

# **Viticulture in New Mexico**

## **Where Grapes can Grow and How to Grow Them**

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# 1629-1850

- 1629 First vitis vinifera vines planted at a Piro Indian Pueblo just South of Socorro.
- 1659: First cuttings were planted in El Paso del Norte area.
- 1726: First detailed information on the spread of viticulture around the El Paso area.
- 1744: Fray Miguel de Menchero prepared a report on his visting of the missions of New Mexico.
- 1755: An inventory noted that there were 250,000 vines under cultivation.
- 1760: Decree by the captain of the El Paso presidio, took note of the recent wine production problems.
- 1800 Vineyards were planted from Bernalillo to Socorro and from Las Cruces to El Paso in the southern part of the state.

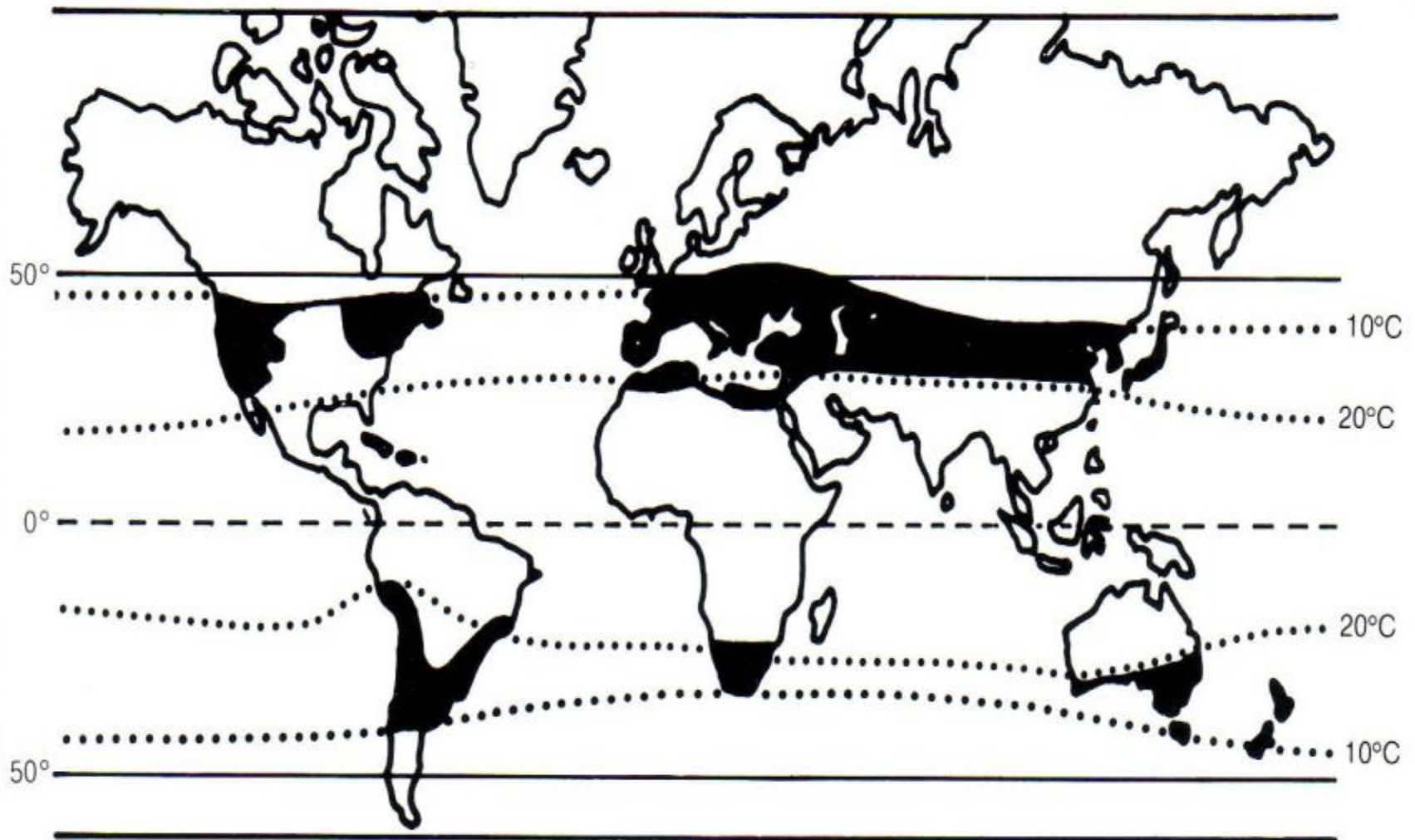
## 1850-Present

- 1850: New Mexico became a territory of the United States.
- 1868: Jesuit priests settled in New Mexico and brought their Italian wine making techniques.
- 1870: New Mexico produced 16, 000 gallons of wine.
- 1872: Priests founded a winery.
- 1880: New Mexico produced 908,000 gallons!
- 1884: New Mexico was fifth in the nation in wine production: almost a million gallons annually.
- 1919: Beginning of prohibition.
- 1926: The first Rio Grande flood occurred that impacted the vineyards.
- 1933: Prohibition ended.
- 1943: The largest Rio Grand flood of the century destroyed vineyards throughout New Mexico.
- 1978: Rebirth of the wine industry, small wineries opened up.
- 1982-1983: 2200 acres of vineyards were planted around Las Cruces.
- Present: Vineyard acres still being planted

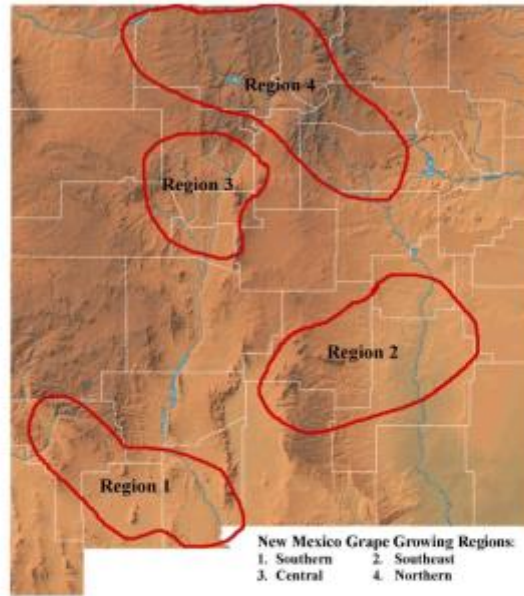
# New Mexico Grape Industry Statistics

- 1200 acres Vineyard
- Approximately 120 Growers
- 112 Different Varieties
- 50 Wineries

