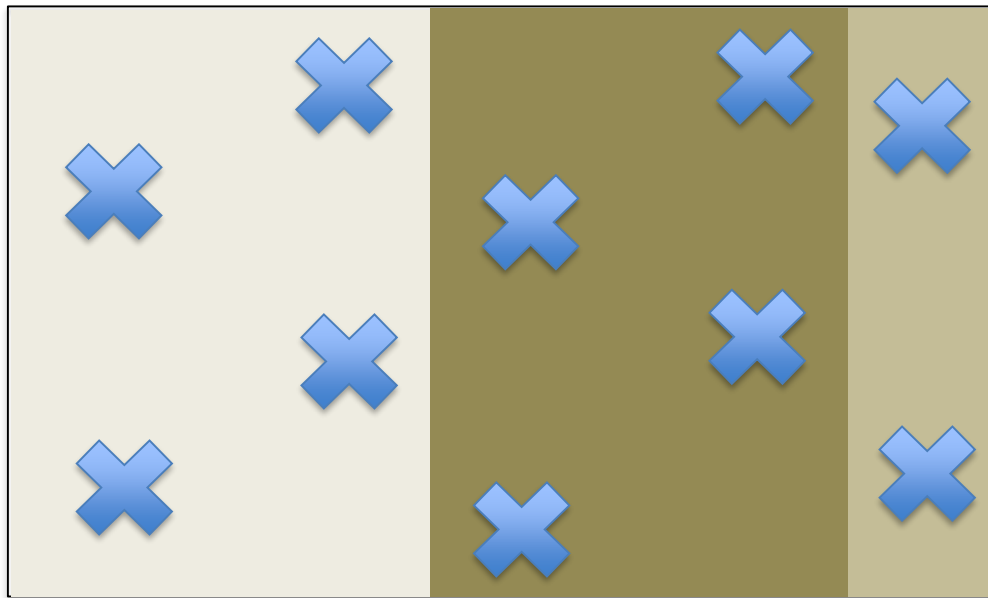
- Standing water or bad/no drainage will cause low growth and disease problems down the line. Don't plant!

Evaluate Field with Auger

Evaluate field

- For long standing water after heavy rain
- For hard soil layers in the upper **30-40 inches**

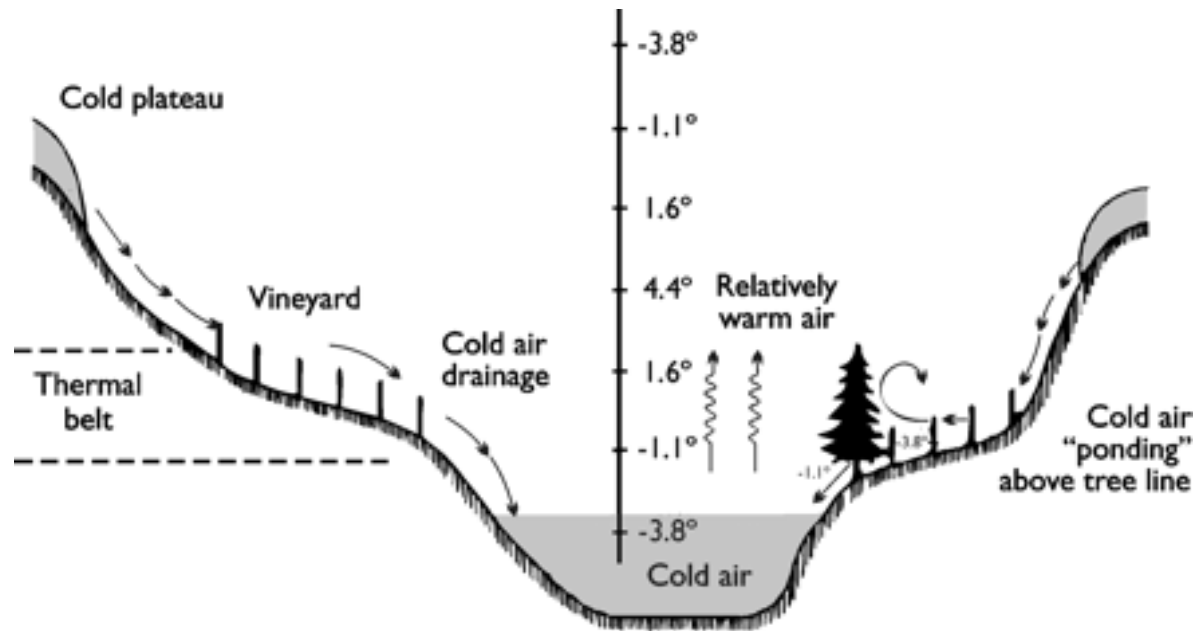
Summer before planting



4. Air Drainage

Evaluate field

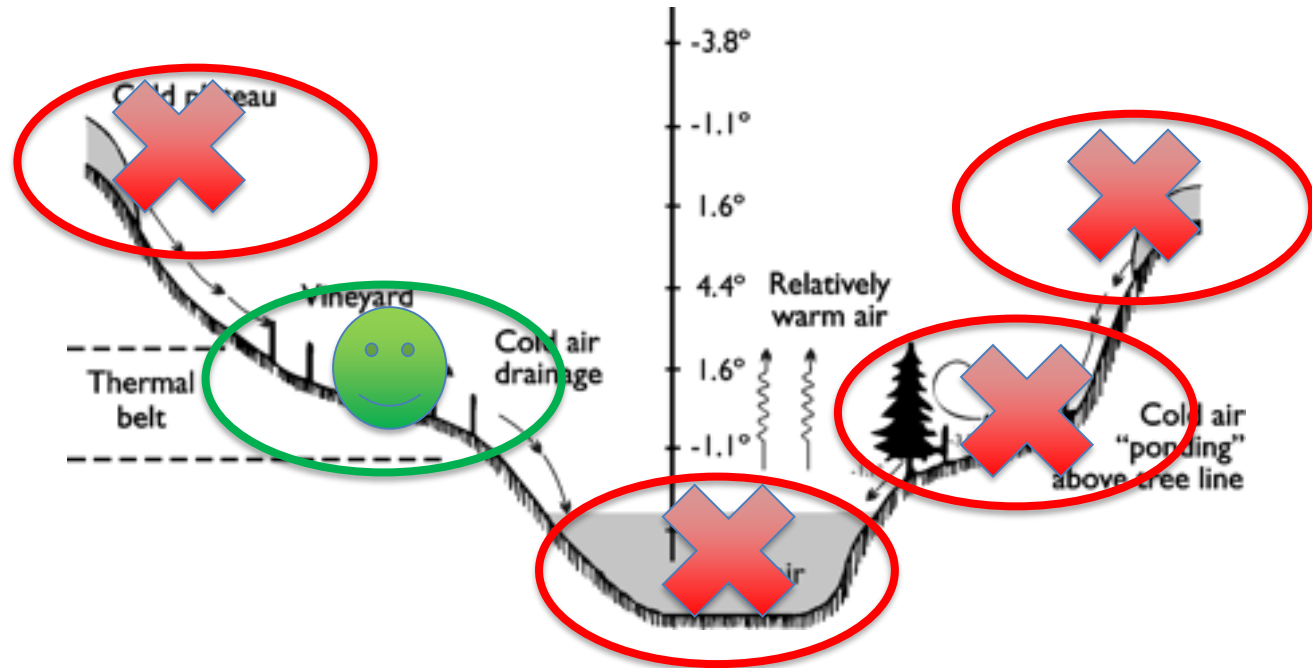
- Vineyards need two things:
- **Sunlight**
- **Air Drainage**



If planted in the wrong spot

Increased risk of:

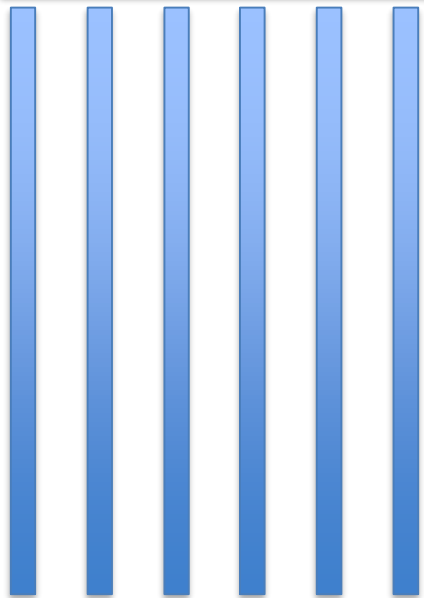
- Dead plants
- Split Trunks
- Frost Damage



