

# Muscadine Summer Chores 101

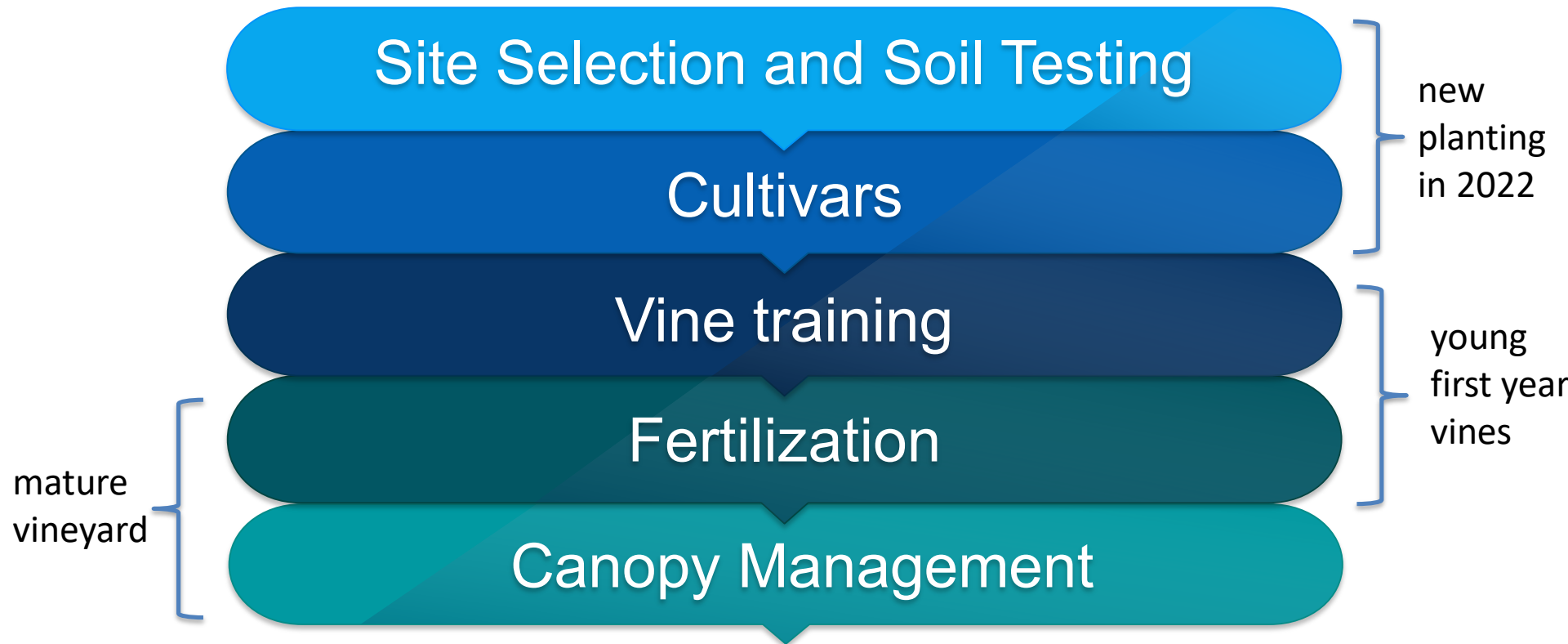


Mark Hoffmann, NC State University

# 3 Things to Worry About

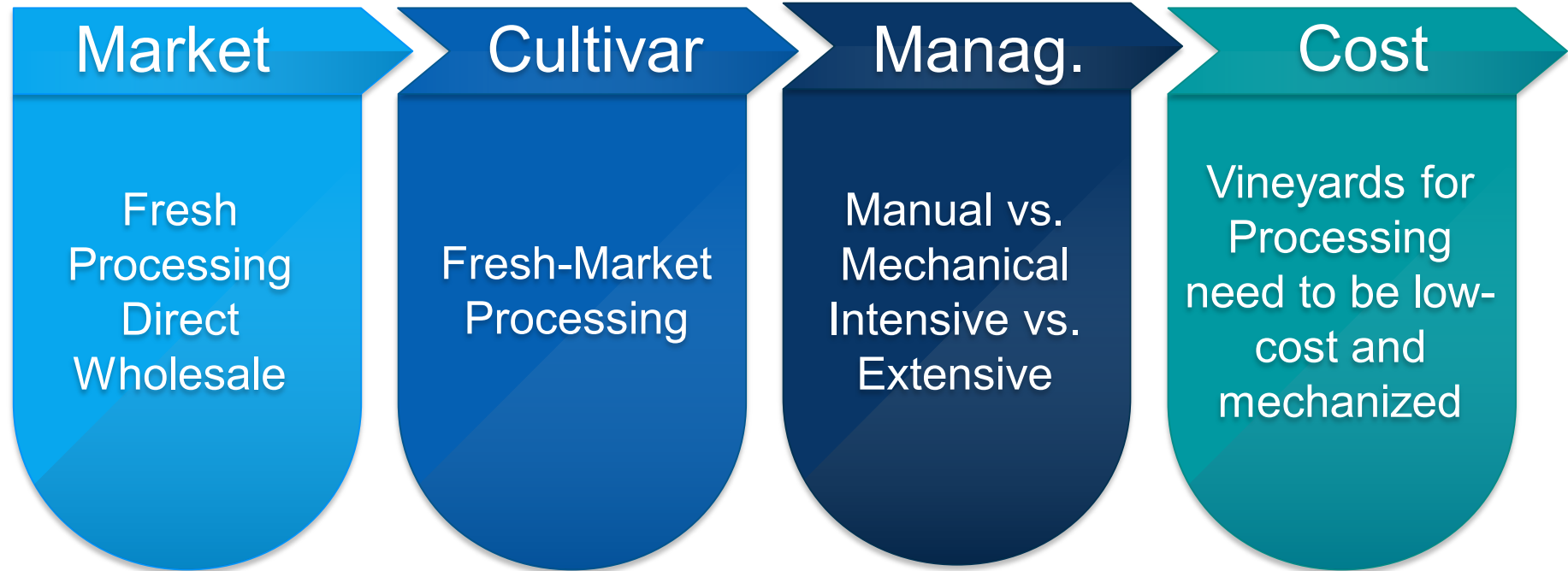
- Do you want to expand next year?
- Young vines in their first year?
- Mature vines?





