

# Growing Grapes in the North





# Answers for Questions

- Site Selection
- Wine or Table or Both
- Which Varieties to Plant
- Planting, Trellis, etc.....
- How To Prune and Train
- Disease and Insect Problems
- Harvest

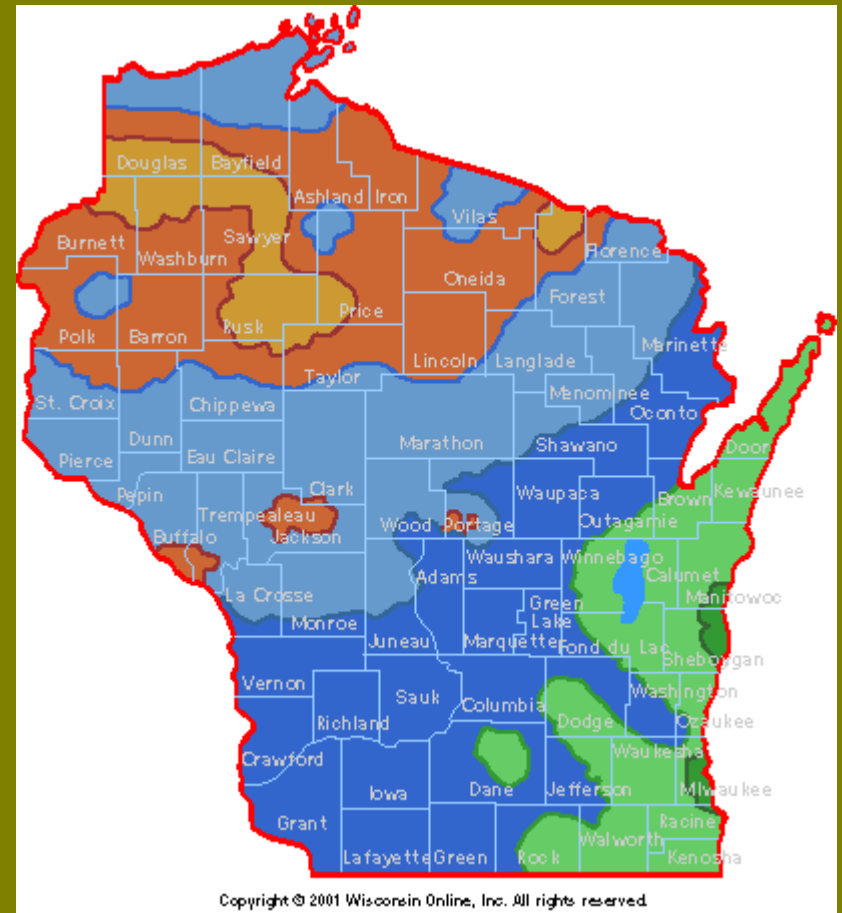


# Site Selection

- Soil and topography
  - Well-drained loam, pH 6.0-7.2
    - 125-150ppm  $K_2O$ , 30-50ppm  $P_2O_5$
  - SE-SW facing slope
    - Air drainage down slope to open area
    - Avoid cold air traps at bottom of slope
    - Avoid sheltered areas with little air movement
      - Disease and insect problems
  - Frost free season of 140-150 days
    - 2000 Heat Units 50F
    - Lowest temps. -10 to (-15) °F is ideal, -20 °F tolerable
    - Global warming, climate change?

# Plant Hardiness Zone

- Plant Hardiness Zone
  - 4a -25 to -30 °F
- 1700 GDD
- Growing Season
  - 51 to 106 days
- Last Spring Frost
  - June 16<sup>th</sup>
- First Fall Frost
  - September 2





# Wine or Dine

- Wine

- Numerous hardy varieties to choose from
- White or red wine
- Quality dependent on
  - Growing conditions
  - Cropload management
  - Training system

- Table

- Seedless varieties both blue and red
- Somewhat reduced hardiness
- Easy to grow
- Unique flavors and qualities
- Juice options for some seeded varieties



# Table Grape Varieties

- Red Seedless Varieties
  - Reliance (Arkansas)
  - Einset (New York)
  - Vanessa (Ontario)
  - Canadice (New York)
  - Petite Jewel (Wisconsin, Swenson)





# Reliance

- Vines are hardy and vigorous
- Early ripening
- High production potential
- Medium sized cling skin berries
- Mild flavor and good quality
- Variable fruit color if shaded
- Consistent performance
- Hardy -15 to -25 °F



Table Grape



# Einset

- Vines are hardy with moderate vigor
- Early ripening after Reliance
- Medium sized berries, slightly thick cling-slip skin
- Mild flavor, strawberry after taste
- Production level variable
- Good storage potential
- Hardy -15 to -25 °F



Table Grape



# Canadice

- Vines are hardy, moderate vigor
- Sets heavy crops limiting vigor
- Ripens with Einset
- Medium sized berries slip skin tendency, somewhat soft flesh
- Good quality, similar flavor to Delaware. Labrusca (foxy) flavor
- Cluster thin to maintain vigor
- Hardy -10 to -20 °F



Table Grape



# Vanessa

- Moderately hardy, vigorous vines
- Prefers well-drained fertile soils
- Early ripening with Einset
- Medium sized berries, thin skinned cling skin with very firm crisp flesh
- Production and vigor site dependent
- Very high quality and storage life
- Hardy -15 to -25 °F



Table Grape



# Petite Jewel

- Very hardy, moderate vigor vine
- Ripens with or before Reliance
- Berries small-medium size
- Firm flesh, fruity-spicy flavor
- Small loose clusters
- Very consistent performer for harsh winter conditions