One more thing: Turn Around

Turn Around Space

30 -40 ft



Turn Around Space



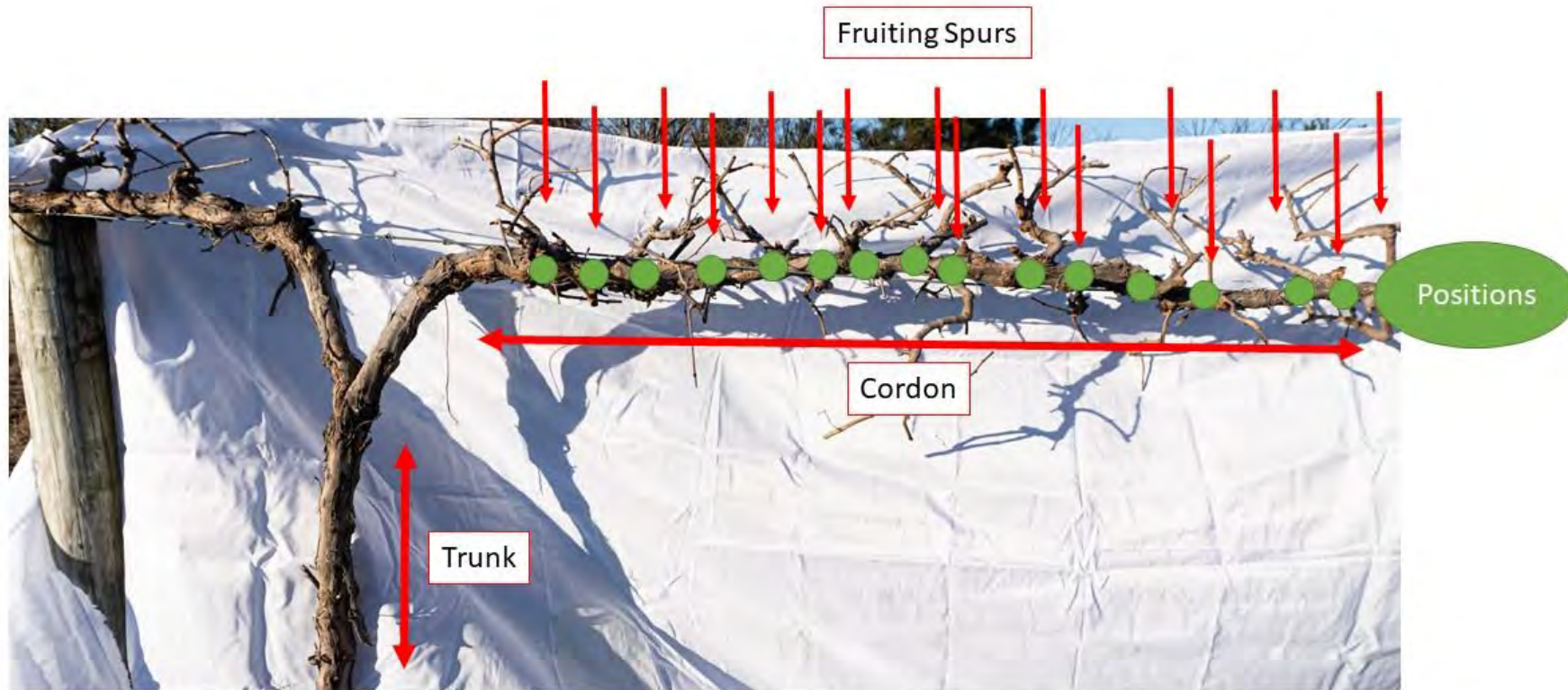
Pruning & Renovation

What are the goals of pruning?

Pruning Goals

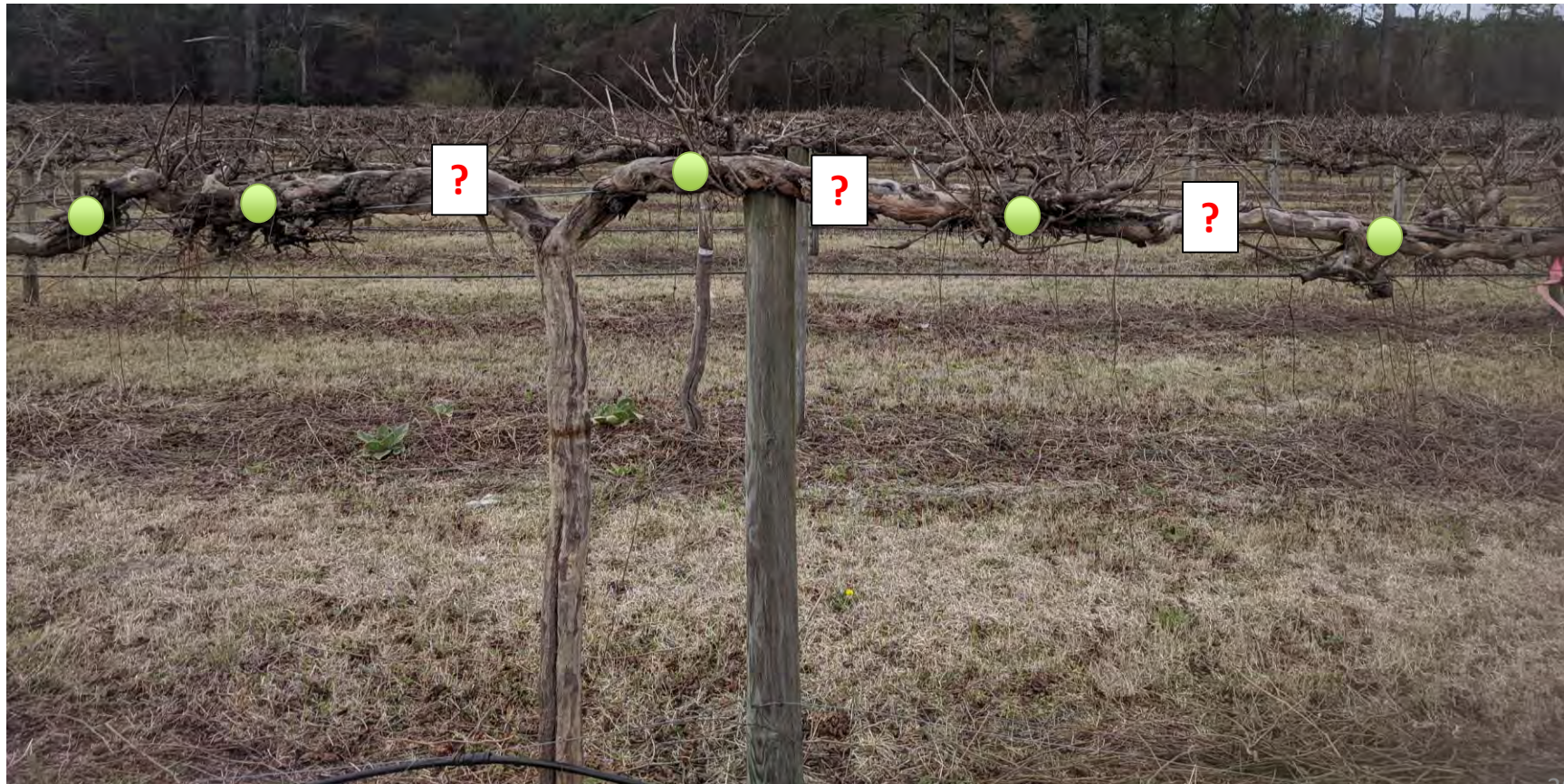
What are your main goals?

1. Longevity
2. Healthy Wood
3. Disease control
4. Yield



FAQ

- When to prune? **Dec to Feb/Mar**
- Pruning every year? **YES!**
- Pruning in summer? **NO** → Hedging
- Ideal planting space: 20ft vine spacing; 20ft post spacing; 11-12 ft row spacing;











Take away

- Let vine structure grow slowly
- Establish fruiting positions early and keep them!
- On a muscadine 3-4 fruiting positions per foot of cordon

Why is that important?

- Reduce desiccation
- Improve Water and Nutrient Flow in healthy wood
- Improve Carbon and Nutrient Storage in healthy wood
- Reduce impact of Grapevine Trunk Diseases

Reasons

- Cold damage or any other physical damage
- Wrong pruning and training!