## Site Selection

**How much costs a vineyard?**



Year 1: Site Selection and Field Prep

Year 2: Planting and Trellis

Year 3: Establishment

Year 4: First Harvest

Market	Management	Upfront Investment	Labor Demand	Returns /acre	Time Scale to profitability
Direct-to Consumer	Intensive + small (1-2 acres) + Food Safety	\$	++	moderate	5-8 years
Whole Sale	Intensive + large + Food Safety	\$\$\$	+++	High	7-10 years
Processing	Low-Cost, large scale, mechanized	\$\$	+	Low	5-10 years
Wine Sales	Low-Cost, mechanized, tasting room; Events;	\$\$\$\$	+++	N/A	7-10 years
Wine Making	Low-Cost, mechanized; Tasting Room, Events; Winery	\$\$\$\$\$\$	++++	N/A	10-12 years

## Rule of thumb

Investment into one acre of muscadine vineyard from establishment (Year 1) to first harvest (Year 3-4)

\$20,000 - \$30,000 / acre



# Long-Term: Revenue > Total Cost

Make a business plan before you start

Set yourself goals

Be realistic!!!!!!!

*Farming needs to be cost-effective;*

*If you lose money, more and more frustration will creep in  
Risking the well-being of yourself, your family and loved-ones.*

# 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

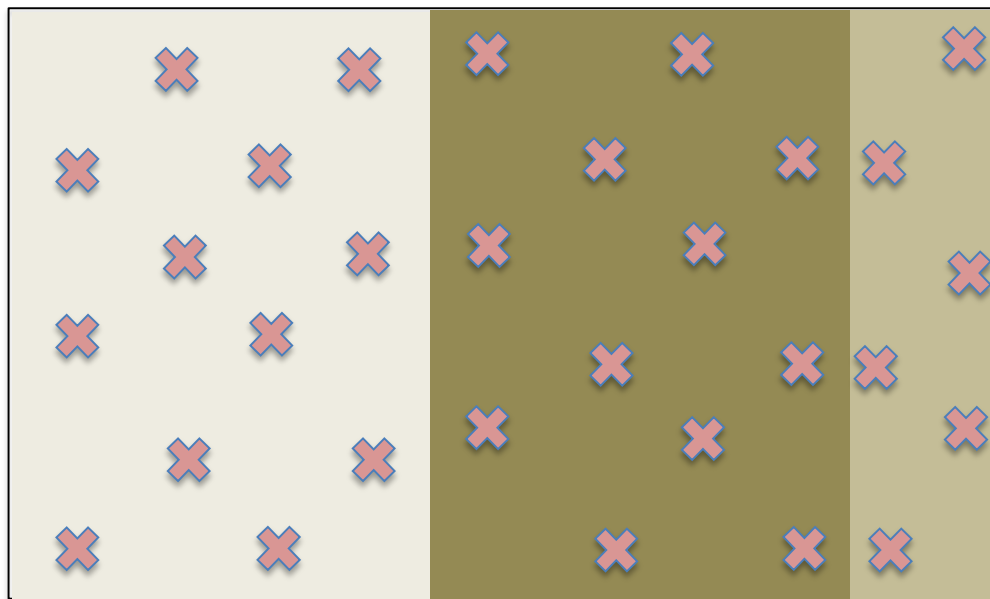
1. **U-Pick:** Easy access for cars; Parking Space; Space of Children/Activity?; Close to a road/busy neighborhood;
2. **Processing:** Easy access for heavy machinery; Turnaround space for heavy machinery; Even growth; Sturdy trellis and post;

## 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](http://www.ncagr.gov/agronomi/sthome.htm)

**Optimal pH: 6.0-6.5**

**Optimal P in soil 30 ppm of P**

**Adjust pH based on Soil Samples**

Lime (not Gypsum)