# World Distribution of Viticulture

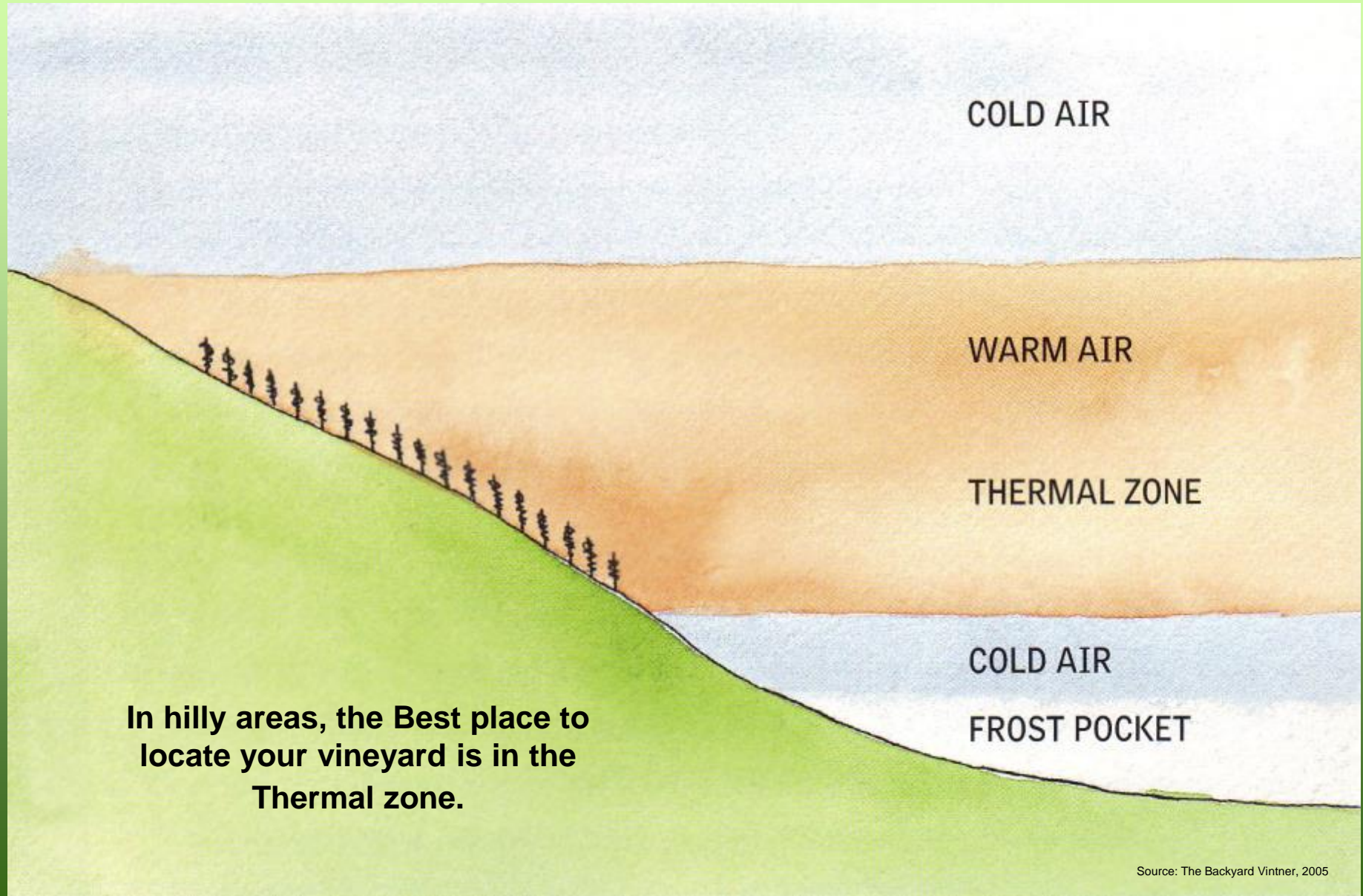


# New Mexico Grape Growing Regions



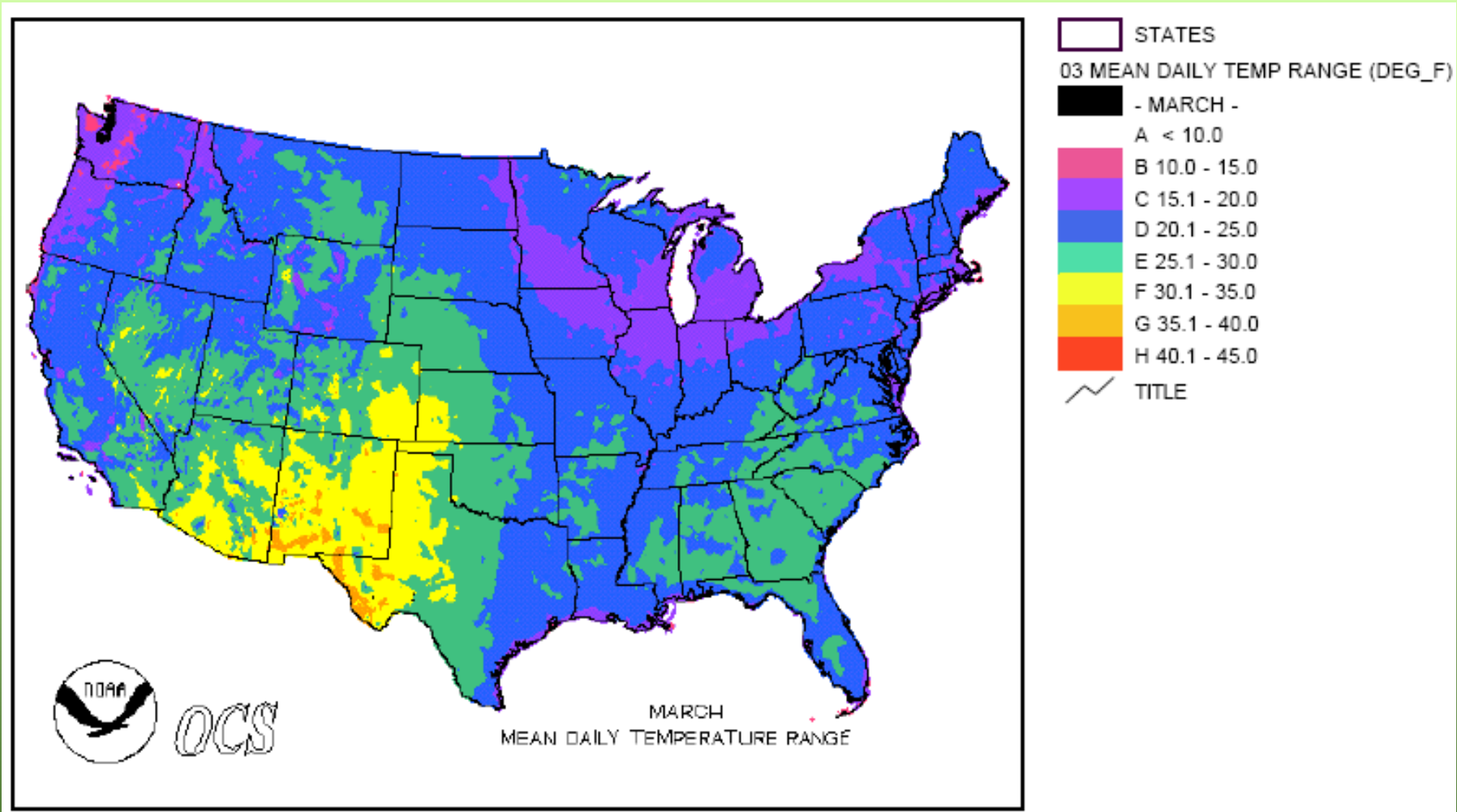


# Thermal Air Inversions



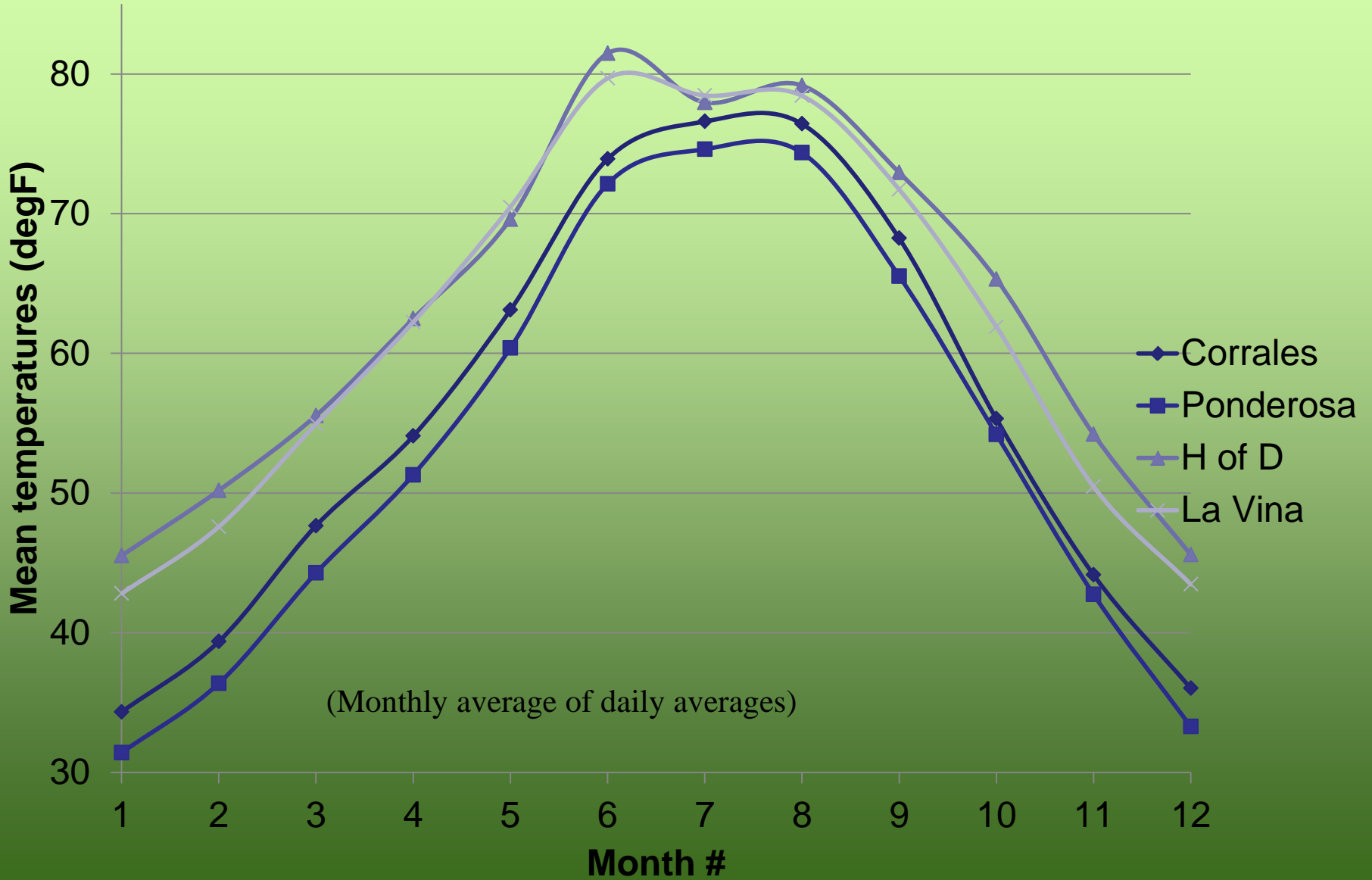
**In hilly areas, the Best place to locate your vineyard is in the Thermal zone.**