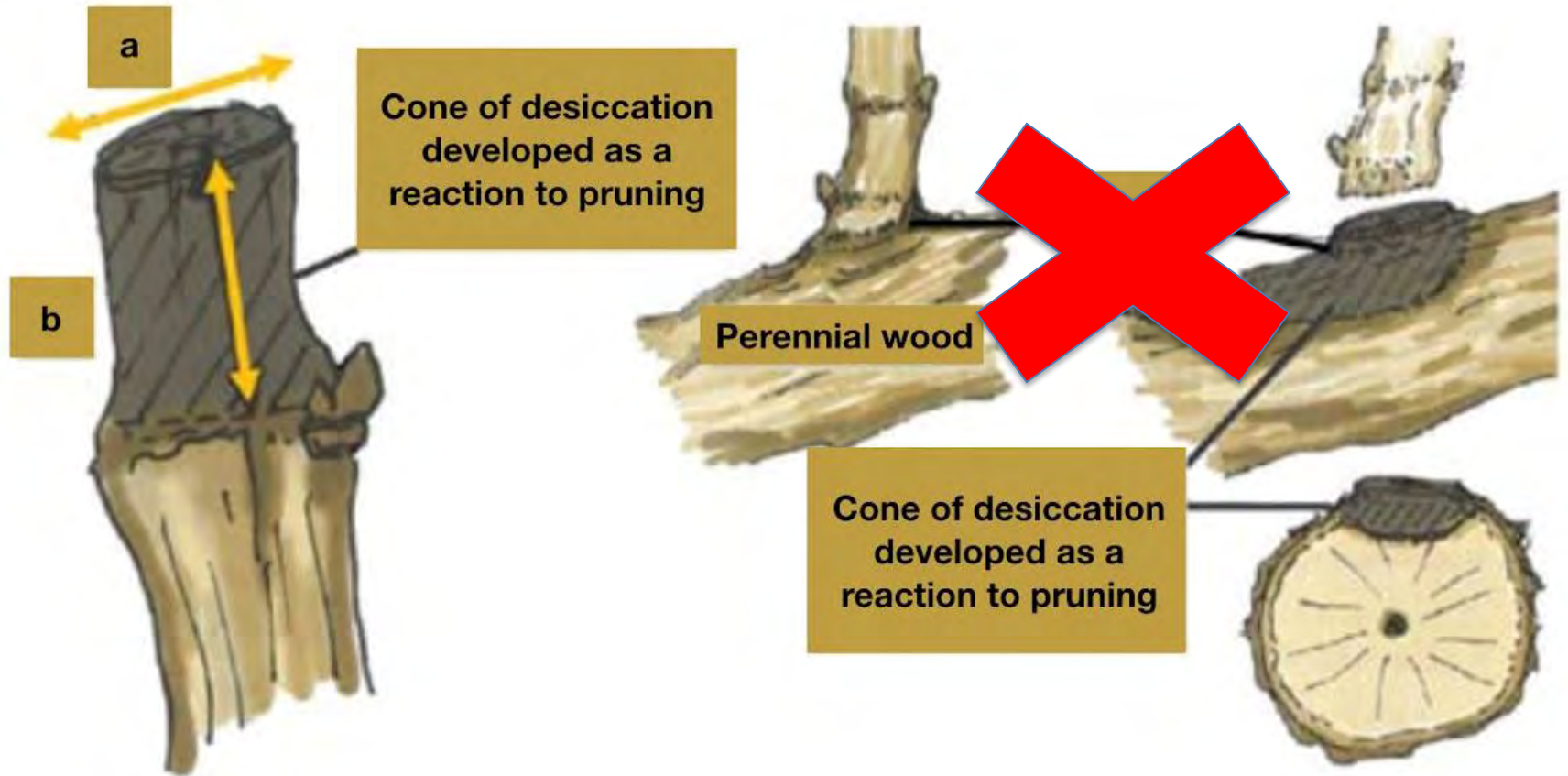






Grapevine do not produce a callus

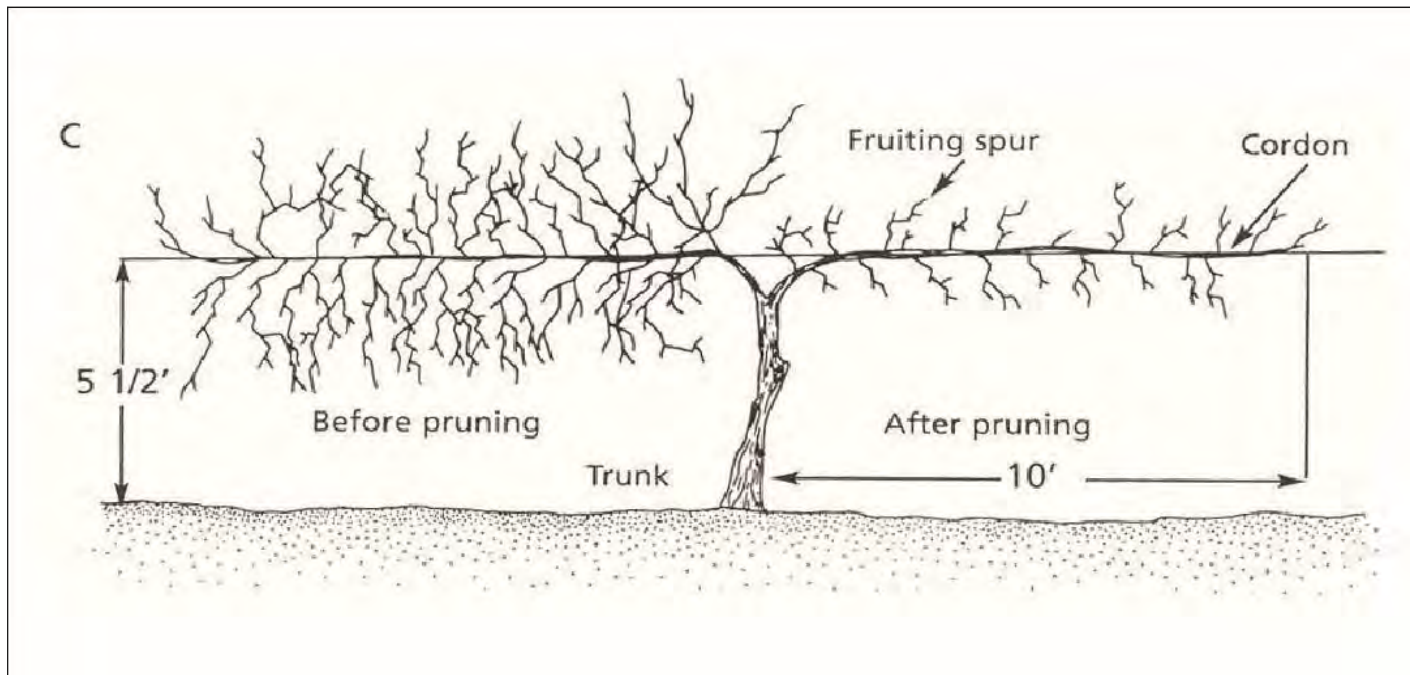
- Instead they produce an area of desiccated wood under the cut!
- **Close cuts to the cordon or spur:** Bring desiccation into the permanent structure.





Young Vines: Correct Training

First: Think about where your positions are



Correct position establishment

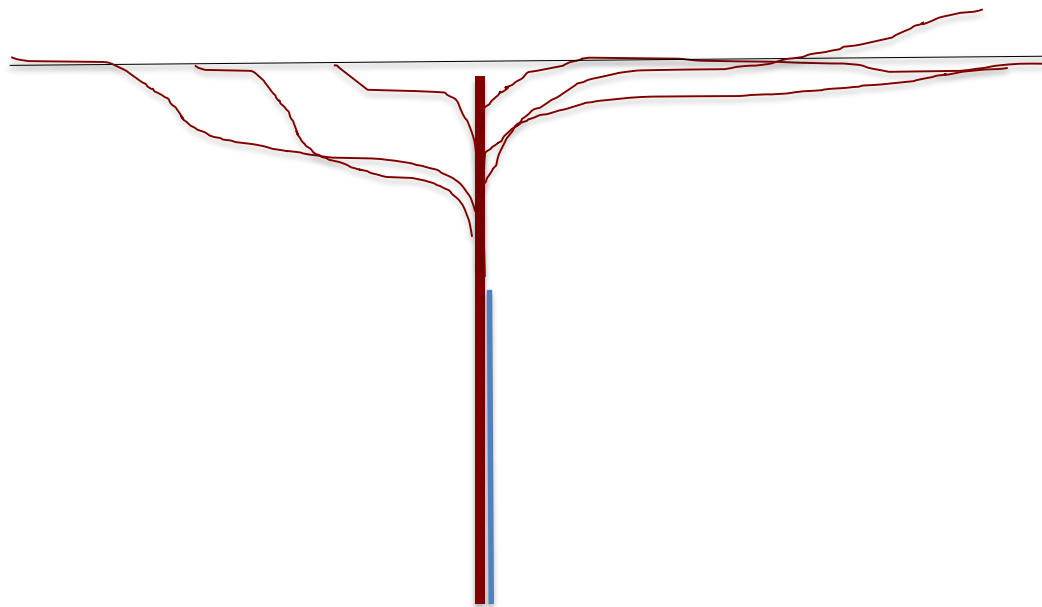


20 ft vine spacing, two 10 ft cordons

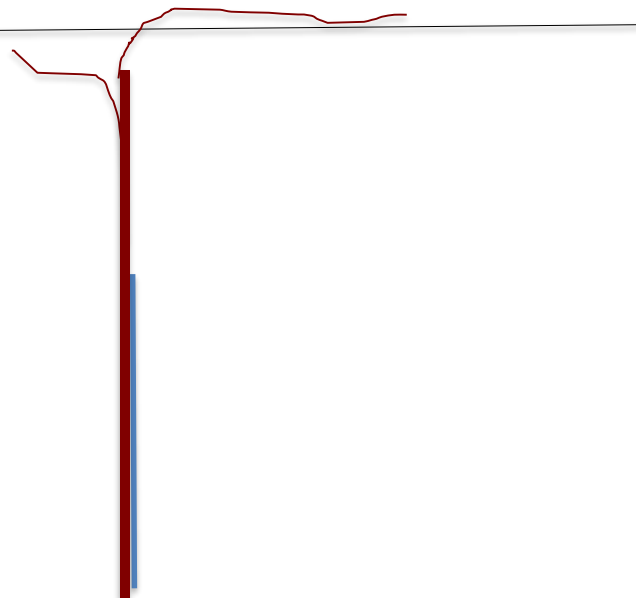
Vigor	Number of buds/foot of cordon	Number of buds/vine (20ft)	Typical Cultivar Examples
++	30-40	600-800	Carlos, Noble
+	20-30	400-600	Supreme

Pre-prune with trimmer
approx. 2-3 foot distance to cordon!
3-4 fruiting position per foot of cordon.