**Incorporate in the summer BEFORE posts  
and planting**

### 3. Water Drainage

Photo Courtesy:  
Connie Fisk





# Standing Water is a red flag

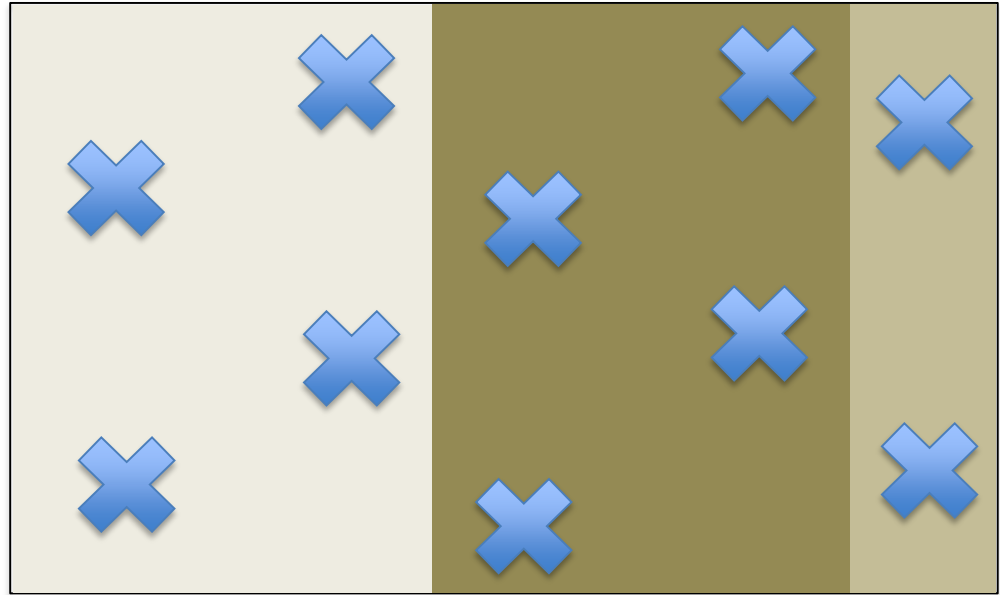
- Standing water or bad/no drainage will cause low growth and disease problems down the line. Don't plant!

# Evaluate Field with Auger

Evaluate field

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

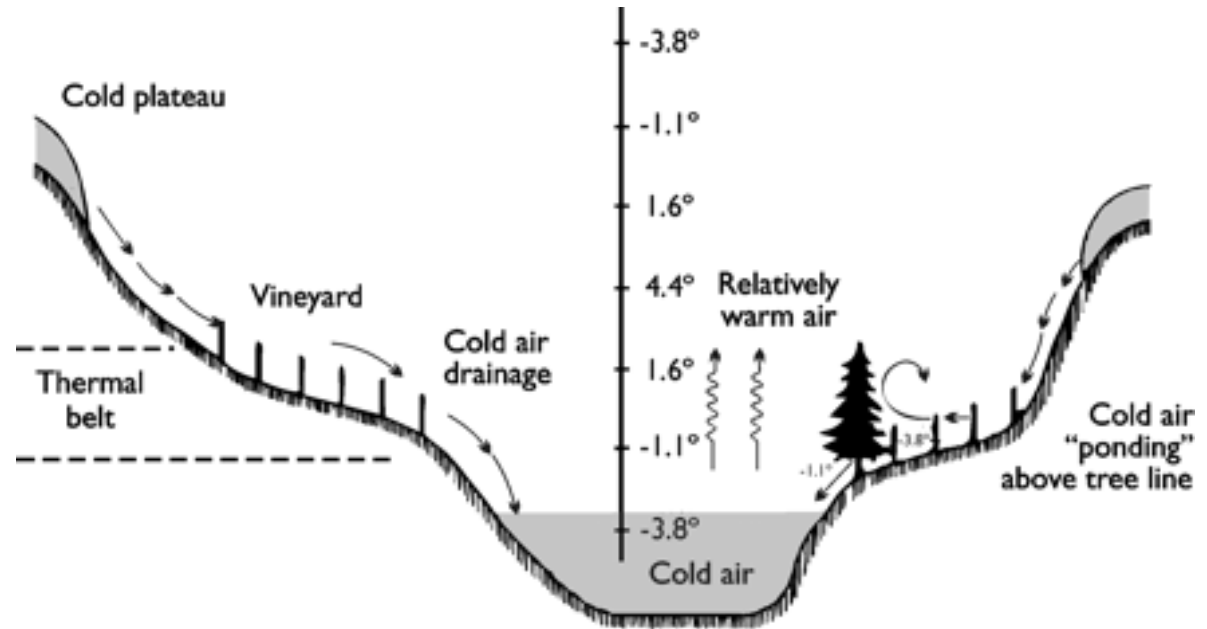
Summer before planting



## 4. Air Drainage

Evaluate field

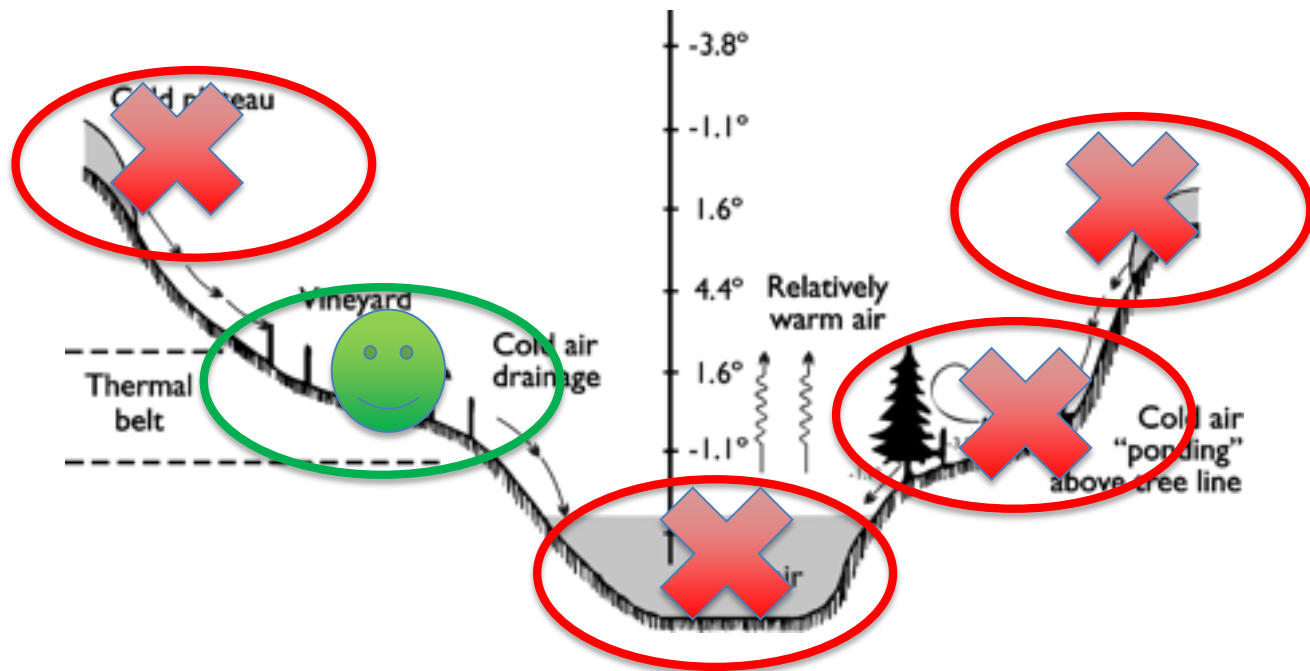
- Vineyards need two things:
- **Sunlight**
- **Air Drainage**