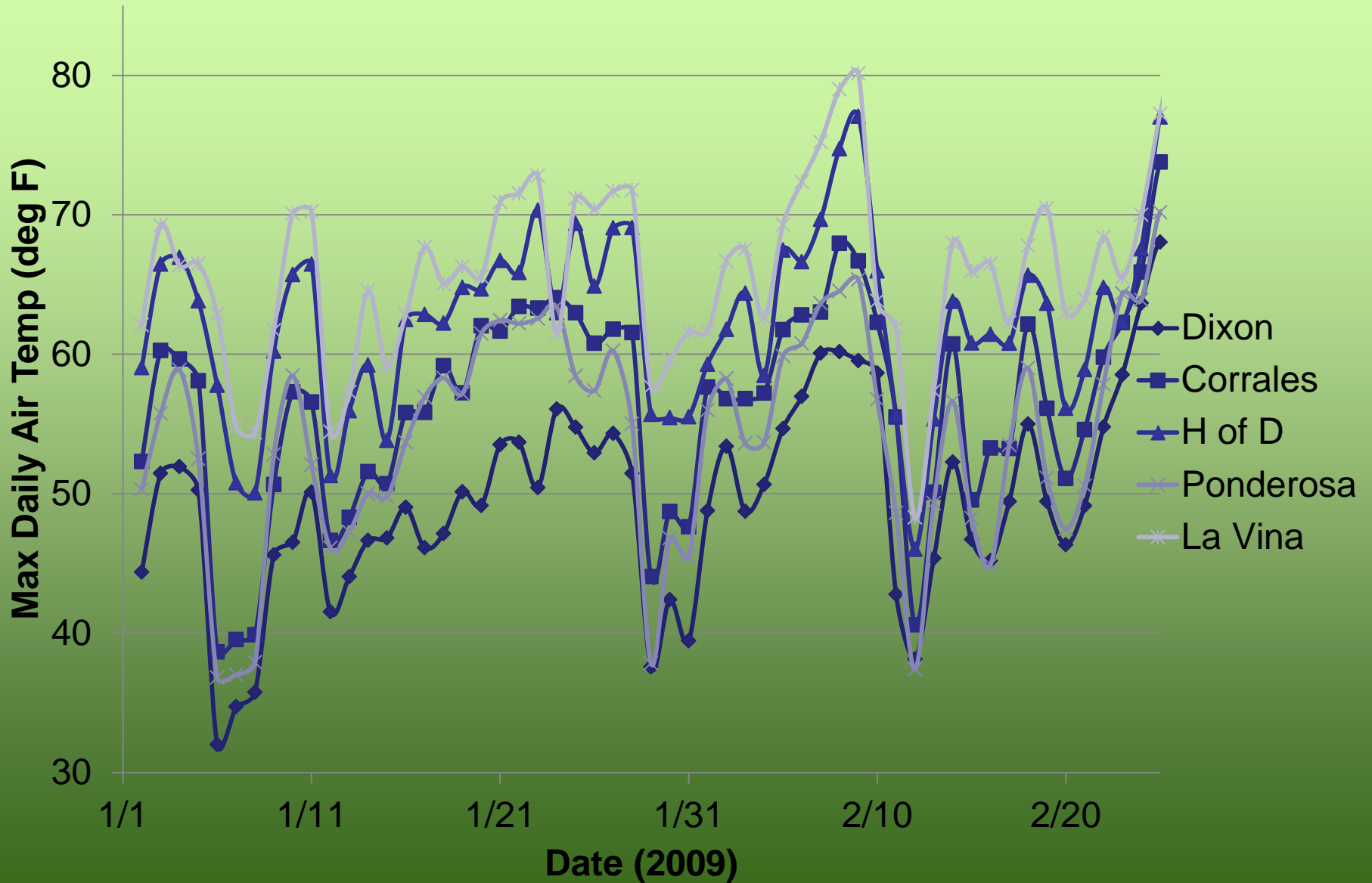


Source: NOAA  
<http://hurricane.ncdc.noaa.gov>

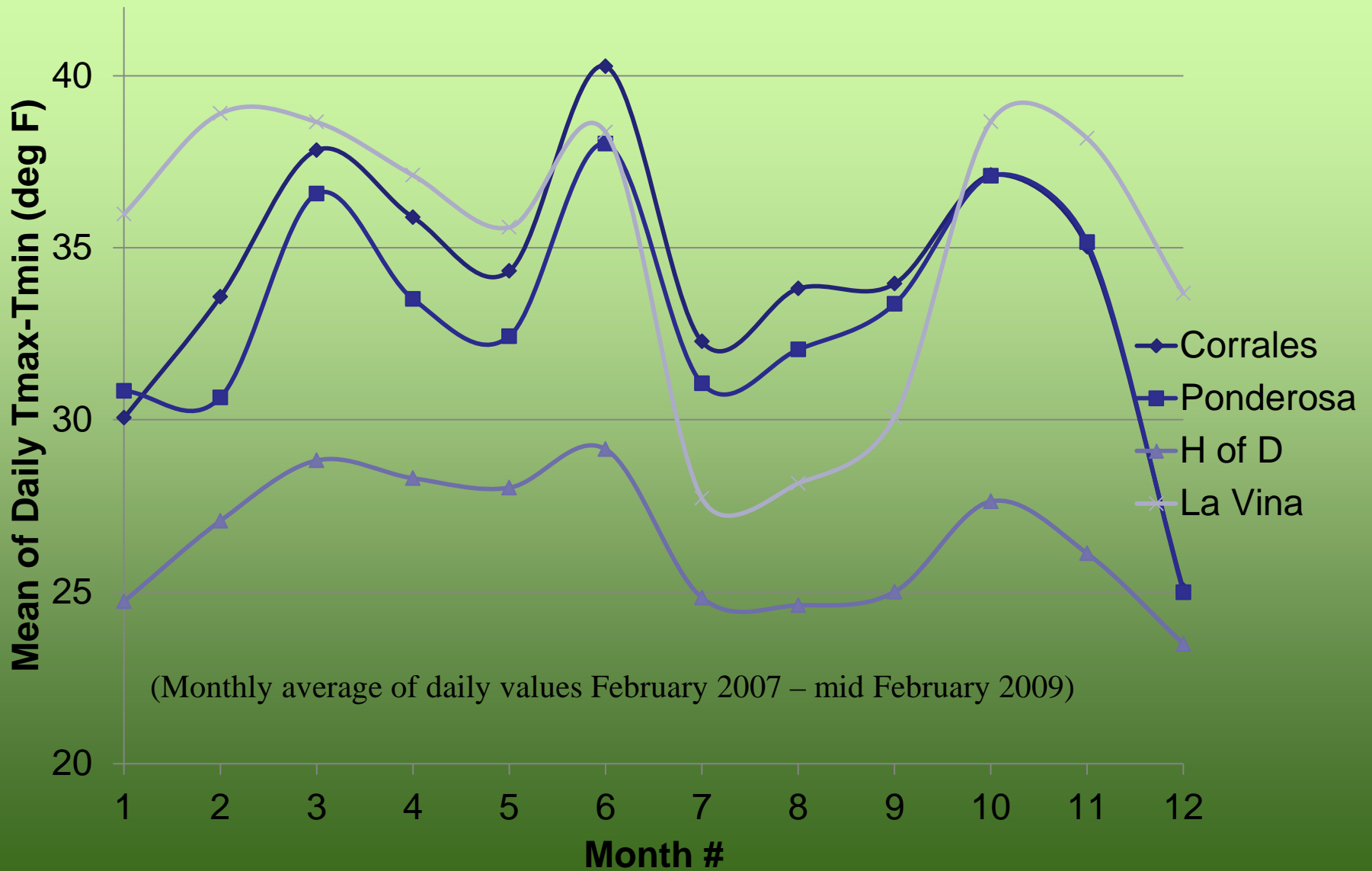
# Mean Monthly Temperature



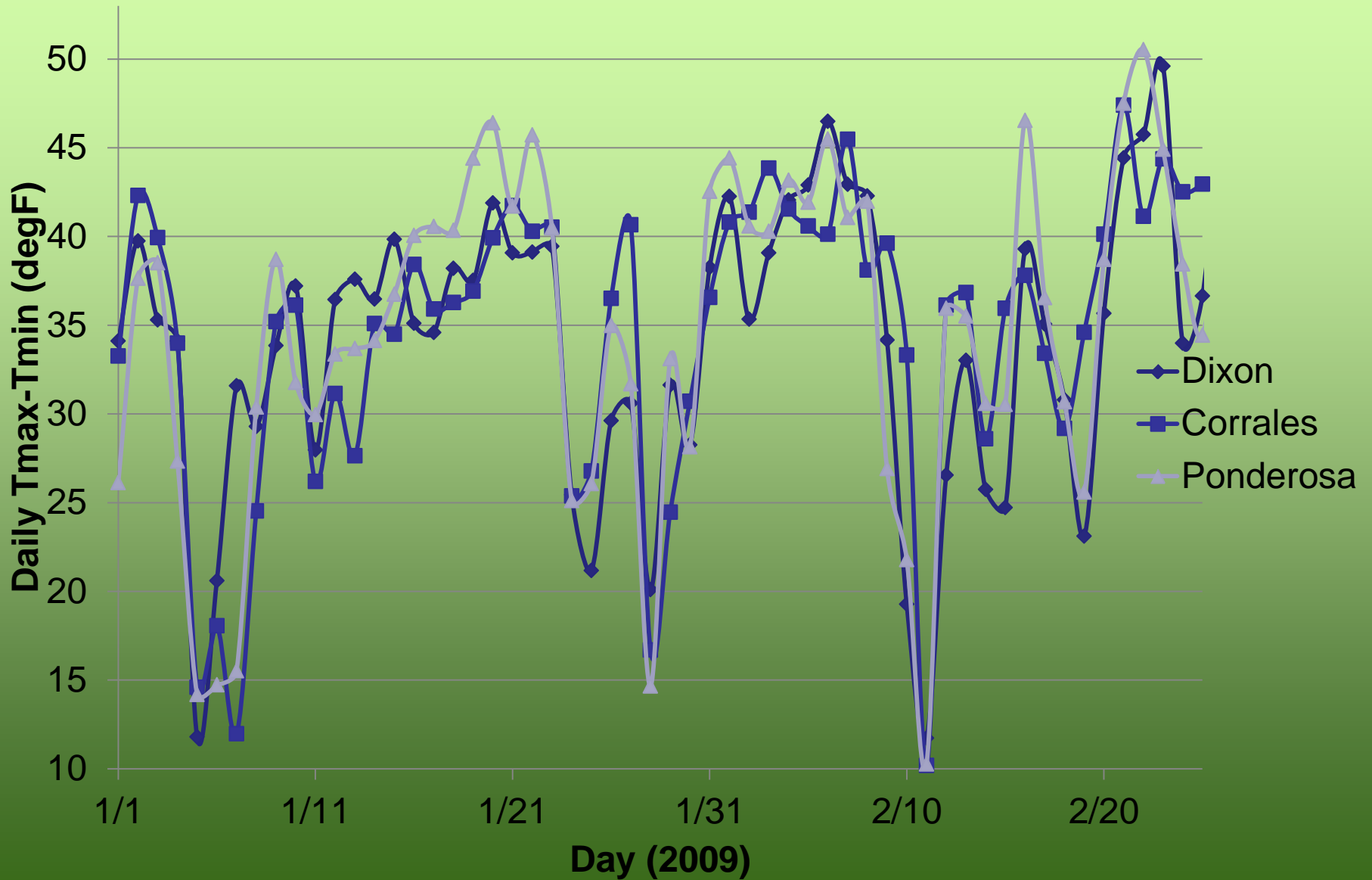
# Daily Maximum Temperature



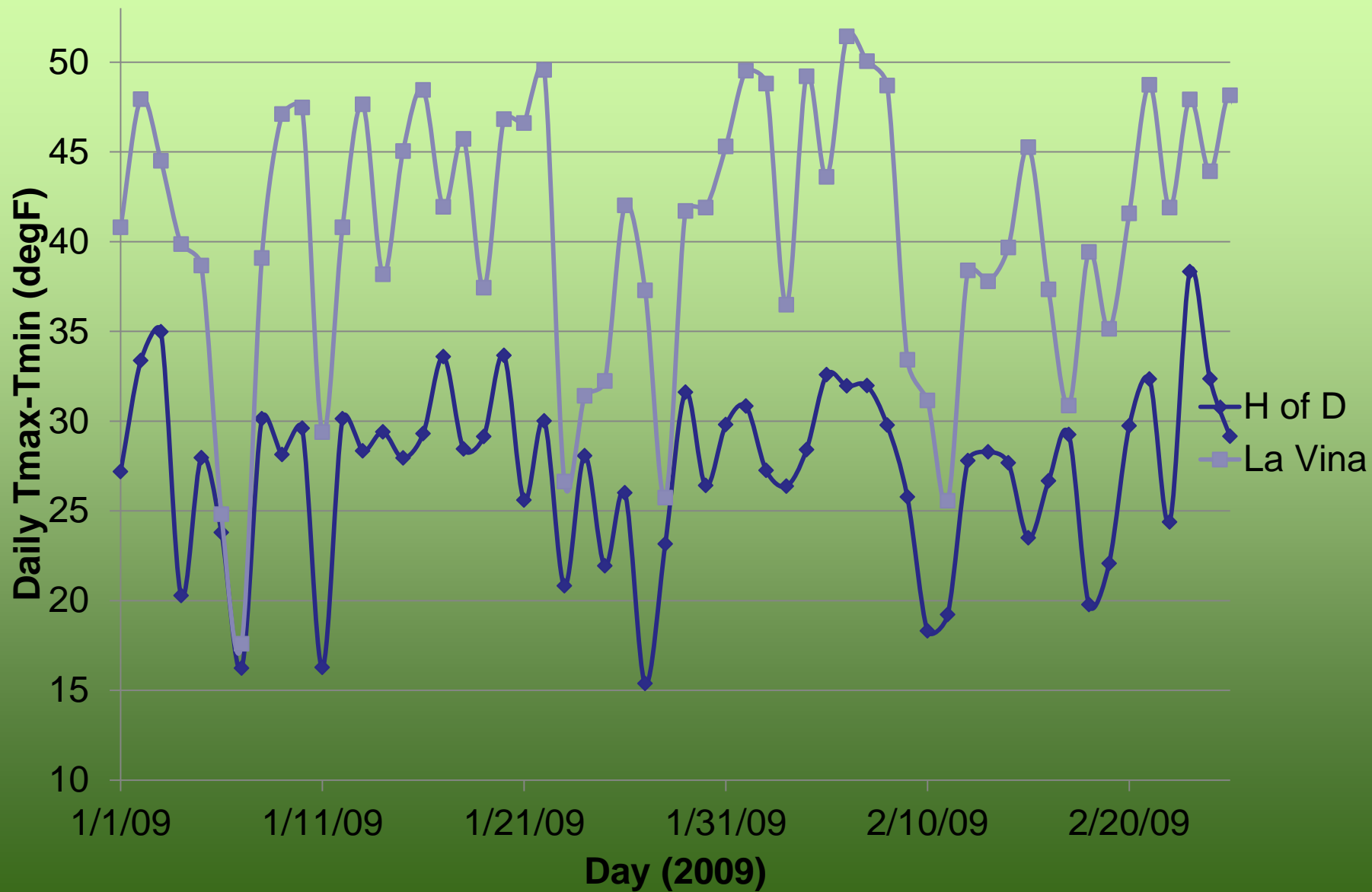
# Mean Diurnal Temperature Variation



# Diurnal Temperature