Very Strong Growth

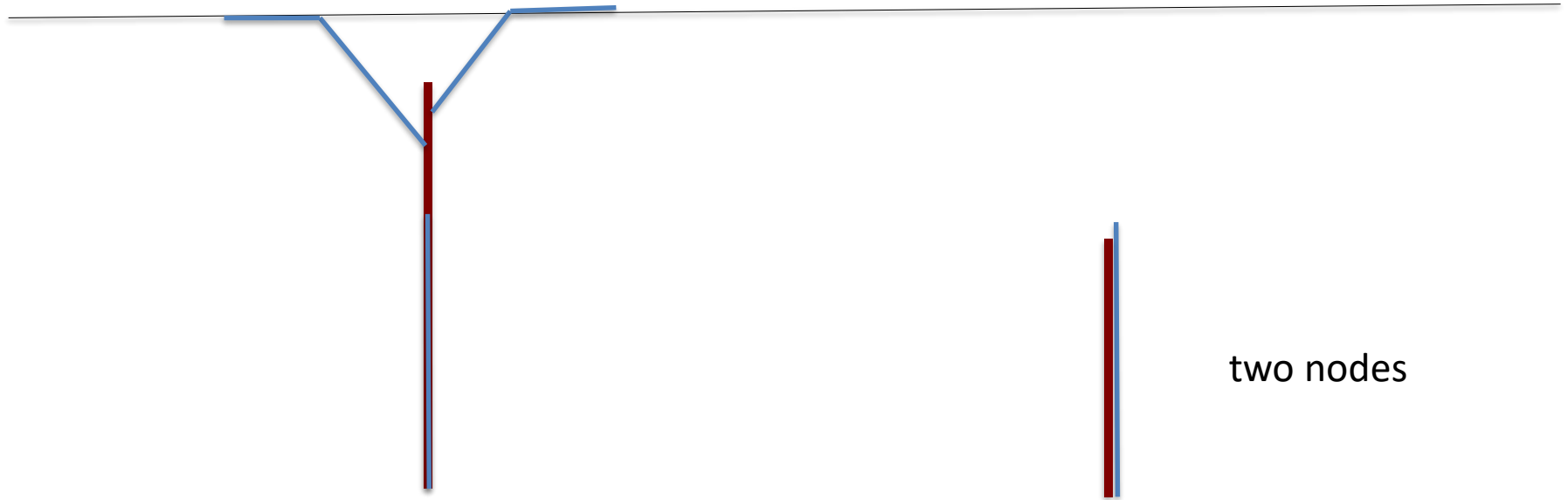


Weak and Medium Growth

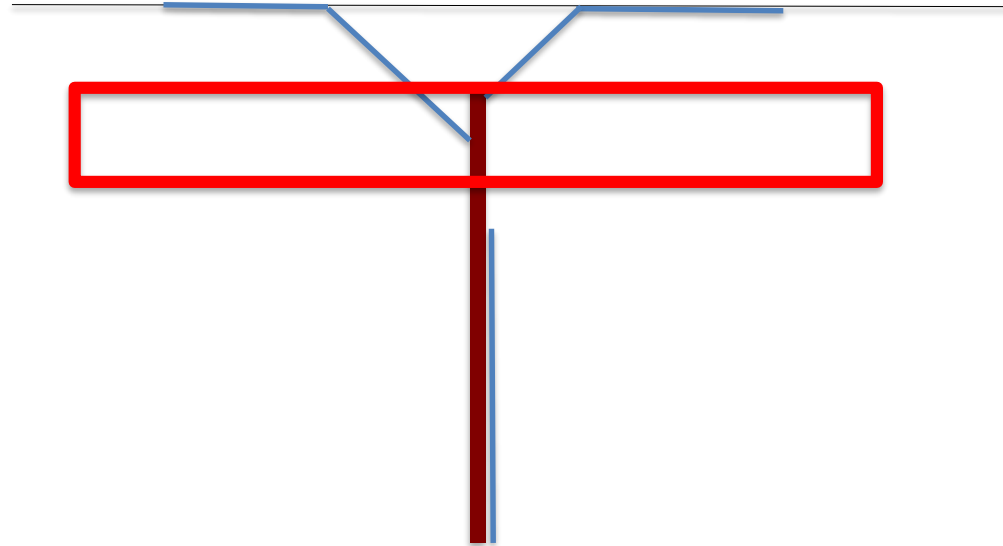


Very Strong growth

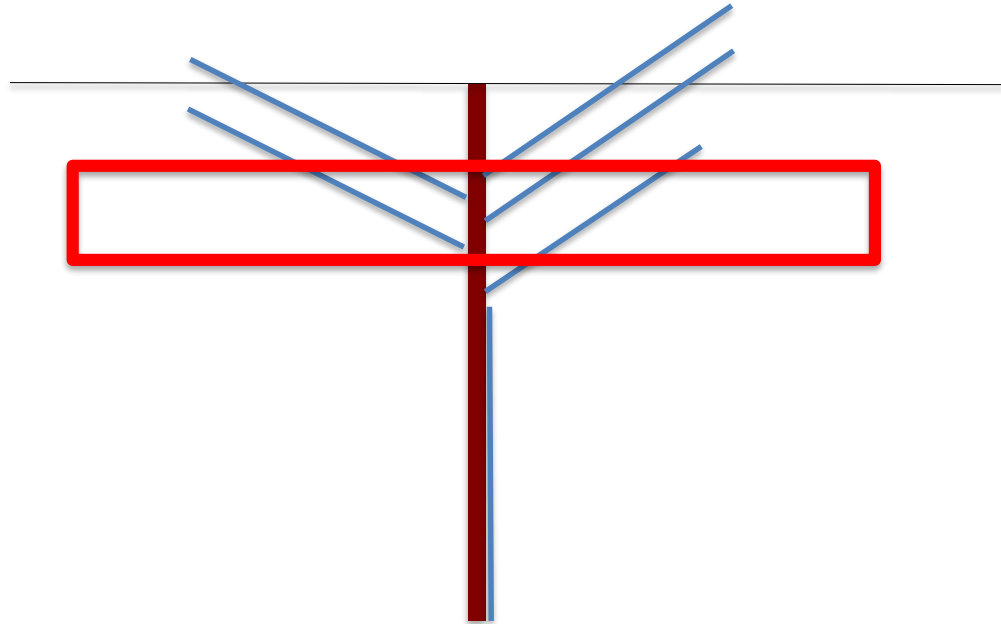
Everything else!