# If planted in the wrong spot

Increased risk of:

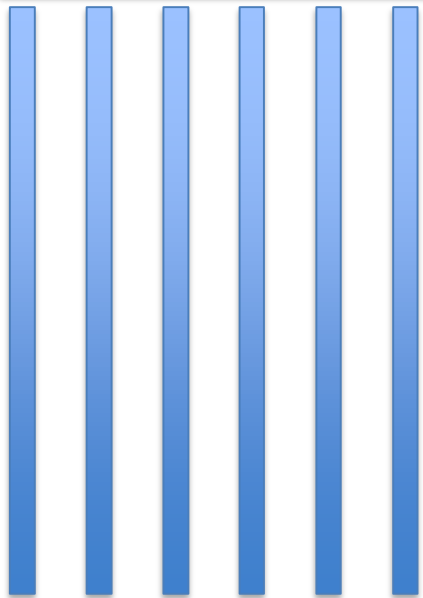
- Dead plants
- Split Trunks
- Frost Damage



# One more thing: Turn Around

Turn Around Space

30 -40 ft



Turn Around Space



## Cultivars

- Muscadine cultivars are either female or self-fertile (perfect flower)
- Male muscadines are not used in commercial production, and are often not/less fruitful
- All female cultivars need a self-fertile pollinator



Figure 2. Close-ups of male, self-fertile ("perfect"), and female muscadine flower clusters (photos by Patrick Conner).

4 | Muscadine Grape Production Guide for the Southeast

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



# Don't sell wine/juice cultivars for fresh consumption

- **Wine/juice Cultivars:** High yields, high sugar, small berry size, wet picking scar, poor eating quality!
- **Fresh-Market:** large, firm, dry picking scar, high eating quality! Can also be used for wine/juice.

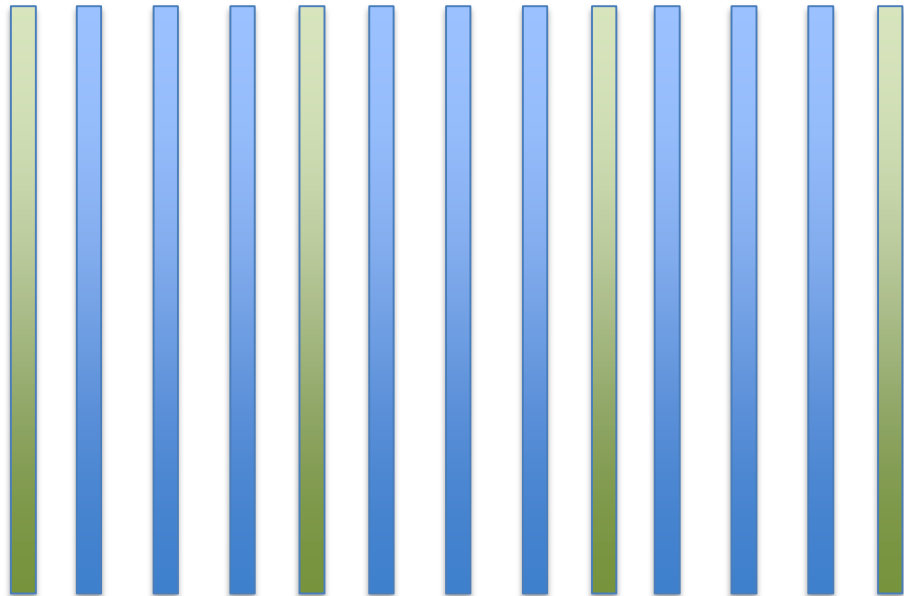
Photo  
courtesy:  
Dr. Patrick  
Conner,  
University  
of Georgia





# Female vs. Self-Fertile

Rule of thumb: 1:3 ratio  
(**self-fertile** : **female**)



# Dark Fresh-Market

Season	Cultivar	Flower type
Early	Lane	Self-fertile
Mid	Supreme	Female
Mid	Ison	Self-fertile
Mid	Black Fry	Female
Mid	Paulk	Self-fertile
Late	Nesbitt	Self-fertile

# Bronze Fresh-Market

Season	Cultivar	Flower type
Early	Hall	Self-fertile
Early	Triumph	Self-fertile
Mid	Tara	Self-Fertile
Mid	Fry	Female
Late	Late Fry	Self-fertile

# Processing Cultivars

Color	Cultivar	Flower type
Dark	<b>Noble</b>	Self-fertile
Bronze	<b>Carlos</b>	Self-fertile
Bronze	<b>Doreen</b>	Self-fertile
Bronze	<b>Magnolia</b>	Self-fertile