Variations

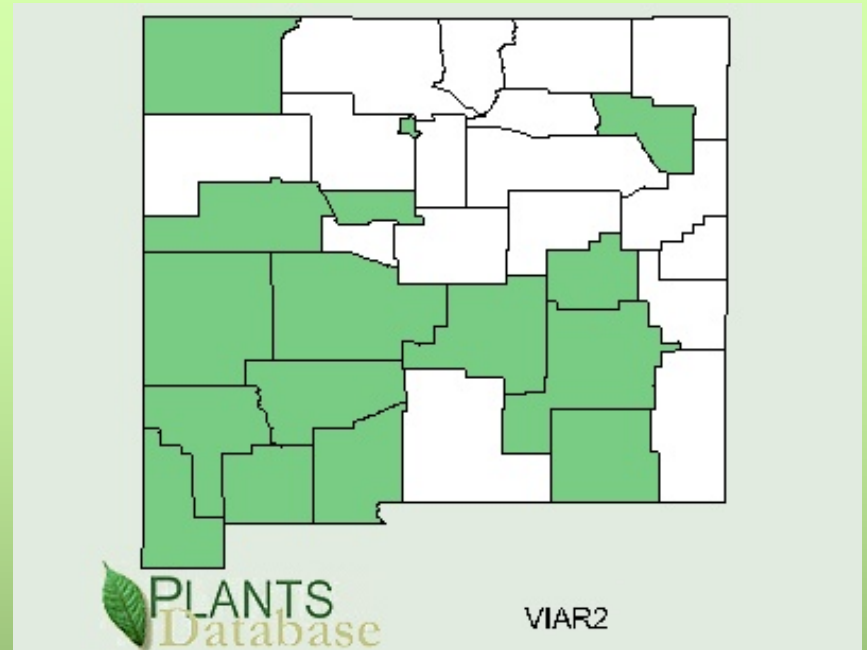


# Diurnal Temperature Variations



# Vitis Arizonica

Vitis Arizonica also called the “Canyon Grape” is a very common vining wild grape. The deep purple fruits can be found in moist canyons at moderate elevations. This type of grape is also known to be very drought tolerant/resistant.