First way to do it

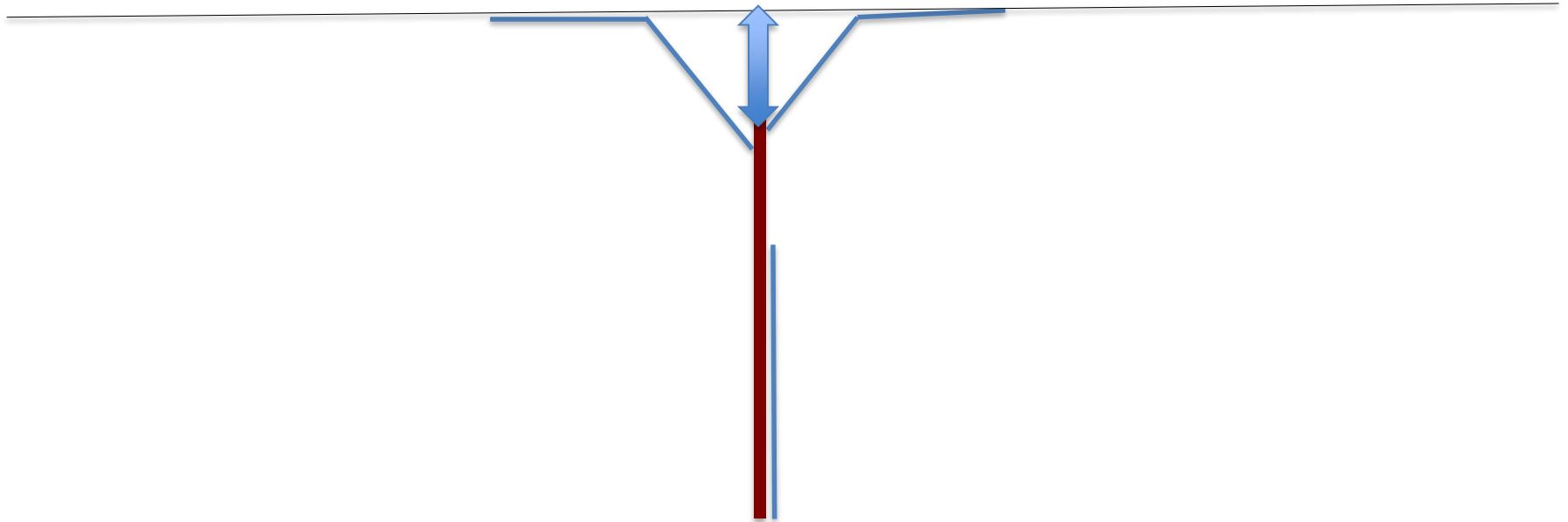


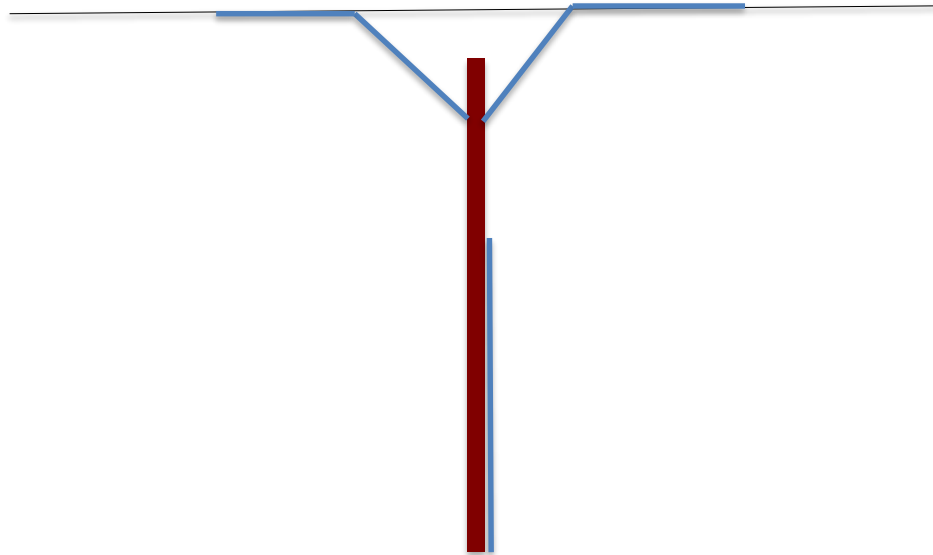
Another way to do it: push laterals

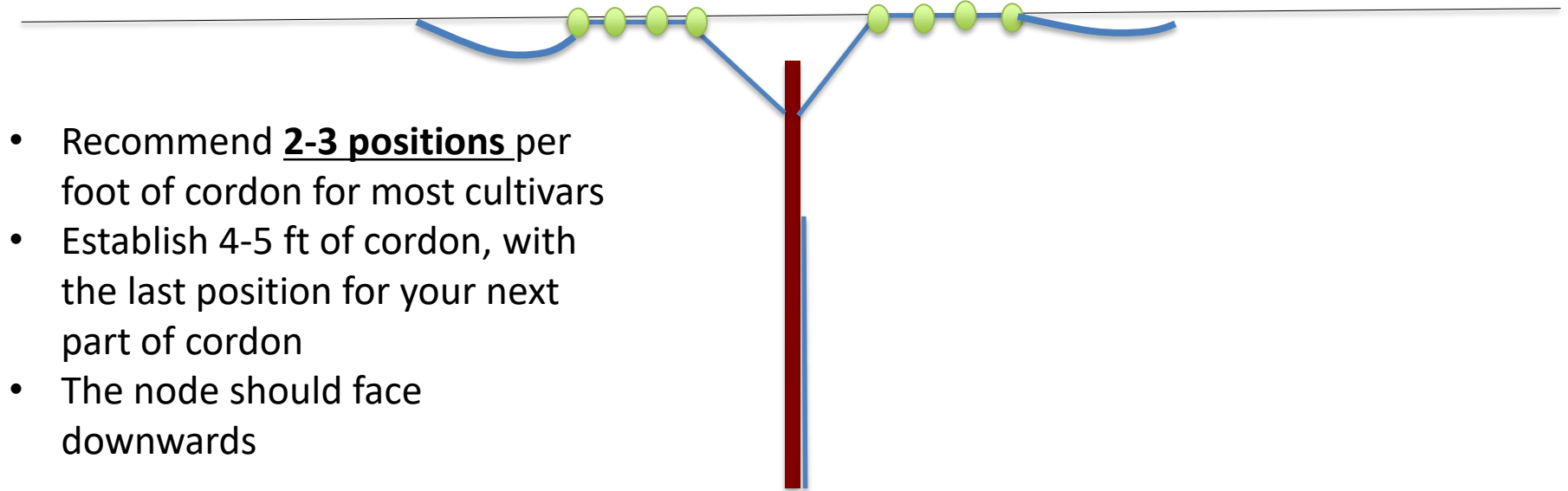


In any case!!!

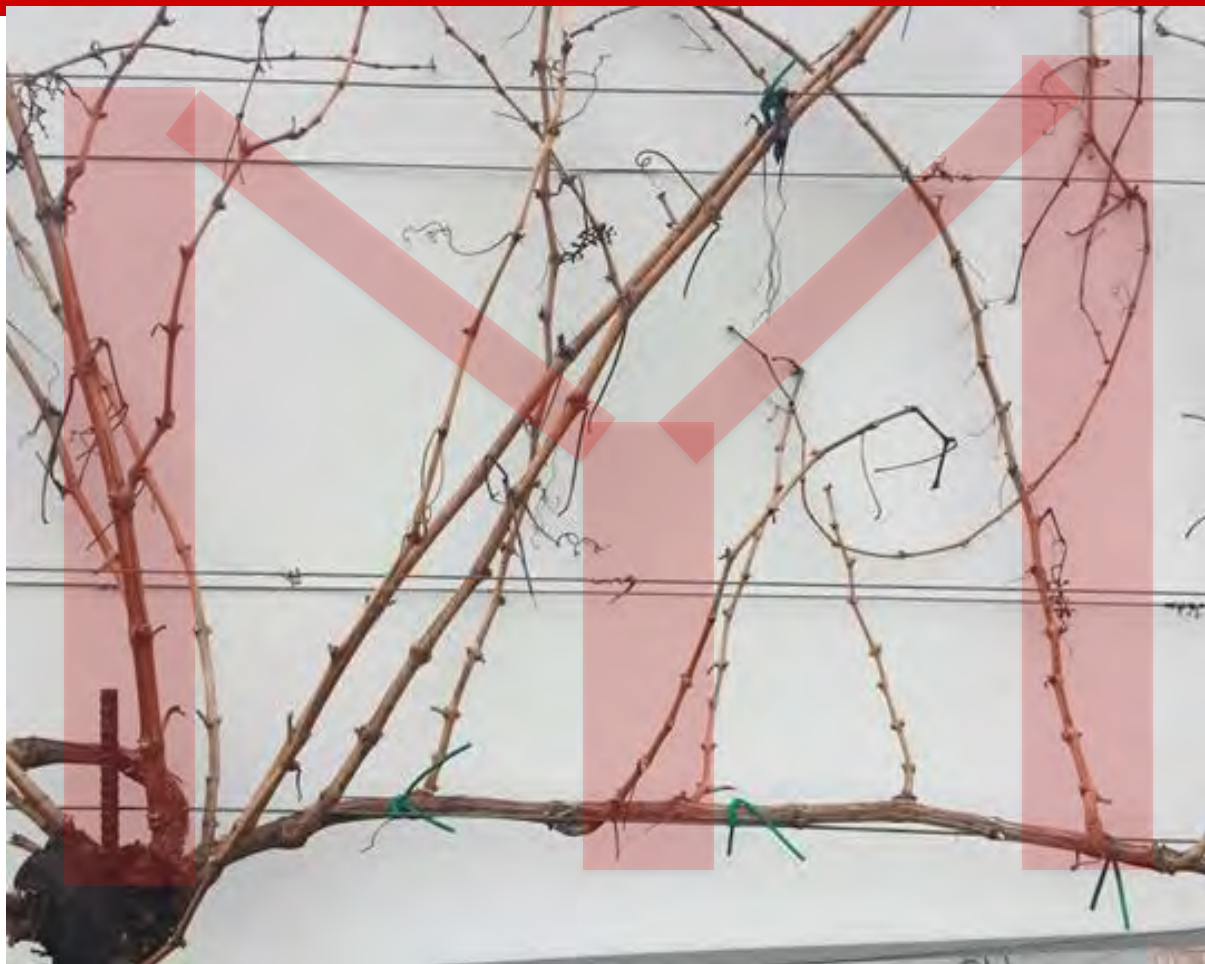
5-7 Inches distance to wire







- Recommend **2-3 positions** per foot of cordon for most cultivars
- Establish 4-5 ft of cordon, with the last position for your next part of cordon
- The node should face downwards