Photo courtesy:  
Dr. Patrick Conner, University of Georgia

# Planting Rules:

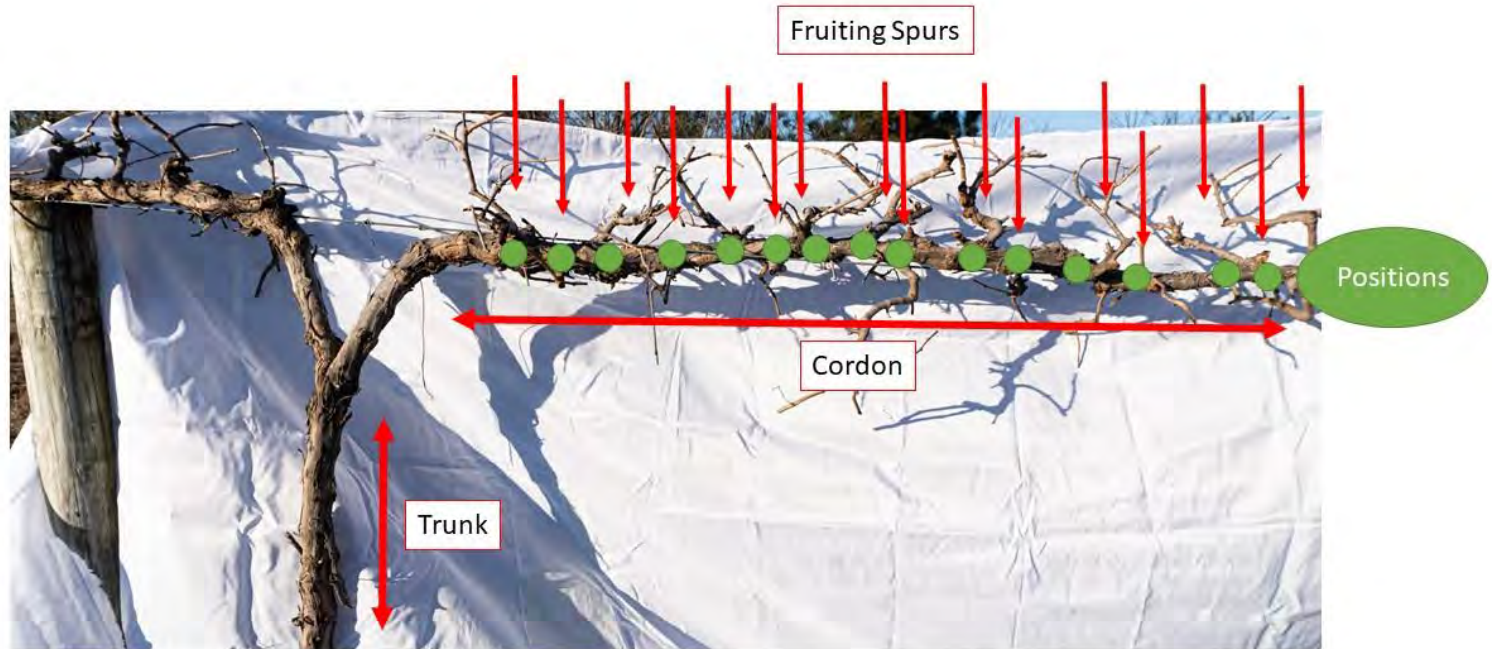
- Planting always in Spring of Year 2 after the last frost
- Young plants need **frequent water and fertilizer**
- Amount of water and fertilizer depends on soil type
- Clay/Loam soils: Less water/fertilizer than Sandy soils
- Min: 10-11 ft row spacing
- Cultivars such as Paulk or Ruby Crips needs to be ordered **late Summer**