## **Vitis Berlandieri**

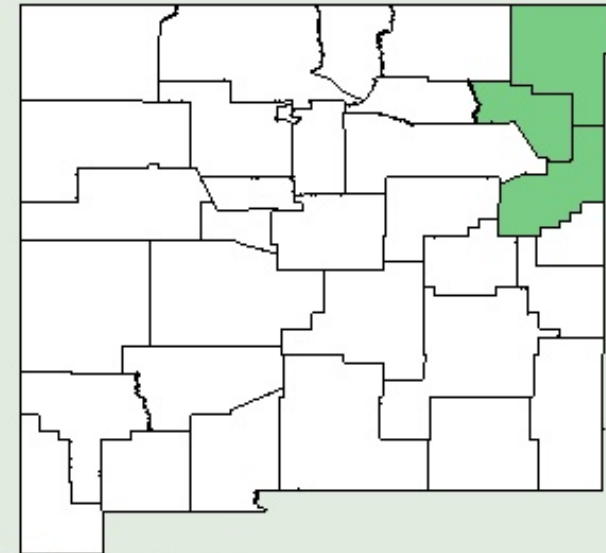
This grape commonly called “Heller’s Grape” or “Fall Grape” is primarily native in the southern portions of North America. It is very prominent in New Mexico, Texas, and Arkansas. It is noted for its tolerance against soils with a high lime content, however it is poorly adapted to grafting. It is commonly crossed with *Vitis Riparia* or *Vitis Rupestra* which produces a plant resistant to both lime and phylloxera.





# Vitis Acerifolia

Vitis Acerifolia, aka the “Maple Leaf Grape” and the “Bush Grape” is somewhat of a bushy plant. It grows in ravines, stream bottoms, and on rocky slopes. It is particularly common in the panhandle of Texas and the Ute Lake area of New Mexico.



PLANTS  
Database

VIAC2



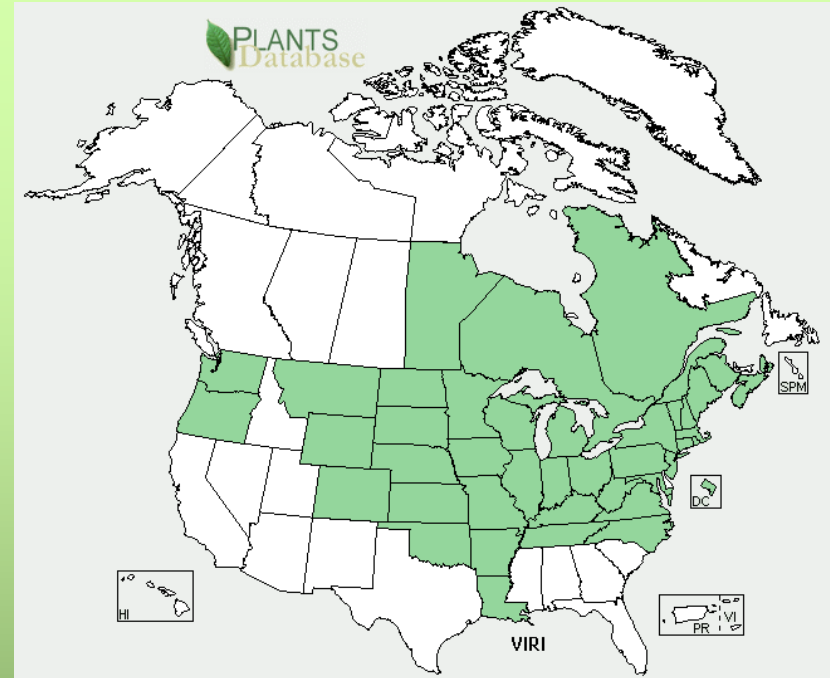
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www.botanikfoto.com

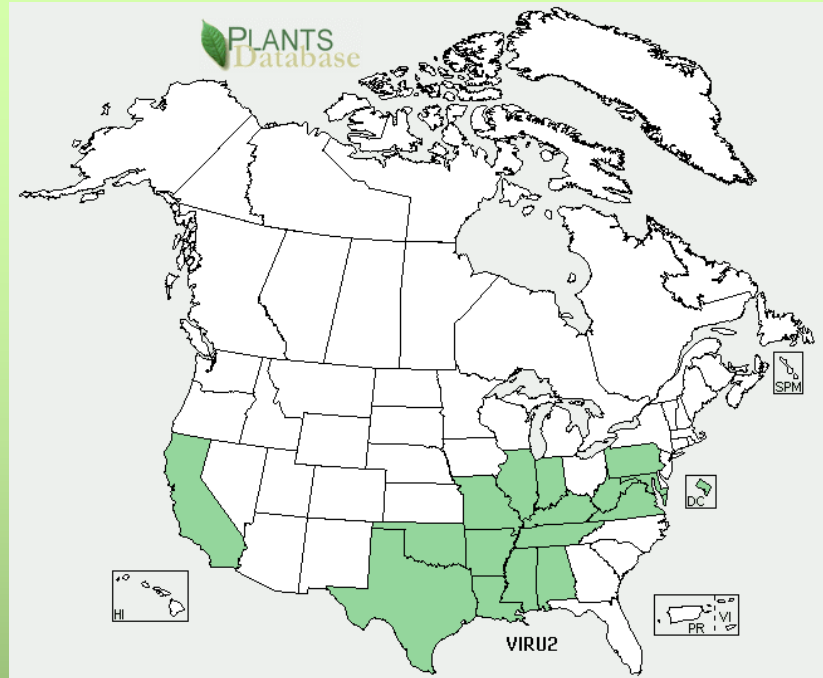
# Vitis Riparia

Vitis Riparia, aka “Riverbank Grape” has the largest geographical range of all the Vitis species that are native to North America. The wild vine thrives along riverbanks, forest clearings, fence lines as well as along road sides. Anywhere it can get lots of sun exposure, and adequate soil moisture.



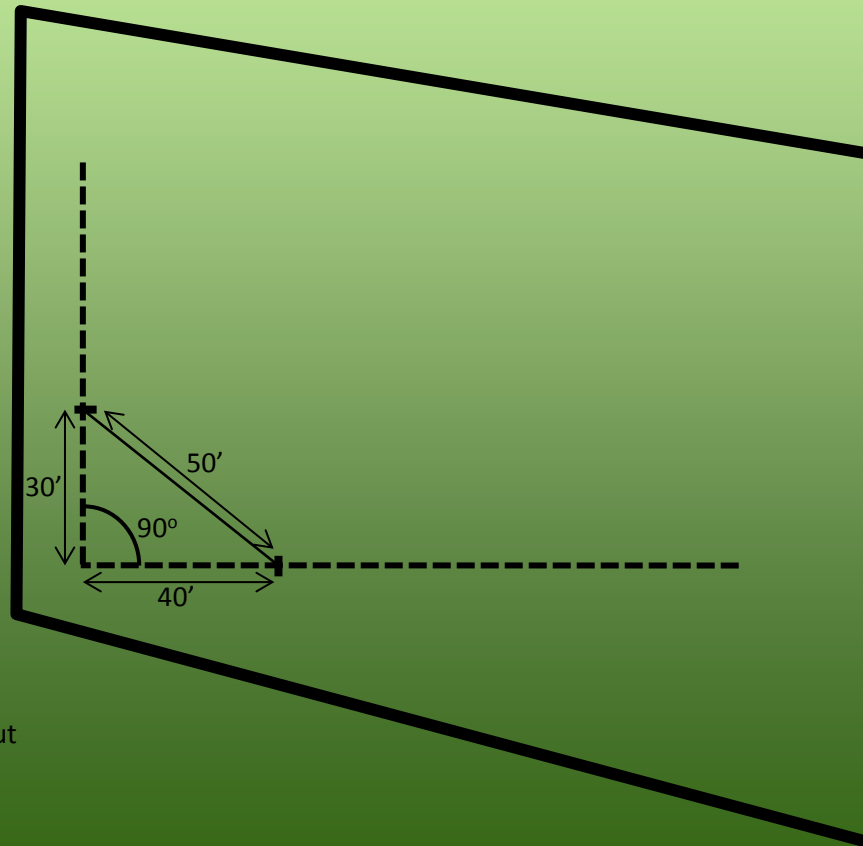
# Vitis Rupestris

This type of grape is often found in the Southern and Western United States. It has many common names, some are: July, Sand, Sugar, Rock, and most widely used “Mountain Grape.” The plant is self supporting and does not grow in the shade. It has been found in draws that collect water, and less grazed creek beds.