Photos by Emma Volk and Mark Hoffmann

Take Home

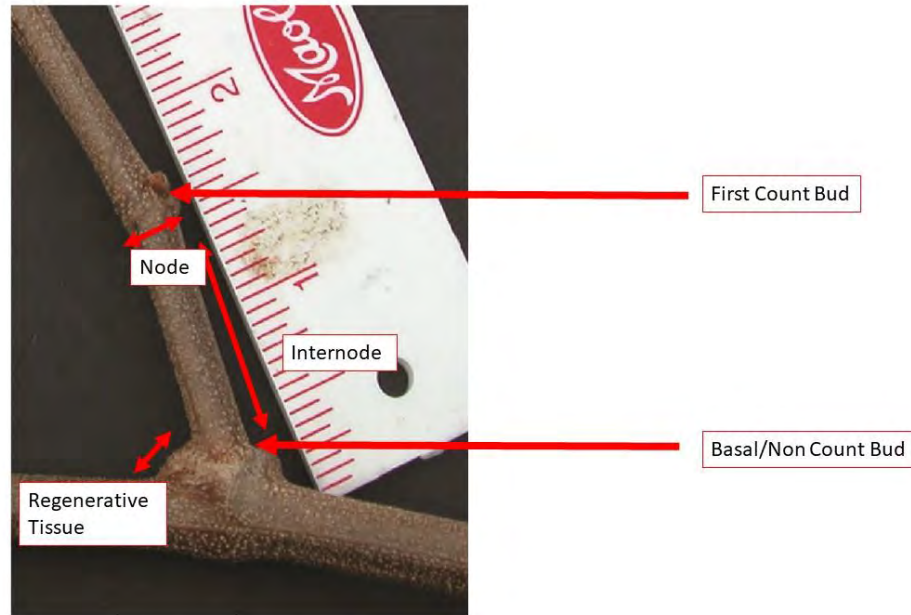
- Weak vines have to be trained differently than vines with strong growth
- Split 4-6 inches below wire
- Establish your spur positions from the very beginning
- **Plant close to the post**
- Remove some weight from the wire

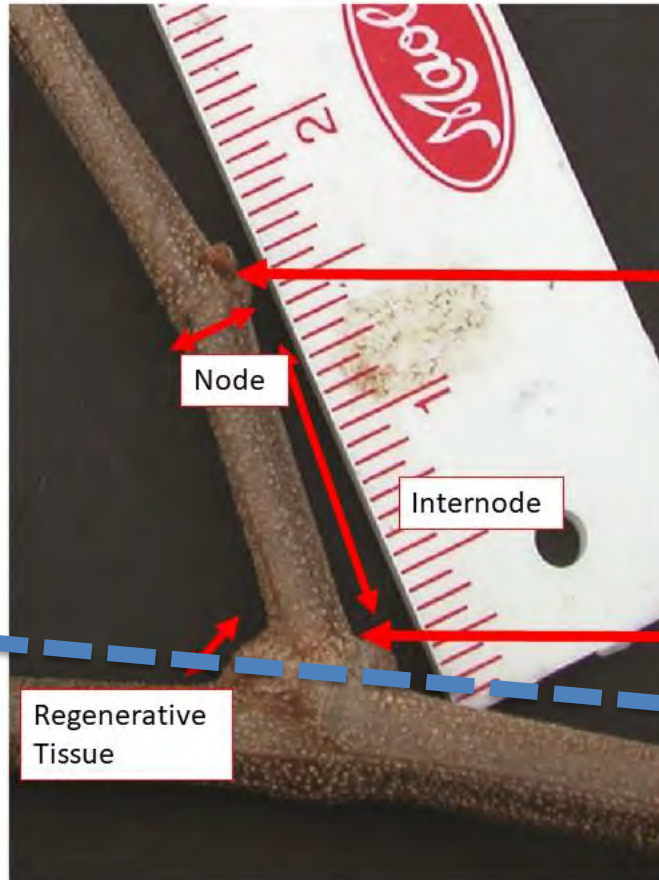
FAQ

- Disease risk of cordon is put on the wire? **NO**
- How many vines per post? **One post per vine**
- How many cordons are trained over the post? **One**
- Wrap or hang the cordon? **Hang**

Pruning

How to make the correct cut?