# Training

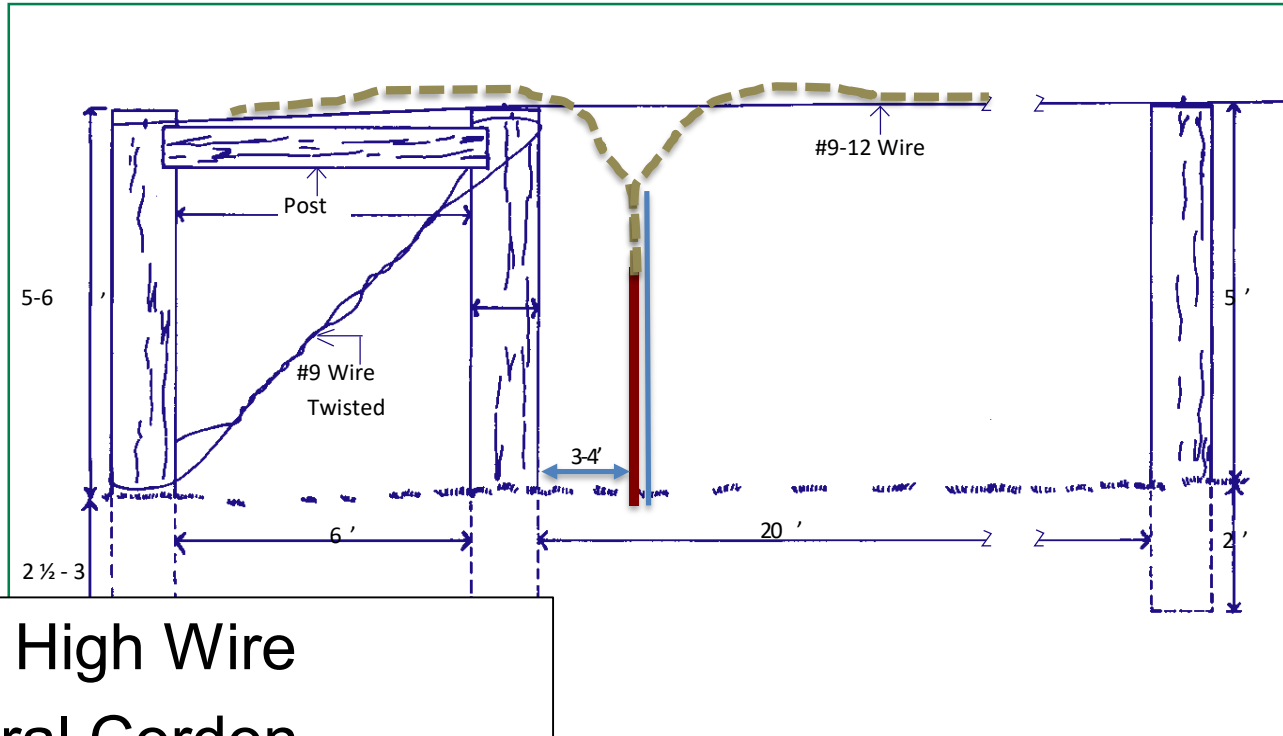


Photos by Emma Volk and Mark Hoffmann





- Trunk: Structure from root system to wire
- Cordon: Arm along the wire
- Spurs: Structures established on positions along the cordon, bearing one-year old wood



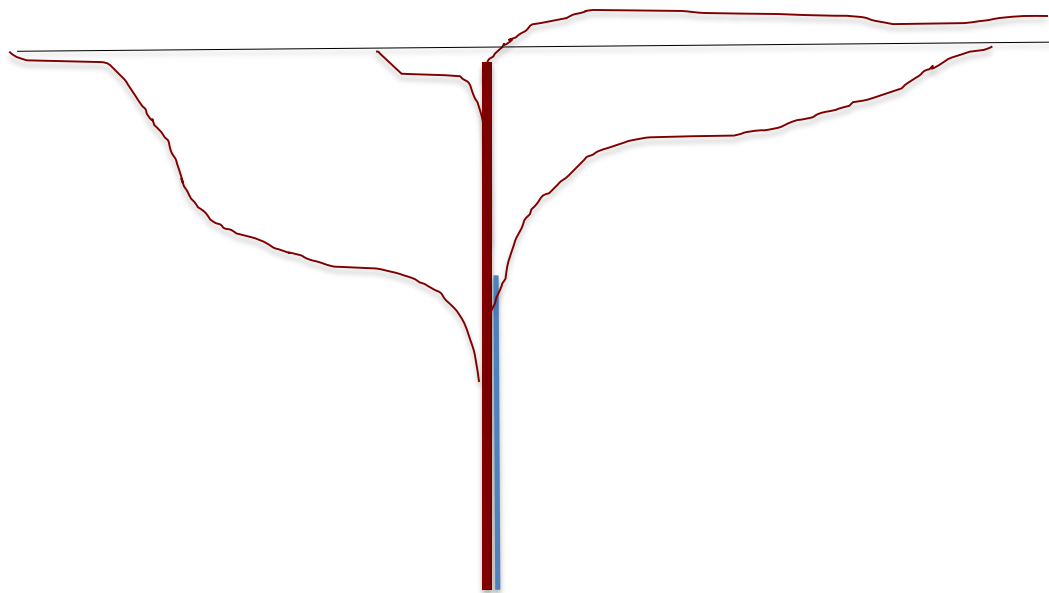
- Single High Wire
- Bi-lateral Cordon
- Spur Pruning System