# Layout of a vineyard

- ❖ Find a base line
- ❖ Construct a perpendicular line
- ❖ Lay String and fill in with planting stakes



Using Pethagoreom theorem

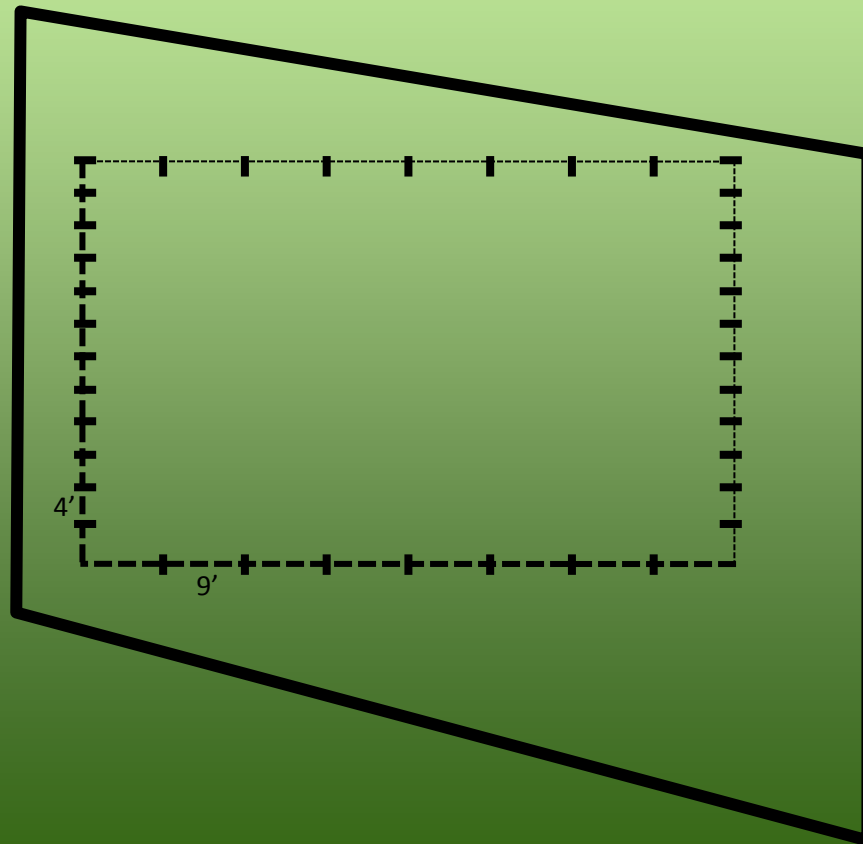
$$a^2 + b^2 = c^2$$

$$30^2 + 40^2 = 50^2$$

Using this, the vineyard can be layed out

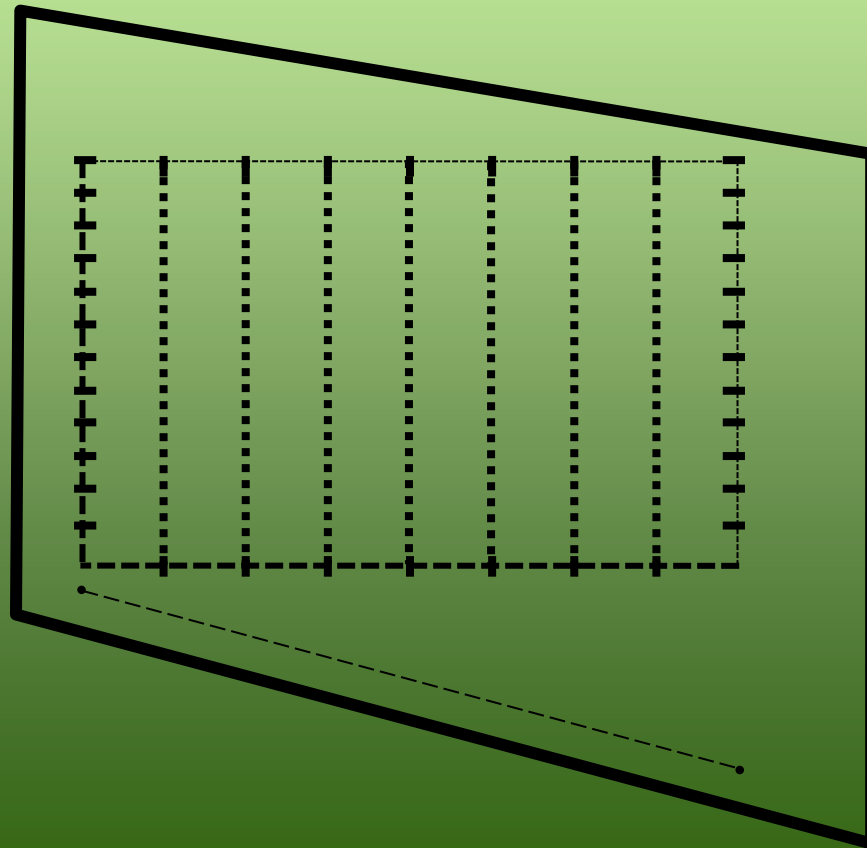
# Layout of a vineyard

- ❖ Set In Row spacing
- ❖ Set Row spacing
- ❖ Lay String and fill in with planting stakes