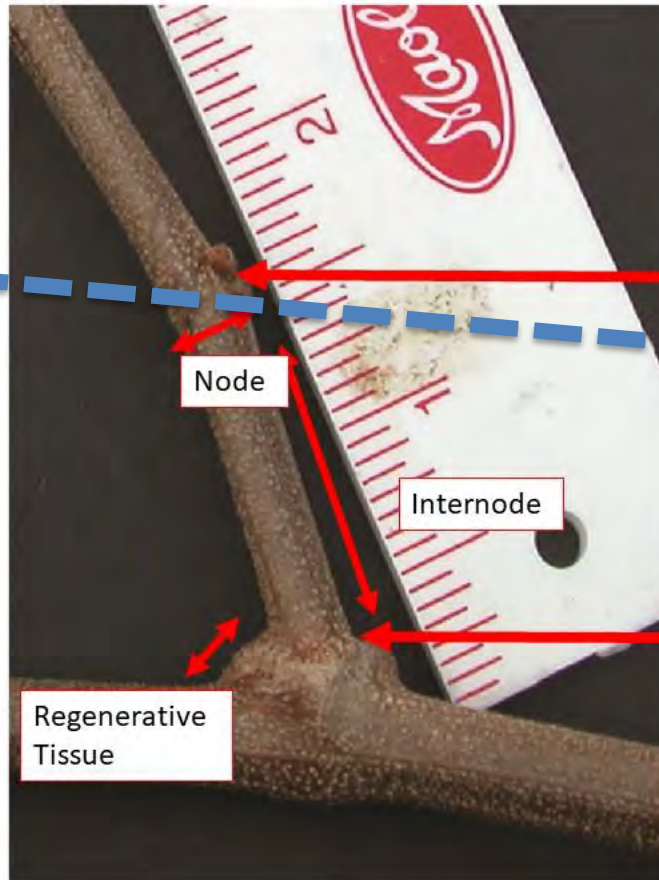
First Count Bud

Node

Internode

Basal/Non Count Bud

Regenerative
Tissue



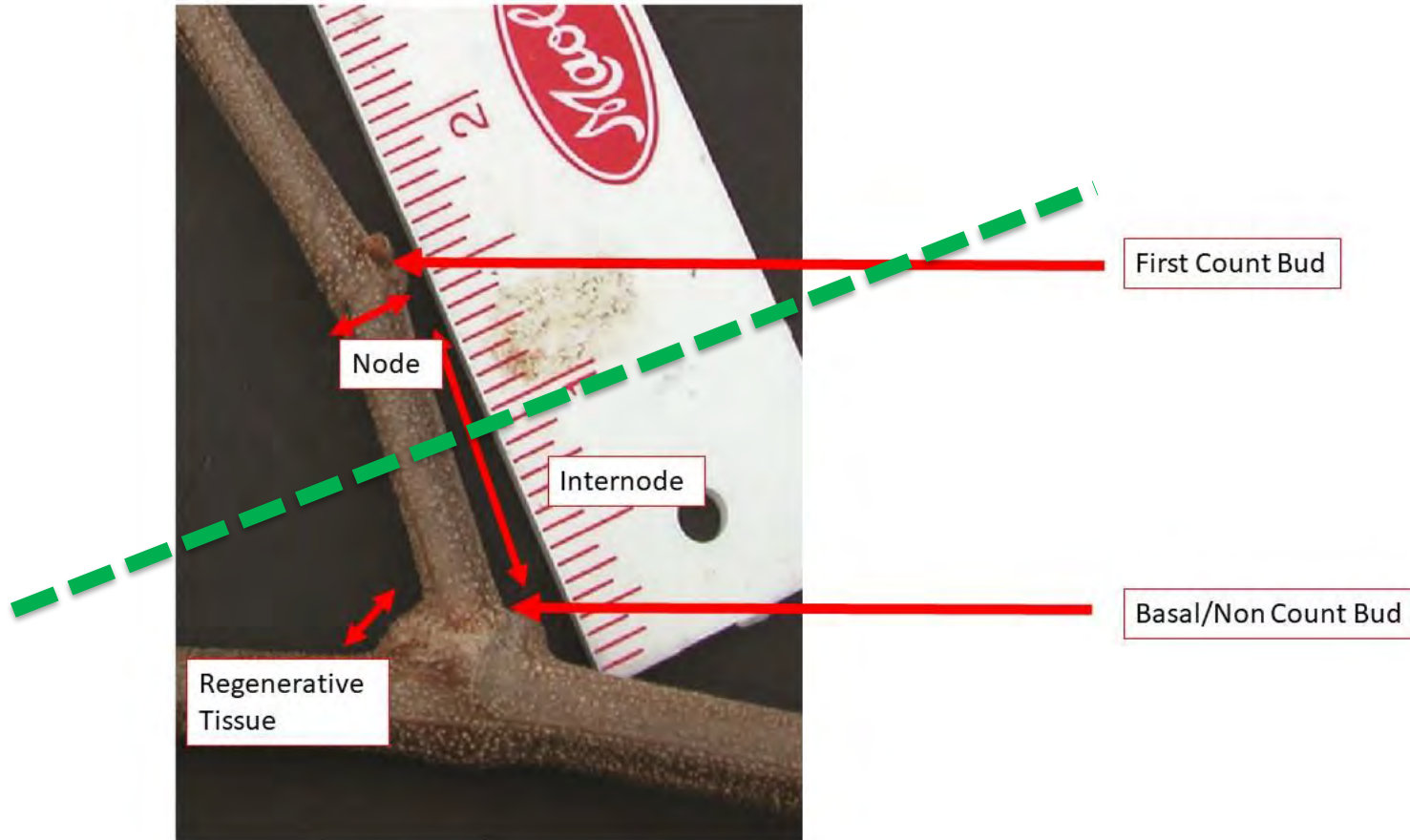
First Count Bud

Node

Internode

Basal/Non Count Bud

Regenerative
Tissue



FAQ

What is good wood for spur and cordon?

- 1) Internodes are 2-4 inches long
- 2) Wood is at least pencil thick
- 3) Wood has golden brown color

Manual

- ❖ Very labor intensive
- ❖ Best control of yield and disease
- ❖ fresh-market: YES
- ❖ A very well trained person: 10-15 min per vine
- ❖ A trained person: 20-30 min per vine

Often limiting factor in winter on larger acreage farms

Mechanical

- ❖ Less labor intensive
- ❖ Lower control of yield and disease
- ❖ fresh-market: NO
- ❖ Has to be done on a rotation with manual pruning (2-4 years) -> Vineyard renovation!!!
- ❖ Often used in large acreage processing vineyards (Carlos, Noble, Doreen, Magnolia)

Higher initial costs (for machinery)

Rotate between Mechanical and Manual

- ❖ Disease control
- ❖ Crop management
- ❖ Vineyard longevity
- ❖ **DEBRIS IS GRAPES (Wood) can lead to damage in processing machinery (press bladder!).**





Elongation Zone

You always have an elongation zone (spur)

Head Region

You don't always have a head region

AVOID develop a head on top of a spur.











Take Home

- Pruning helps to limit growth of spurs
- In the second year after spur position keep three one year old shoots
- Grow the two lower shoots as your spur
- Utilize the basal bud tissue of the spur

FAQ

Three easy ways to remember how to prune:

- 1) **Don't let spur grow into space.** Imagine a helmet around your spur. The helmet grows every year a little bit, so does your spur.
- 2) **Never cut through a bud**
- 3) **Always leave wood for wound healing**

Vineyard Renovation

Vine Renovation

- Any time we cut more than just one-year old wood, we 'renovate' a vine.
- Most common 'mode of action'.
- Vine Renovation means: **YOU WILL LOSE YIELD!**