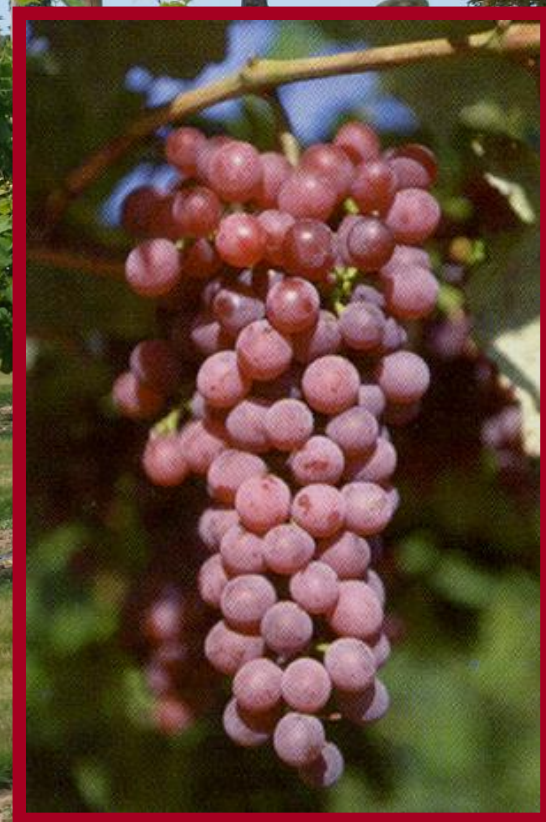


Table Grape



# Table Grape Varieties

- White/Green Seedless
  - Marquis (New York)
  - Himrod (New York)
  - Romulus (New York)





# Marquis

- Vines are hardy of moderate vigor
- Ripens with, - slightly after Vanessa
- Large round berries borne in long loose clusters
- Skin thickness reduces with maturity
- Good production; slow to establish?
- Best green for Midwest?
- Long maturity

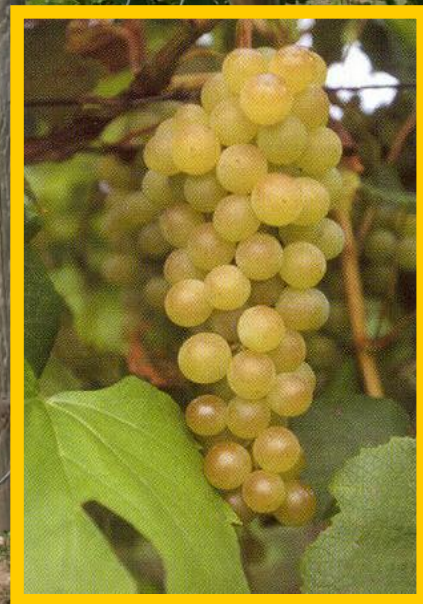


Table Grape



# Himrod

- Moderately hardy and vigorous
- Medium sized cling skin berries
- Ripens with Einset
- High quality fruit and flavor
- Excellent storage potential
- Hardiness is still questionable for reliable production

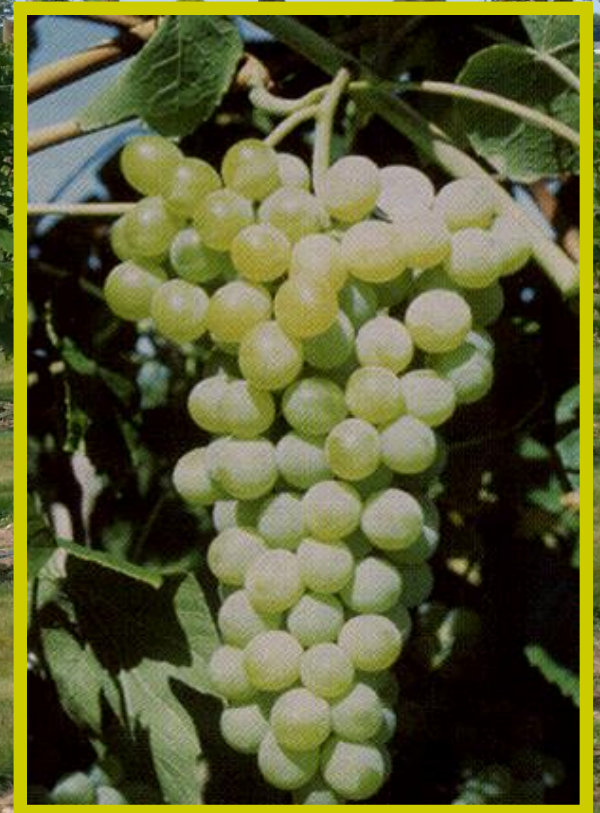


Table Grape



# Romulus

- Hardy to moderately hardy vine
- Ripens late, after Marquis
- Small cling skin berries in large long clusters
- Quality is very good with good storage potential
- Needs long season to mature