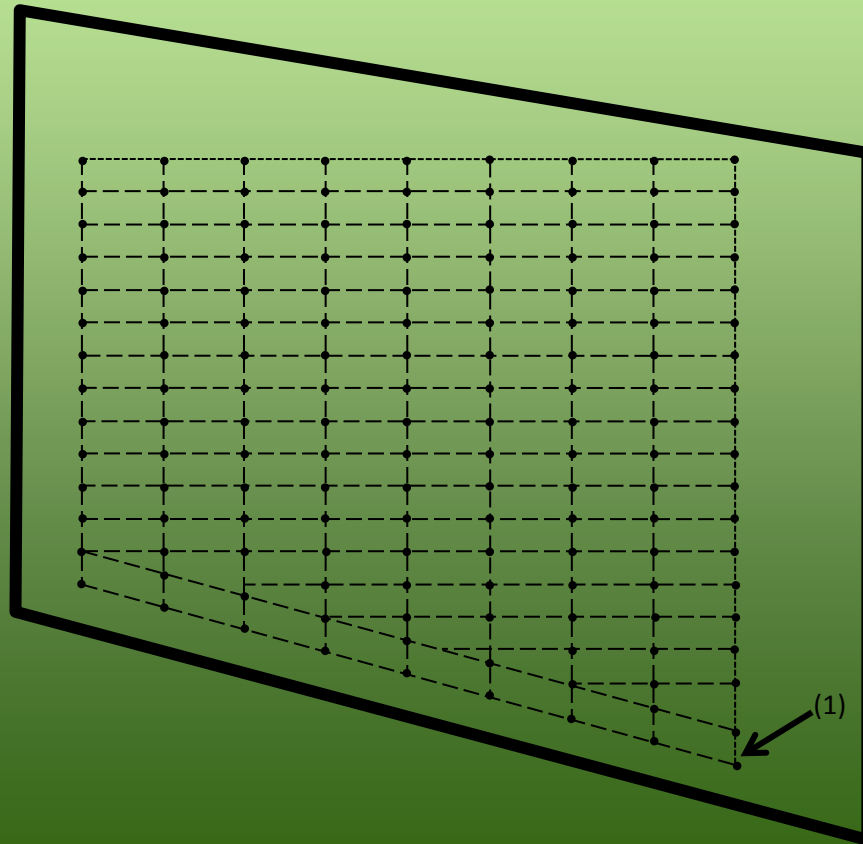
# Layout of a vineyard

- ❖ Fill out point rows
- ❖ Parallel to property boundary



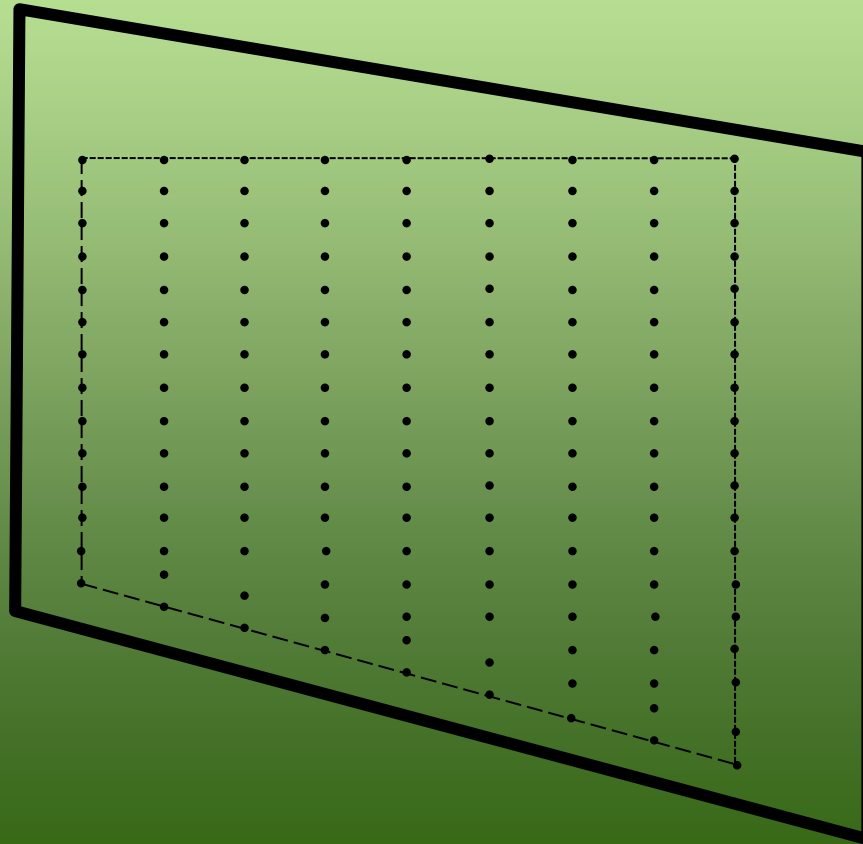
# Layout of a vineyard

- ❖ Finish point rows
- ❖ One in row plant distance <sup>(1)</sup>



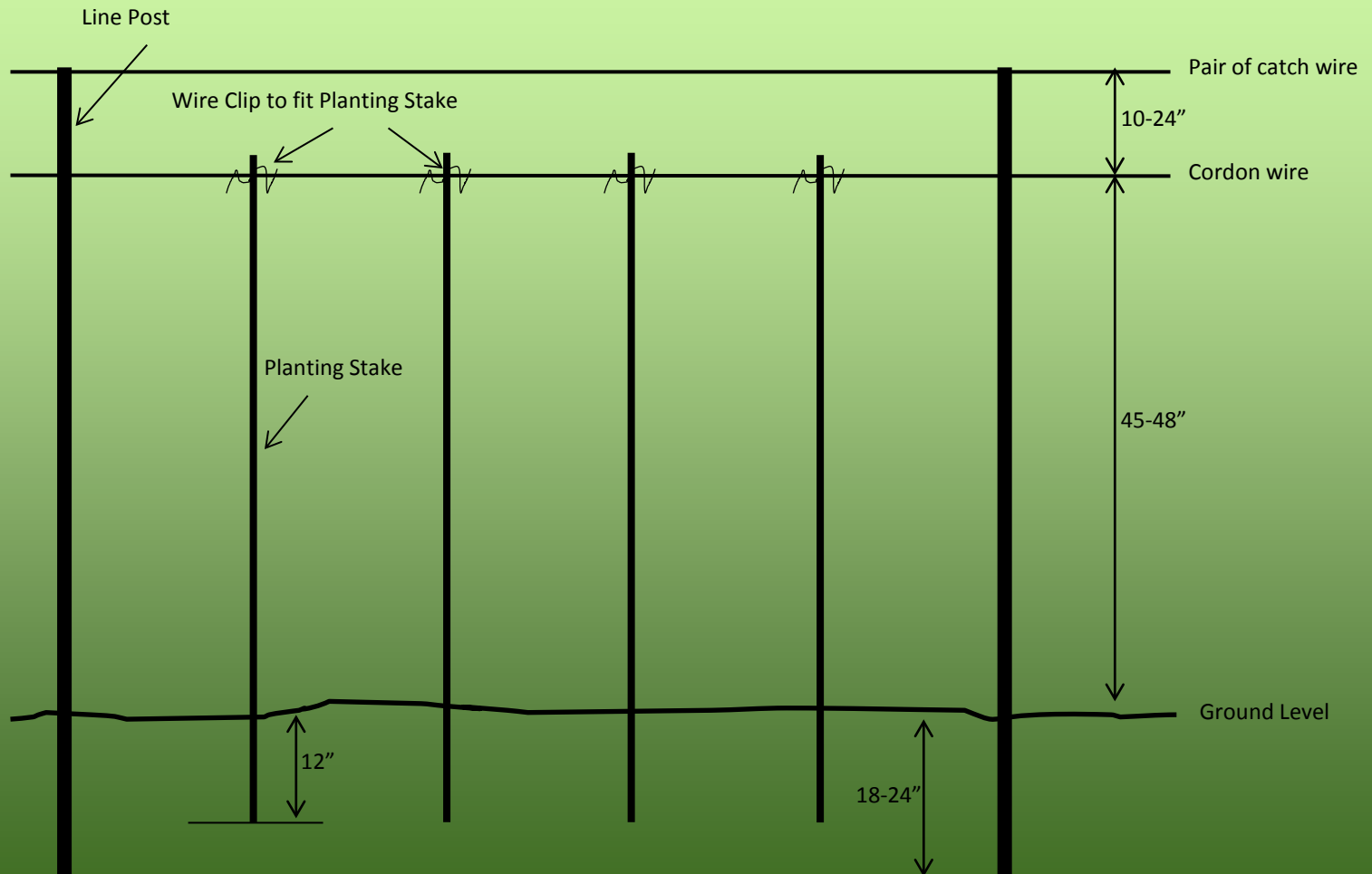
# Layout of a vineyard

❖ Finished plant stake layout



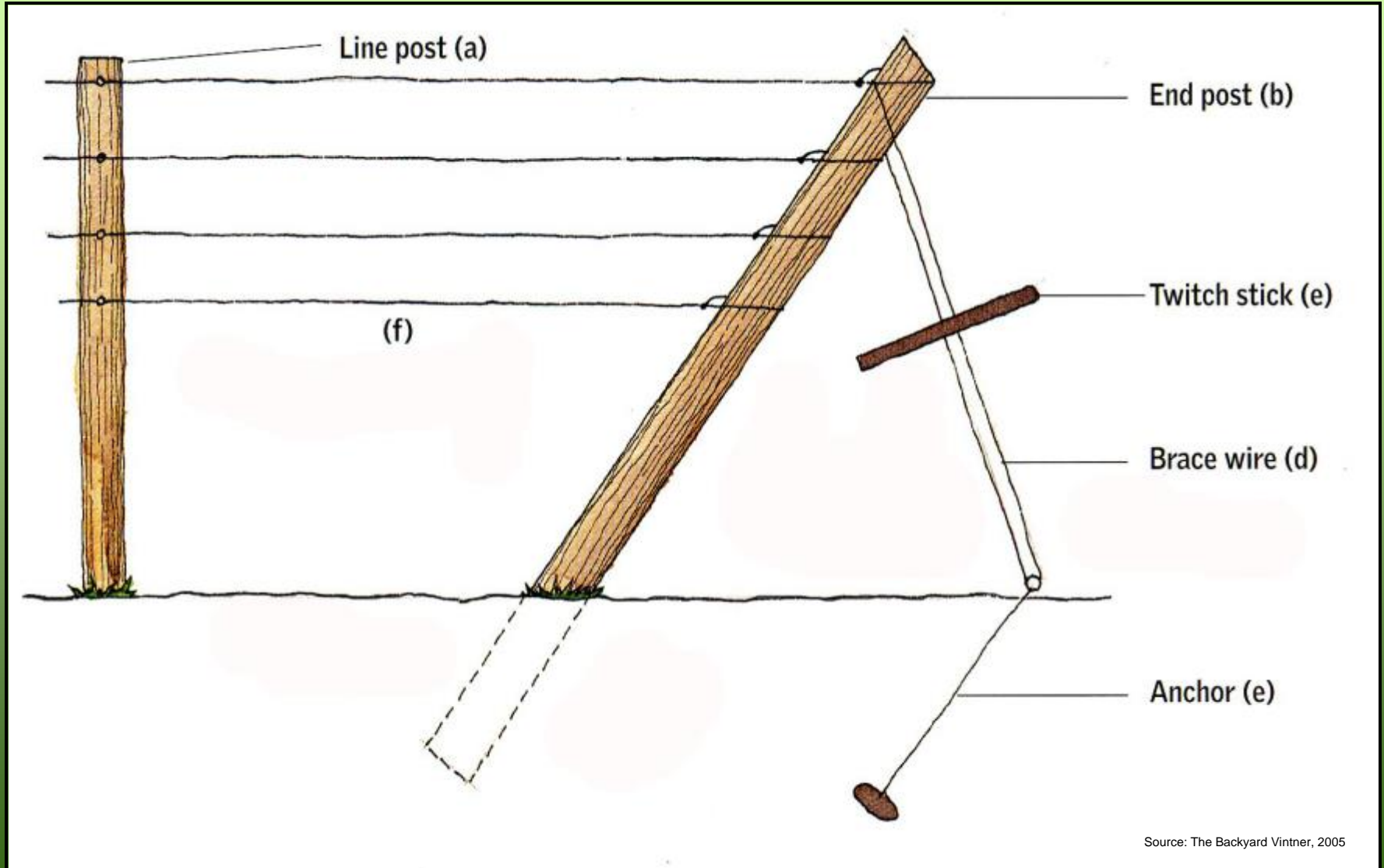


# Tellis Setup



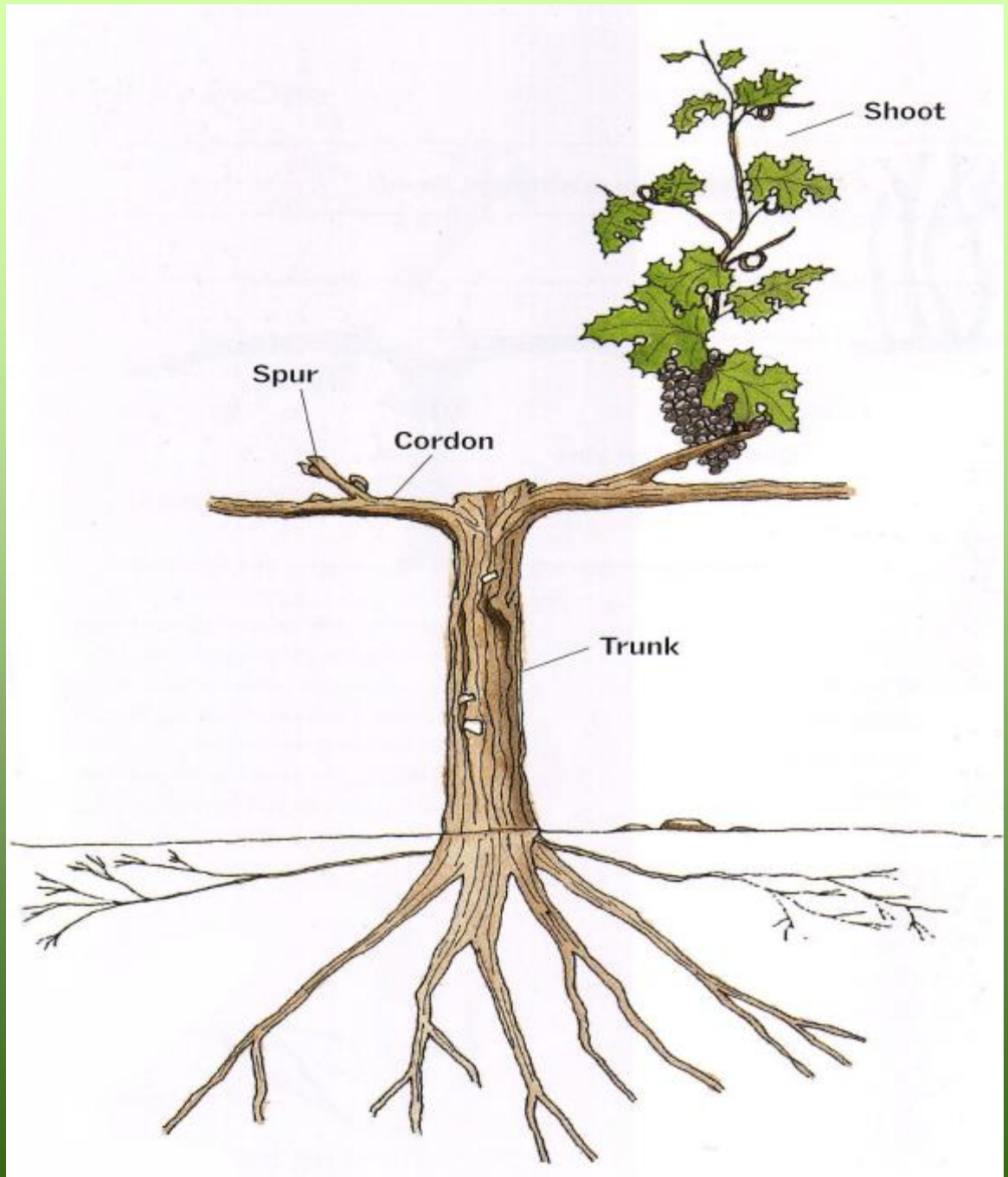