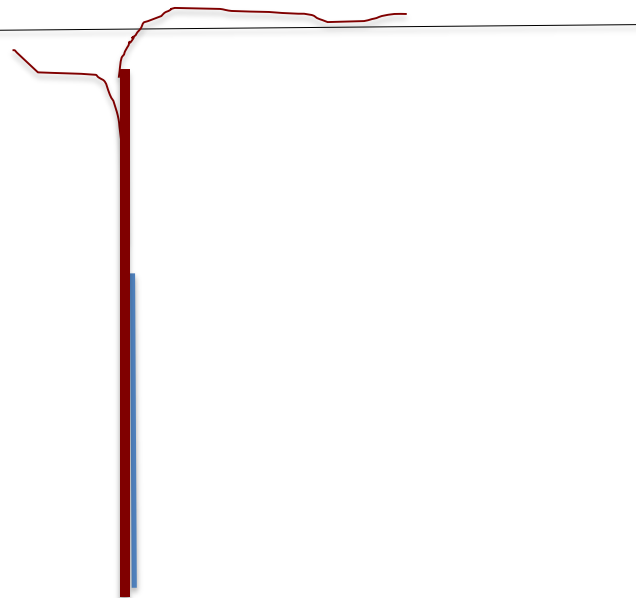


Photos by Emma Volk and Mark Hoffmann

Good vigor

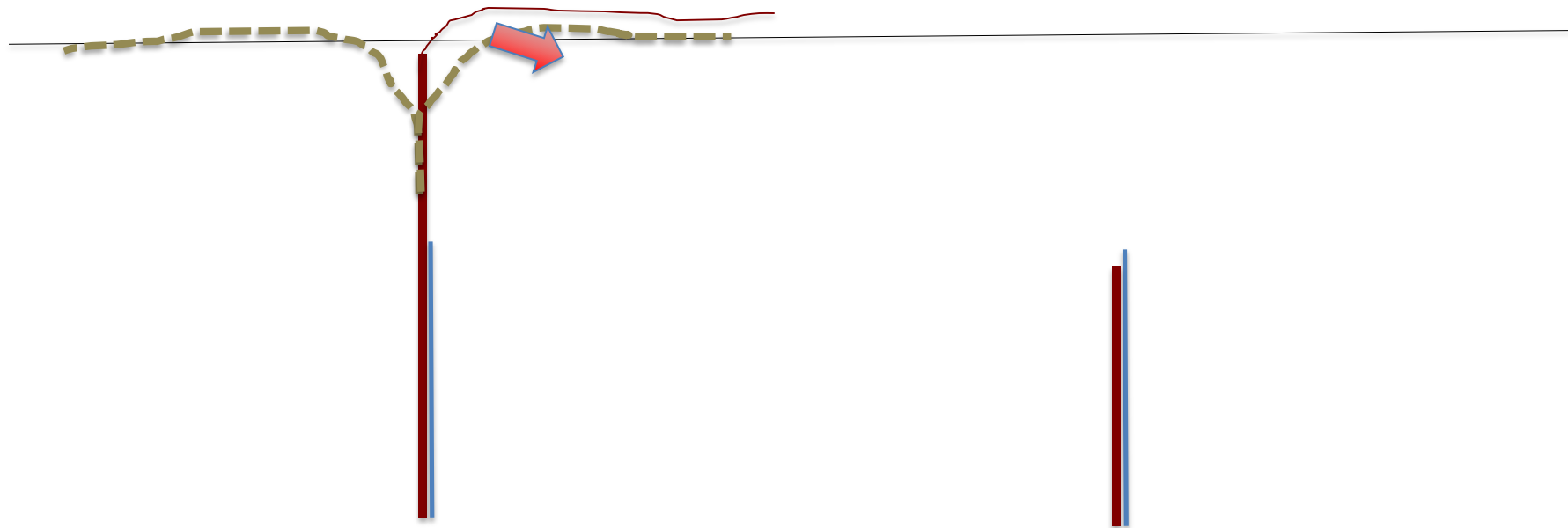


Weak vigor

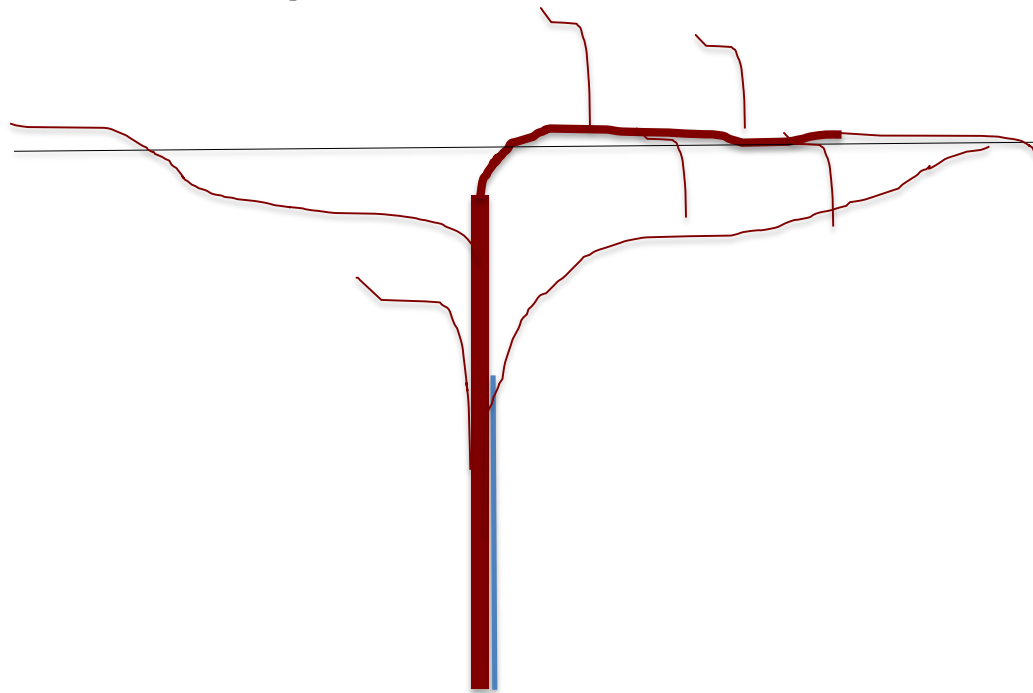


Good vigor

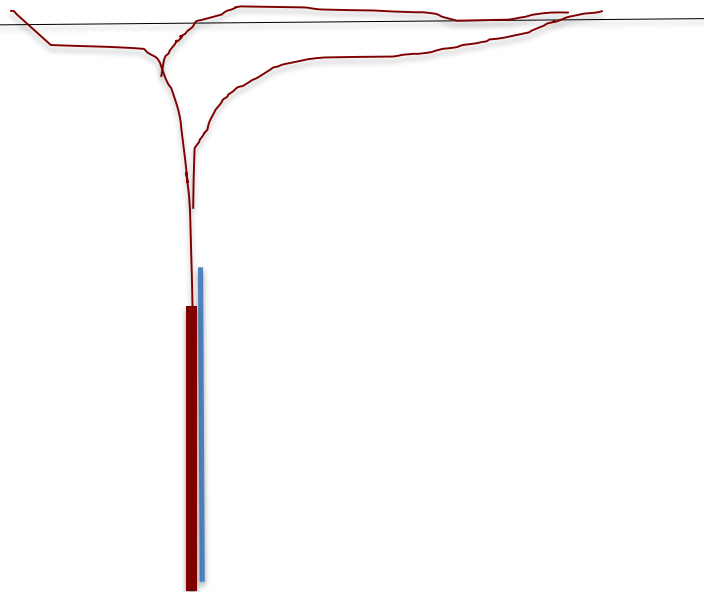
Weak vigor



Good vigor

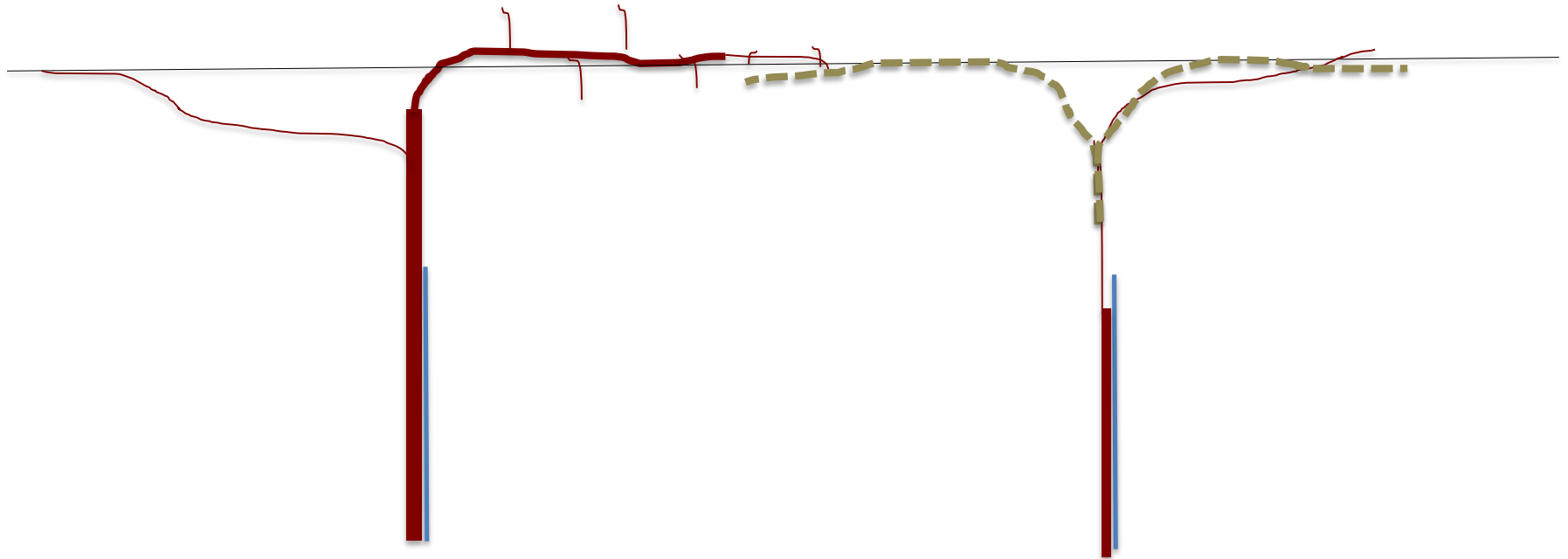


Weak vigor



Good vigor

Weak vigor



# Fertility

## Fertility

- Soil and plant nutrient testing: Routine task (every spring!!!)
- Whole leaf samples (60-80) should be collected and send to a tissue nutrient testing service during bloom

**Table 5. Appropriate levels of nutrients based on leaf analysis during bloom (Poling et al. 2003)**

Element (Unit)	Optimal Range
Nitrogen (%)	1.65–2.15
Phosphorus (%)	0.12–0.18
Potassium (%)	0.8–1.2
Calcium (%)	0.7–1.1
Magnesium (%)	0.15–0.25
Boron (ppm)	15–25
Copper (ppm)	5–10
Iron (ppm)	60–120
Manganese (ppm)	60–150
Molybdenum (ppm)	0.14–0.35
Zinc (ppm)	18–35

- Apply fertilizer 2-3 times per year, not later than June
- Use Calcium Nitrate, Ammonium Nitrate, or full-spectrum fertilizer



Vine Age	Irrigation	Fertilizer	Timeframe
First Year	Yes	Every 3-4 weeks, starting 2 weeks after planting	Planting – August
Year 2	Yes	Every 2 Months	April – August
Mature	No	2 times per year	April - June

- First year: Fertilize in a 12-18 inch circle around the plant
- Second year: increase the circle, fertilize less frequent, keep plant irrigated if longer stretches without rain

# Management

## Summer Vineyard Management

- Fertilizing