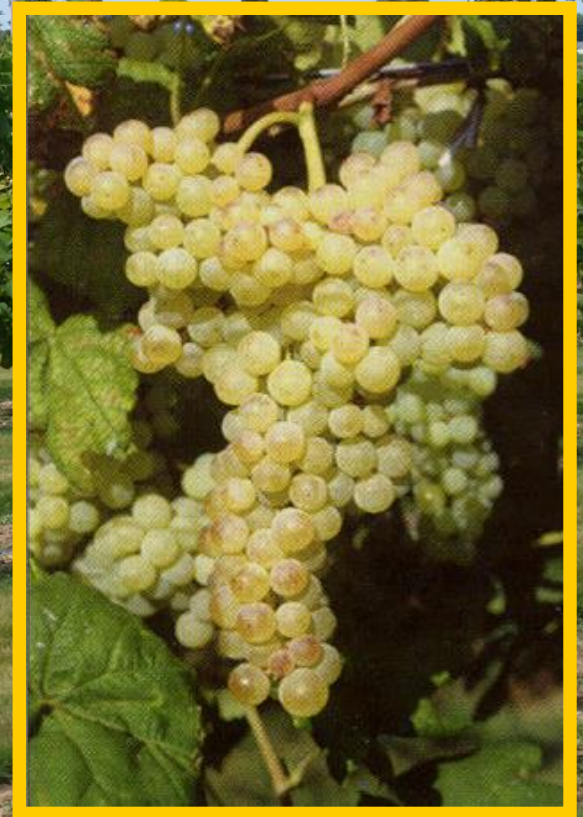
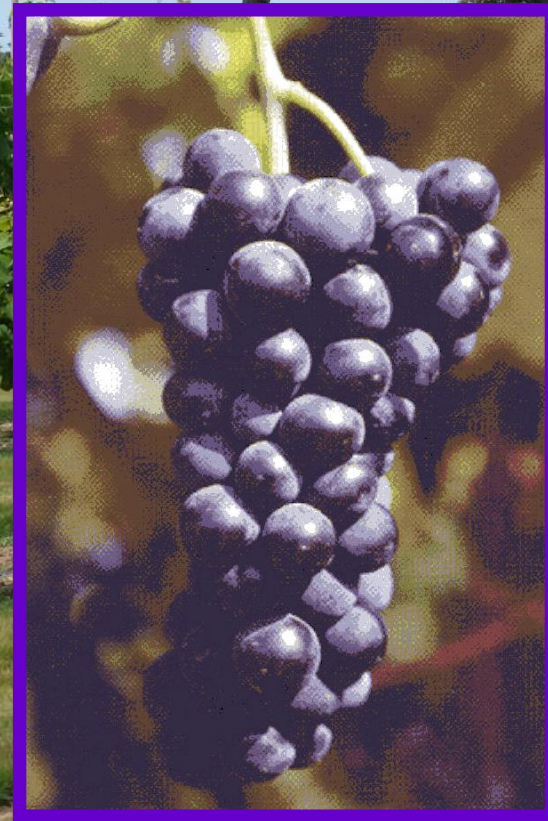


Table Grape



# Table Grape Varieties

- Blue seedless
  - Trollhaugen
  - Mars





# Mars

- Hardy vigorous vines
- Early – midseason maturity
- Medium-large, slip skin berries, somewhat thick skinned
- Concord type flavor, good quality and storage potential
- Very productive and reliable



Table Grape



# Trollhaugen

- Very hardy vines of moderate vigor
- Early maturity before Mars
- Small, thin skinned slip skin berries
- Excellent mild Concord flavor for fresh market sales
- Very productive and reliable with good storage potential
- Excellent for harsh winter conditions

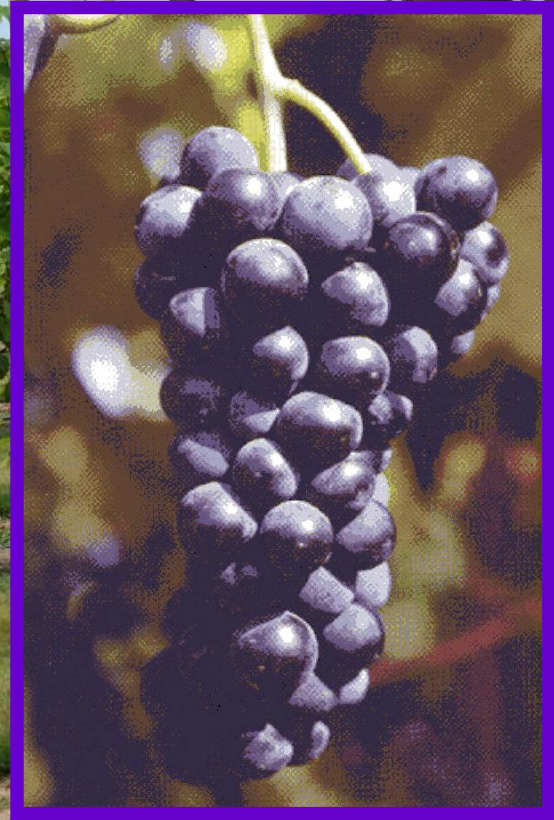


Table Grape



# Seeded Varieties

- Buffalo
  - Concord type, hardy, vigorous, early maturity
  - Large fruit of excellent quality
- Swenson Red
  - Red variety, very hardy, late maturity
  - Large fruit, firm, excellent quality, needs heat
- Bluebell
  - Concord type, early maturity
  - Very hardy
  - Reported as best juice variety
- Concord
  - Old favorite
  - Very hardy, very vigorous,
  - Needs heat and long season