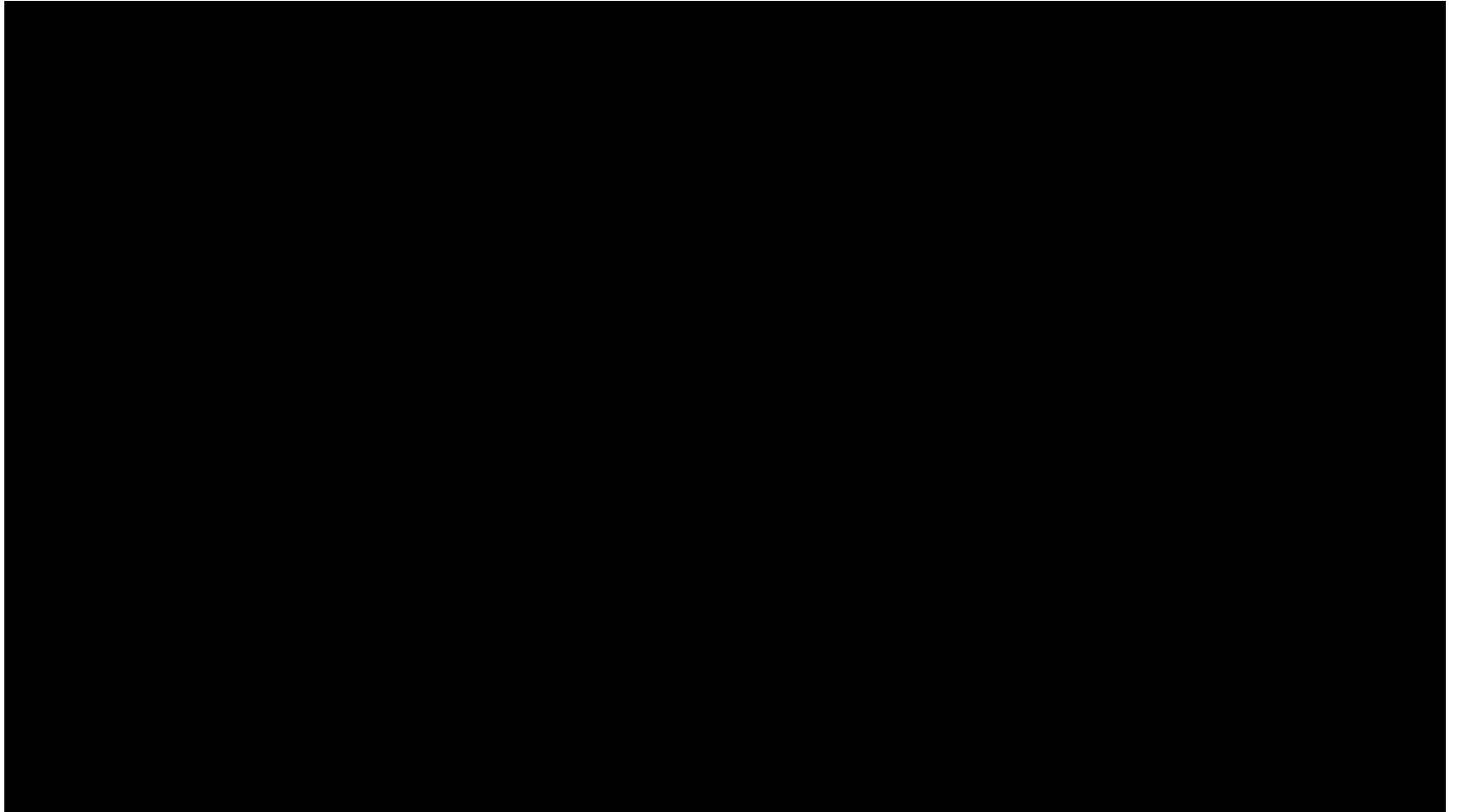
Scenario one

Antlers that need to be rejuvenated



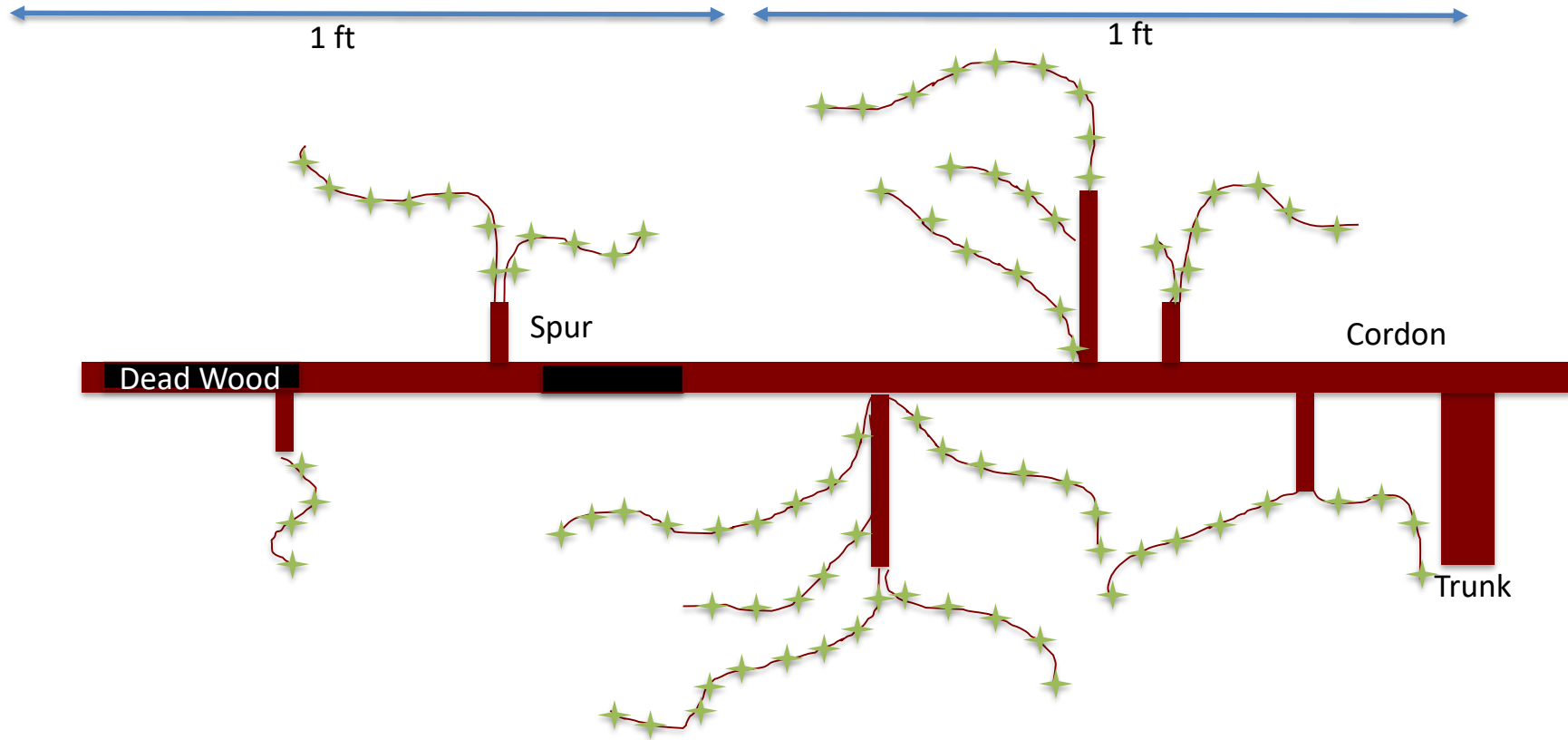


- Do it with the entire vine: You are forcing the vine to push dormant buds for new positions
- You WILL lose yield!

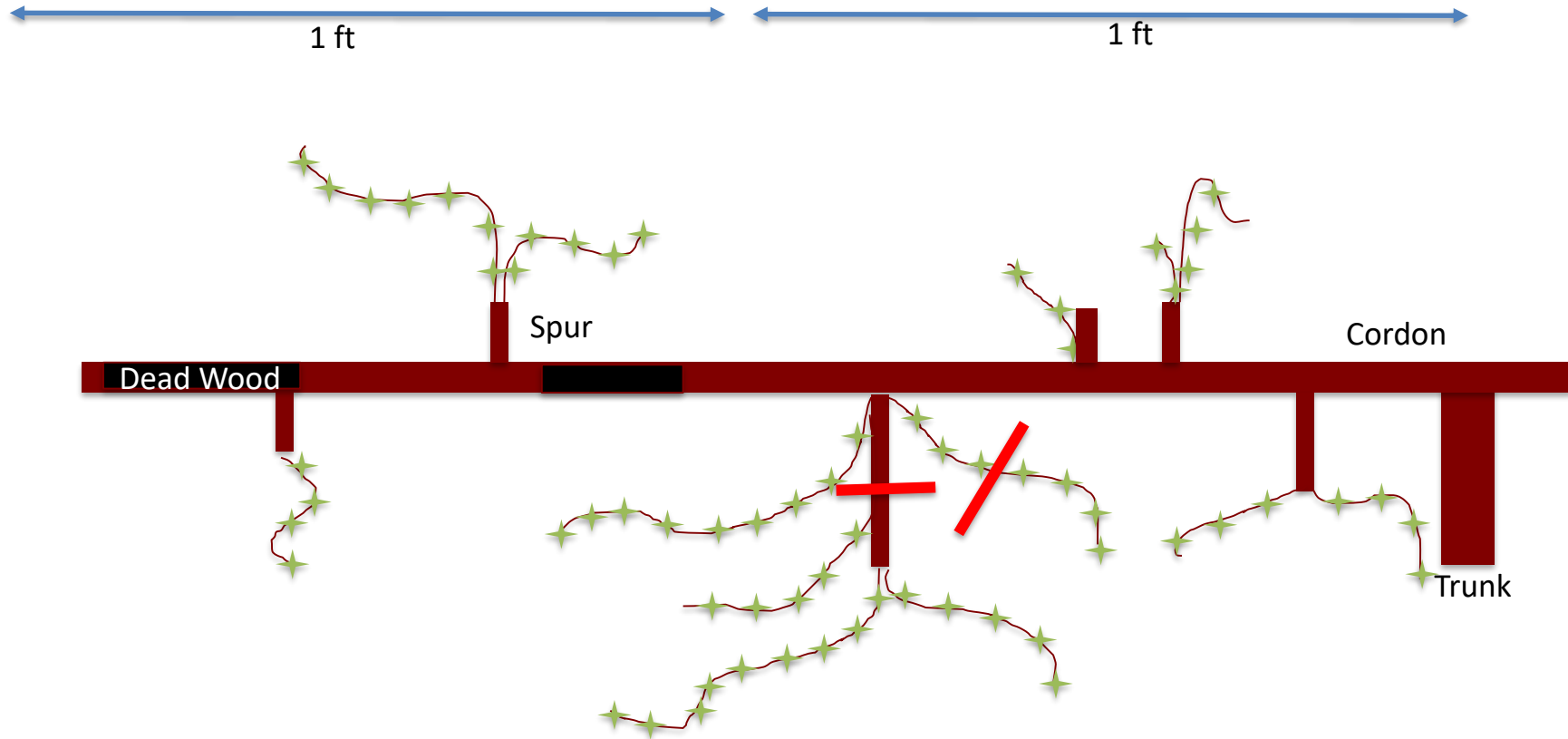


Scenario Two

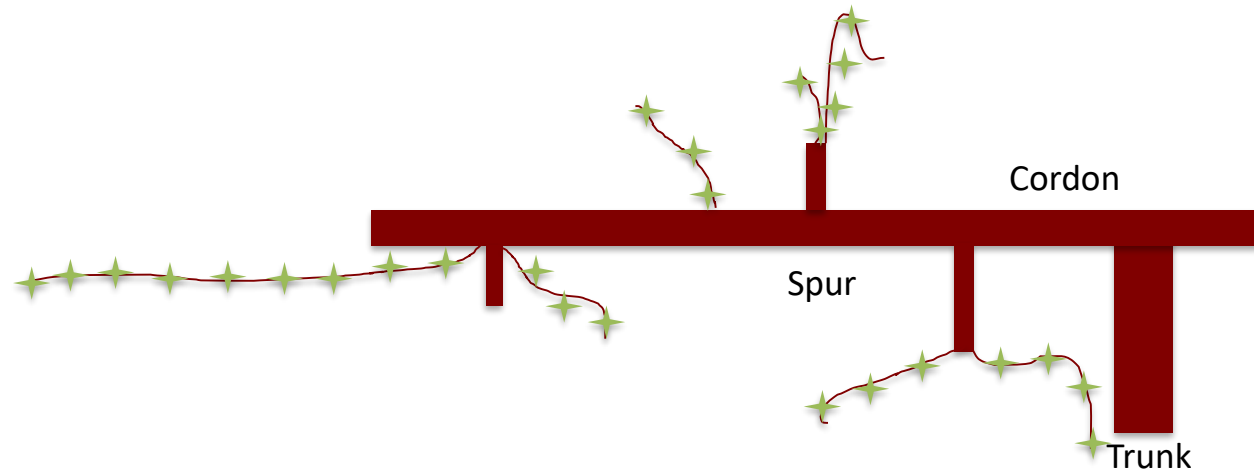
Renovating part of the cordon











Removing dead wood and fruit is important

- In many cases, vine renovation cuts are important to remove dead wood
- However, the goal is eventually not to make a lot of those large cuts

Muscadine Pruning 101:
If your young muscadine vine is
'too crowded'

Take Home

- Long-term goal is to keep healthy permanent wood
- Spurs can grow slowly when pruning close to the cordon
- Make cuts in a way to keep wood healthy (give it 'space' to heal)
- Mechanical pruning is a good option, if rotated with manual pruning as good as possible.

<https://grapes.ces.ncsu.edu/>

<https://smallfruits.org/>

<https://content.ces.ncsu.edu/muscadine-grape-production-guide>

Please follow us on Social Media



@TheVeryBerryLabNCSU



@NCSUberrylab



Thank You

mark.hoffmann@ncsu.edu