- Weed Control (chemical and mowing)
- Hedging and Skirting;
- Disease and Pest Control

- Minimize competition for resources (especially young plantings)
- Give access to crew and machinery.
- Avoid the build up of pest populations.
- Herbicide Resistance is a problem.

Vine Age	Vine Shelter ('Growtube')	Summer
First Year	Yes	Otyzalin + Paraquat; Fusalide, Poast or Clethodium
Year 2	Yes	Glyphosate, Paraquat, Glufosinate, Poast
Mature	No	Paraquat, Glufosinate, Poast

<https://smallfruits.org/>







# Insect Pests

- Scout for Root Borer. Use root borer pheromone traps (1 trap/2acres of vineyard).
- Scout for stink bugs, beetles etc. Spray if necessary (especially in fresh-market operations)



# Canopy Management

- Skirting is the process of trimming vine growth to increase air flow and avoid herbicides from damaging the vine.
- Skirting should be done in late Summer, when vines become vigorous.
- Vine canopy should be skirted Knee High



- Hedging is the process of cutting the growth at the top and sides of the vines
- Hedging allows more air flow into the canopy
- Hedging allows harvest machines or picking crew to go through the vineyard more efficient
- Hedging should be done shortly (1-2 weeks before harvest)

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

<https://smallfruits.org/>

[https://content.ces.ncsu.edu/muscadine-grape-  
production-guide](https://content.ces.ncsu.edu/muscadine-grape-production-guide)



# Thank You

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