# Wine Varieties

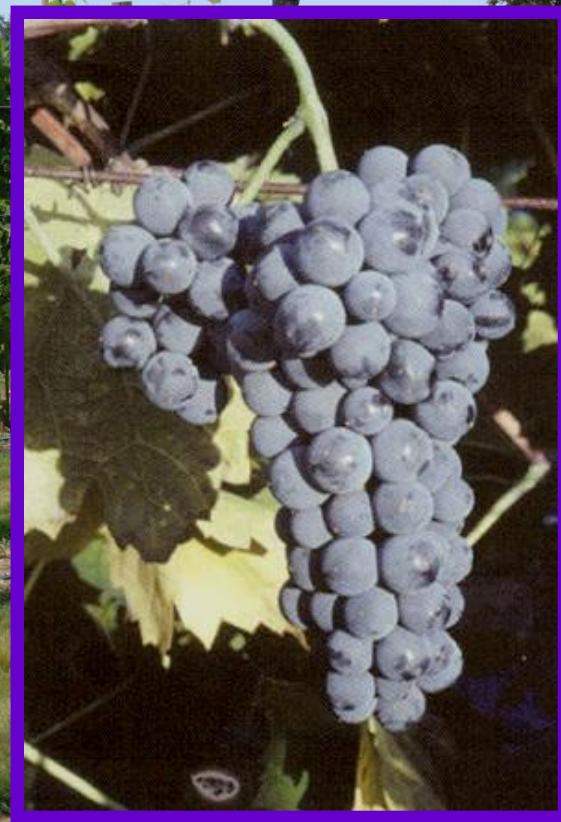
- Red Wine
  - Foch
  - St. Croix
  - Frontenac
  - Leon Millot
  - Marquette
  - Baltica
  - Petite Pearl
- White Wine
  - La Crescent
  - La Crosse
  - St. Pepin
  - Frontenac gris





# Marechal Foch

- Very hardy vines
- Low to moderate vigor
- Early maturity
- Weak in character and flavor
- Used in blends



Red Wine Grape



# St. Croix

- Very hardy vines
- Moderate vigor
- Matures early
- Non-labrusca character
- Very productive
- Popular wine variety in MN



Red Wine Grape



# Frontenac

- Very hardy MN introduction
- Vigorous and very productive
- Good disease resistance
- Susceptible to Grape Phylloxera
- High sugar 24-28%
- Very high acid
- Matures early October
- Deep red color for ports



Wine Grape



# Leon Millot

- Hardy, vigorous vines
- Ripens before Foch, early season
- Produces good quality Burgundy
- Very productive
- Relatively disease free
- Good choice in short season area



Red Wine Grape



# Marquette

- Very hardy MN introduction
- Moderate vigor
- Production levels of 3T/A
- Matures mid-late September
- High sugar high acid
- Good disease resistance



Red Wine Grape



# Baltica

- Introduction from Estonia
- Parentage: *V. amurensis*, *V. labrusca*, *V. riparia*, and *V. vinifera*
- Long loose clusters
- Small sized berries (2 g)
- Disease resistant except P. mildew
- Makes a light red to full complex red wine, climate dependant
- Excellent variety for short growing season



Red Wine Grape



# Petite Pearl

- Introduction from MN Breeder Tom Plocher
- Matures mid-September to early October in MN
- Compact cluster with small berries
- Breaks bud late (frost protection)
- Disease resistant to P. mildew, D. mildew, and black rot
- High tannin levels and low in TA

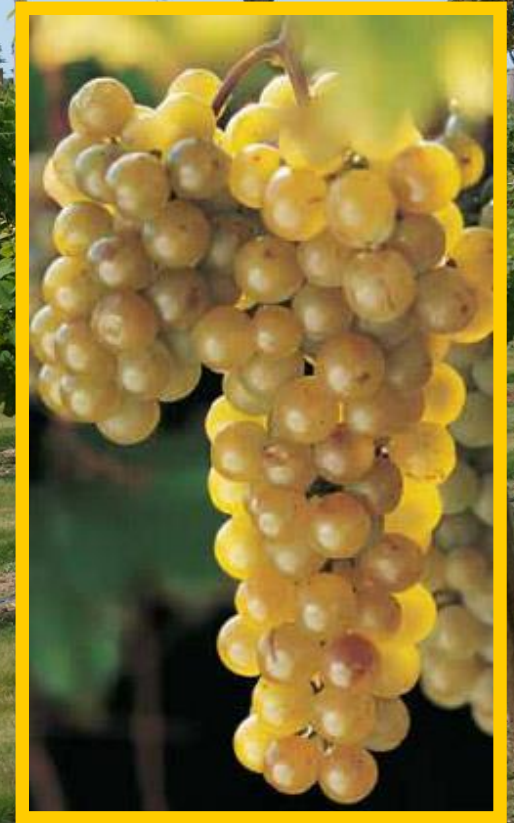


Red Wine Grape



# La Crescent

- Very hardy
- Vigorous and productive
- Resembles Vignoles in flavor
- High acid/High sugar
- Low disease susceptibility
- Matures late September

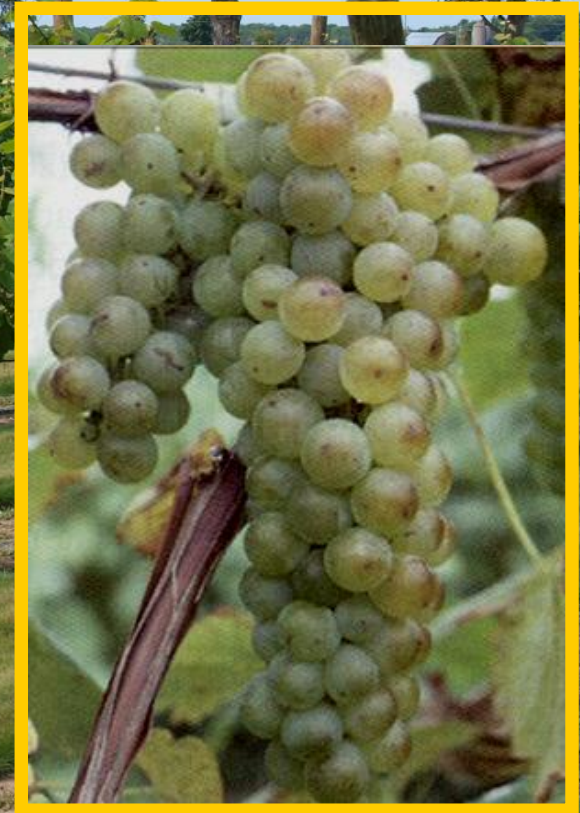


White Wine Grape



# La Crosse

- Very hardy vines, moderate vigor
- Early midseason maturity
- Produces fruity non-labrusca wine
- Very productive
- Unique flavor even as a table grape
- Consistent producer



White Wine Grape



# St. Pepin

- Very hardy, vigorous vines
- Midseason maturity
- Pistillate type needs pollinator
- Produces fruity Riesling type wine
- Moderate production
- Blends well and pollinates with La Crosse
- Like La Crosse is a good table grape

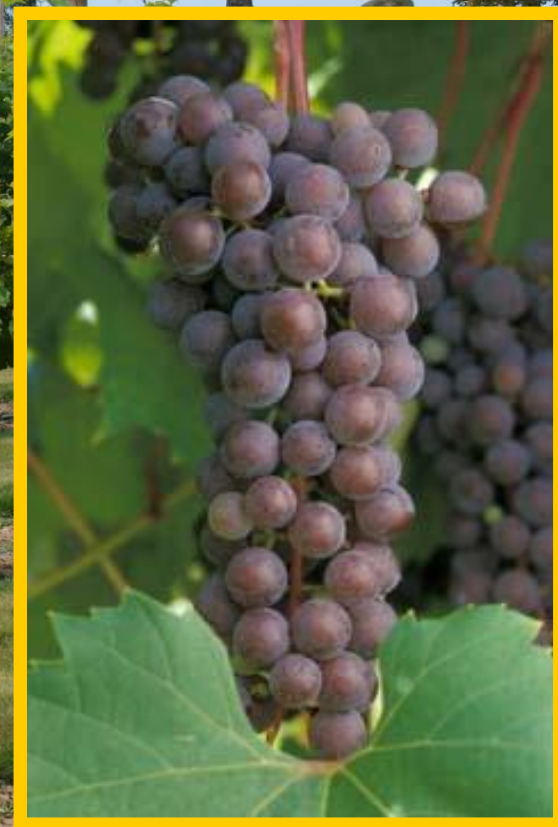


White Wine Grape



# Frontenac Gris

- Bud sport of Frontenac
- Same viticultural characteristics as Frontenac
- Late midseason 24 to 25° Brix (MN)
- Peach, apricot, and tropical aromas



White Wine Grape



# Planting

- Select N-S row orientation
- Spring plant into well tilled weed-free soil
- Row spacing greater than trellis height
- Plant spacing 6-8' apart
- Root prune vs. plant all roots
  - Excessively long roots cut back to 18"
  - Prevent twisting and entangling of roots
- Avoid using an auger
- Plants pruned back to 2-3 expanding buds
  - Best done after bud swell

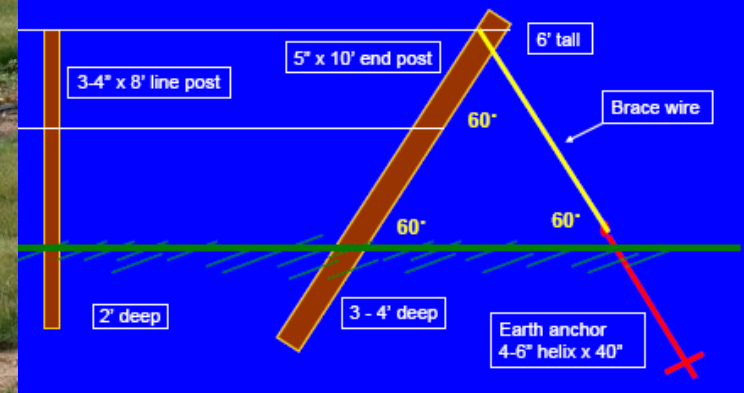


# Trellis Construction

- Trellis responsible for vine + crop weight
  - Provides platform for pruning and training
  - Needs to function for 20-25yrs.?
  - Construct once and only once
- In place year one preferred
  - Wire available for initial shoot
  - Keep canes off of ground
- Training systems for trellis
  - Cane pruning
  - Spur(2-3 bud cane) pruning

## Anchored End Post System with an Earth Anchor

Suitable for rows up to 600 ft, but this is affected by soil texture and anchor's helix diameter.





# Major Trellis Components

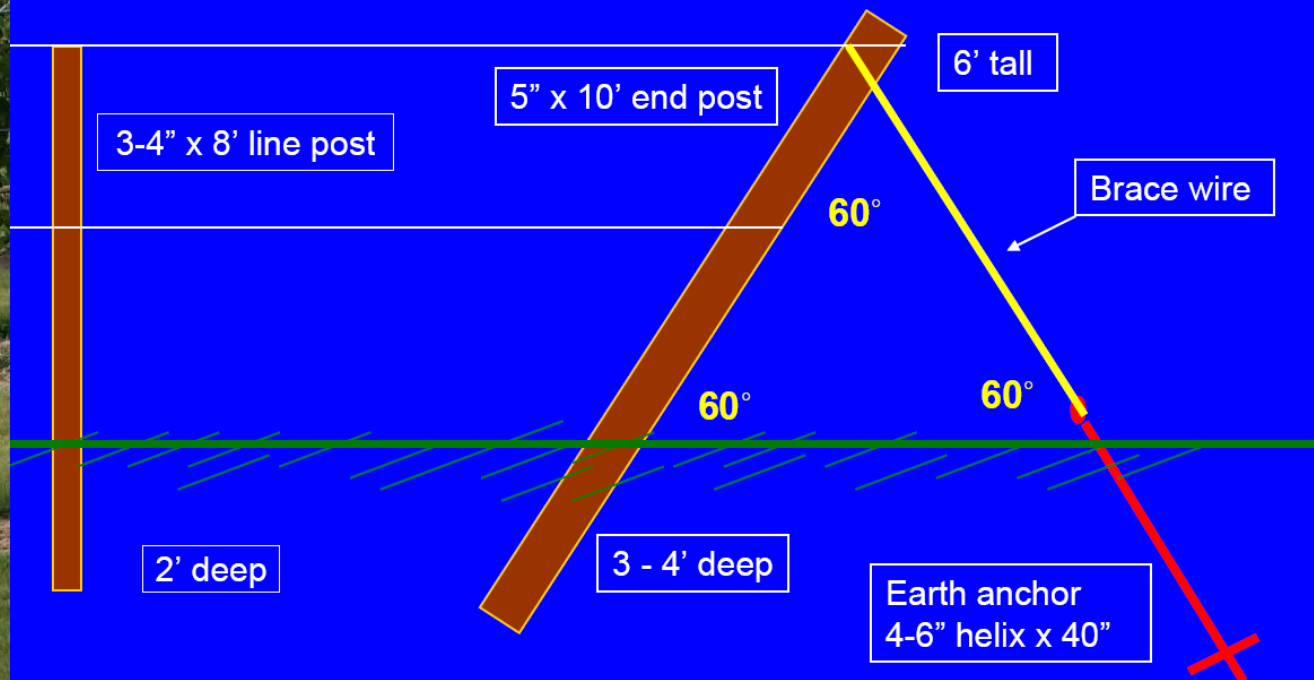
- **Posts: Wood (preferred), steel, or other material**
- **spaced 21, 24 or 28 ft apart**
  - – Dependent on vine spacing
- **• Strong end-post design**
  - – Anchored: earth anchor, tie-back post, or deadman
- **for rows less than 600 ft.**
- **– Braced: H-brace or slant brace for rows over 600 ft.**
- **• High-tensile galvanized steel wire-12 gauge**
  - – High cordon, or Kniffen: 1 to 3 wires
  - – Vertical shoot positioning: 5 to 7 wires
  - – Geneva Double Curtain: 3 or 4 wires



# End Post

## Anchored End Post System with an Earth Anchor

Suitable for rows up to 600 ft, but this is affected by soil texture and anchor's helix diameter.

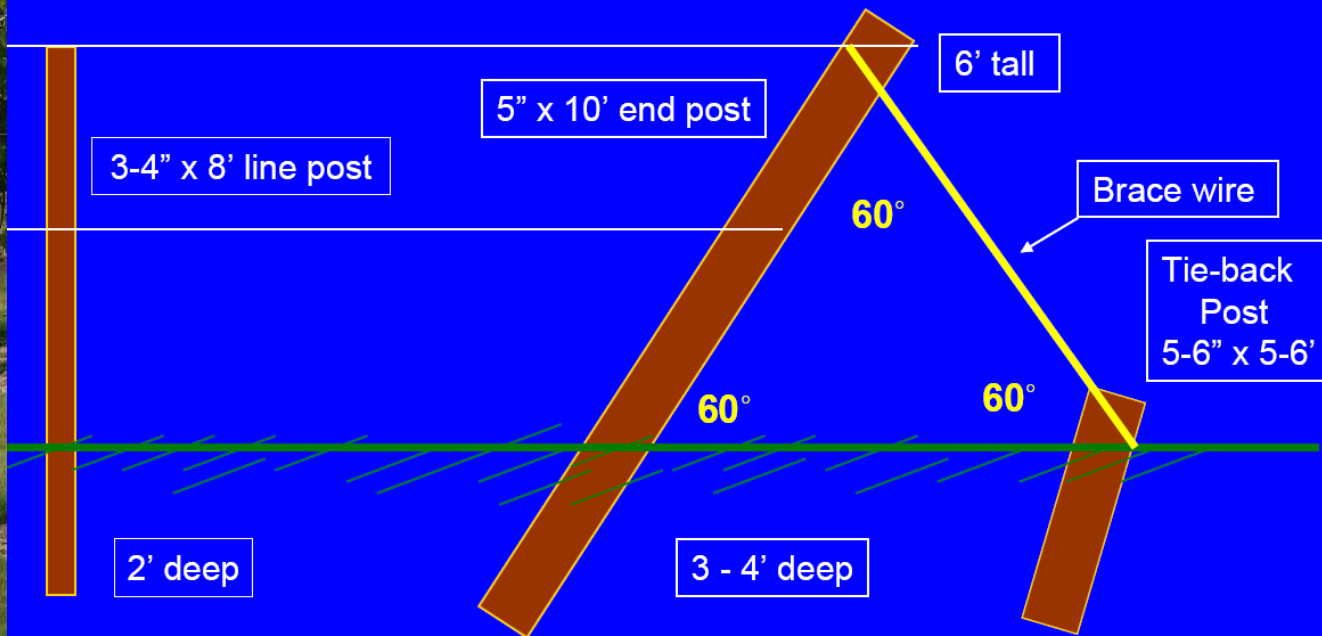




# End Post

## Anchored End Post System with a Tie-back Post

Suitable for rows up to 600 ft. Cost of materials will often determine whether an earth anchor or tie-back post is used.

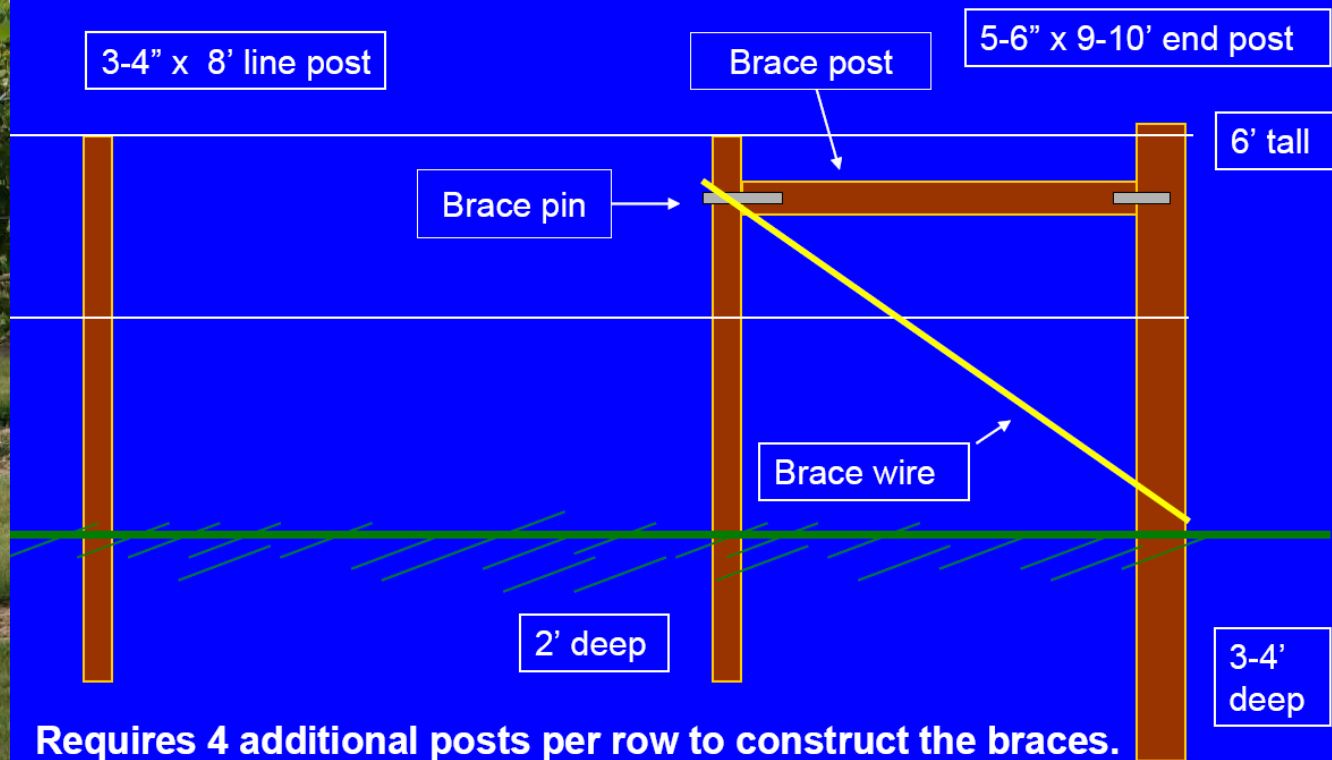




# End Post

## H-Brace End Post System

Required for rows over 600 ft





# Line Post

**Line Post**  
**Should be positioned between vines**

3-4" x 8' line post

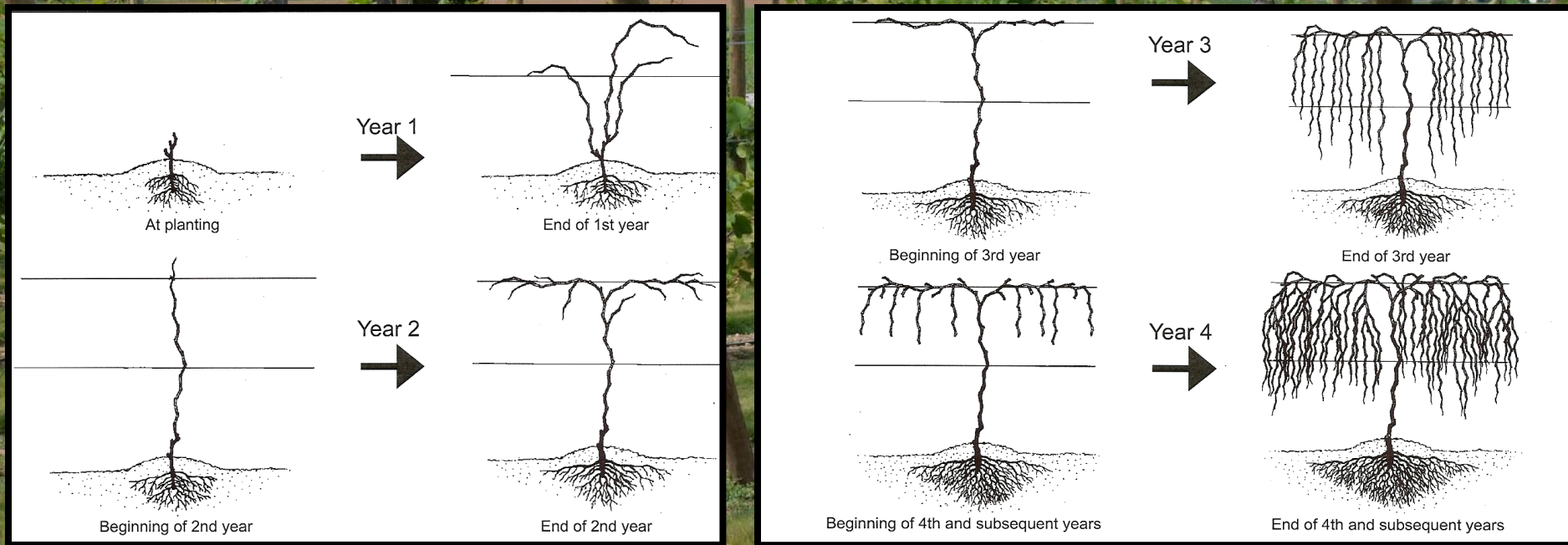
2' deep





# Pruning and Training

## Initial Pruning from planting to fruiting

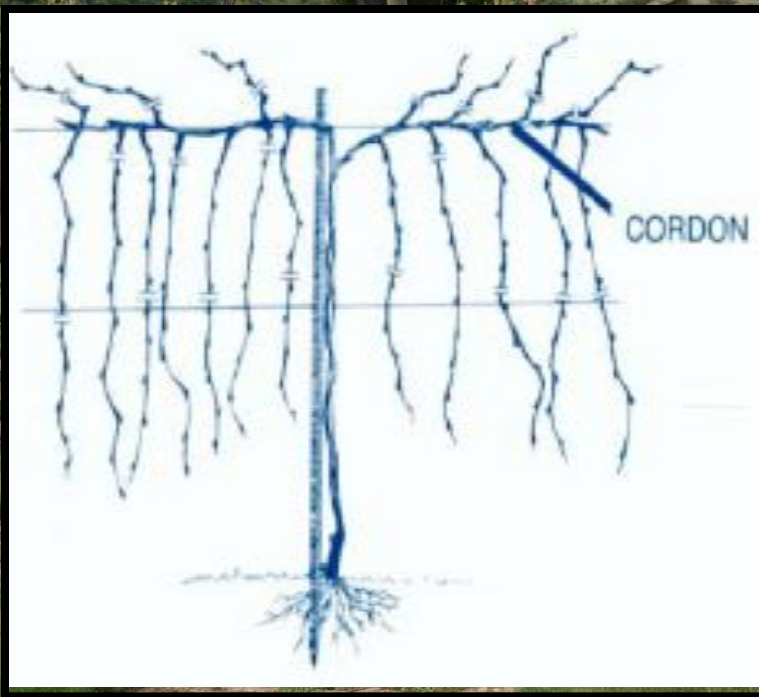


**High Bi-Lateral Cordon**  
Relies on downward combing of new growth



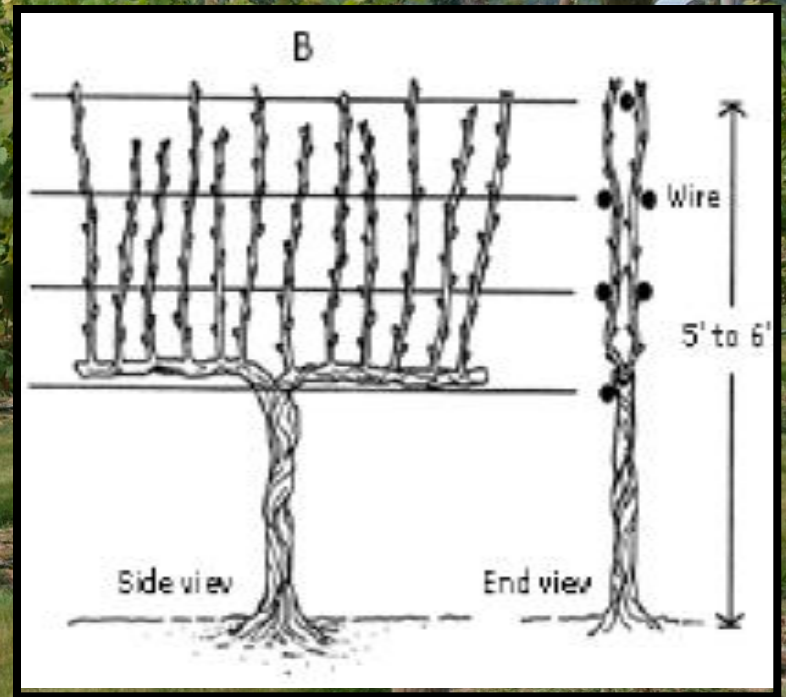
# Training Methods

## High Cordon



Use for trailing  
grape cultivars

## Low Cordon



Use for upright  
grape cultivars



# Training Methods

## Low-Cordon Vertical Shoot Positioning





# Grape Pests

- **Weed management critical during establishment years**
  - Start weed free
  - Maintain weed free zone in rows
  - Weeds impede air flow-resulting in potential higher incidence of grape diseases

With Weed Control



Without Weed Control





# Training Options





# Training Options





# Training Options





# Training Options





# Training Options





# Training Options





# Growing Grapes in the North

- Vanessa
- Himrod
- Marquie