# Installing The trellis

Incorrect Technique for installation

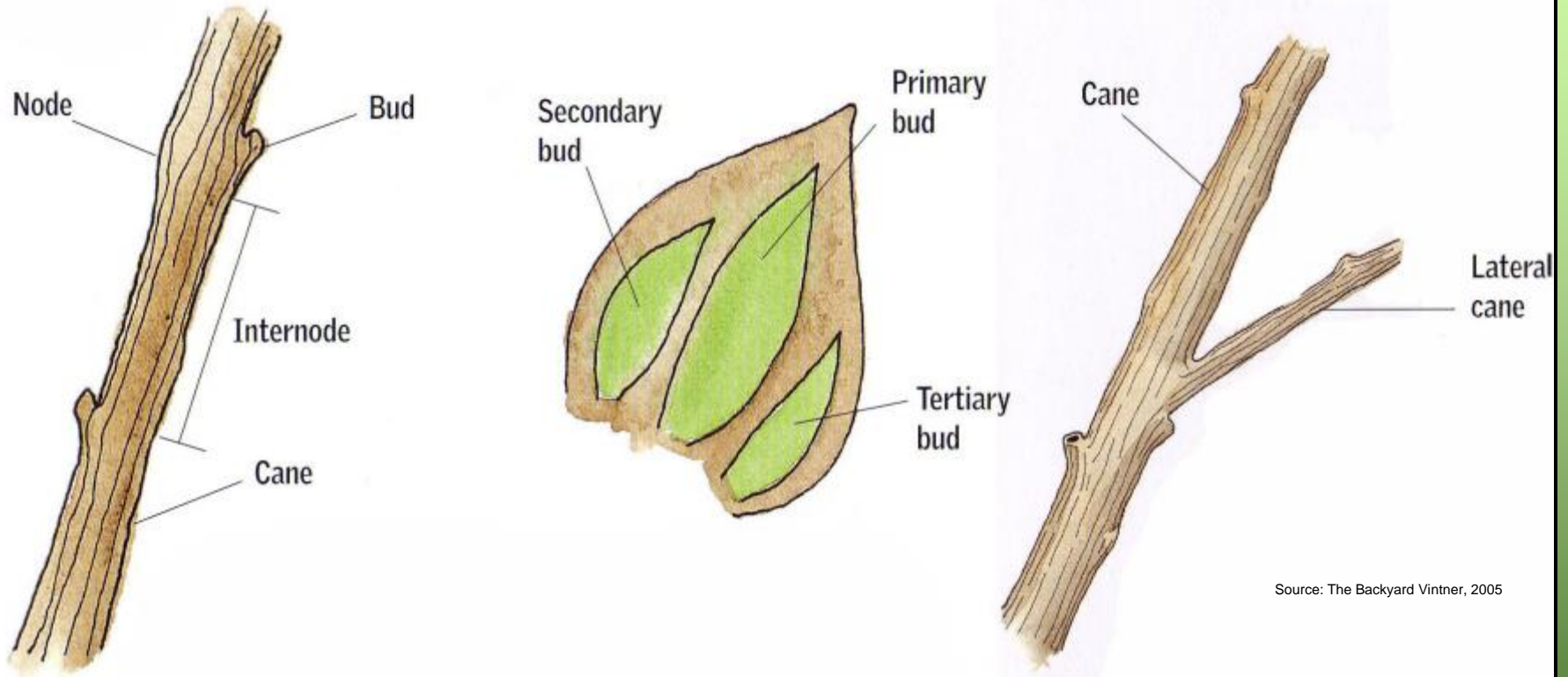


# Terminology

Spur  
Cordon  
Trunk  
Shoot



# Terminology



Source: The Backyard Vintner, 2005

**Node, Internode, Bud ,Cane, Primary bud  
Secondary bud, Tertiary bud, Lateral cane**

# Growth Stages of The Vine



## 1. Budbreak

Budbreak is the first sign of the annual growth of the vine. This is when the buds swell and open, allowing green shoot tips to break through.



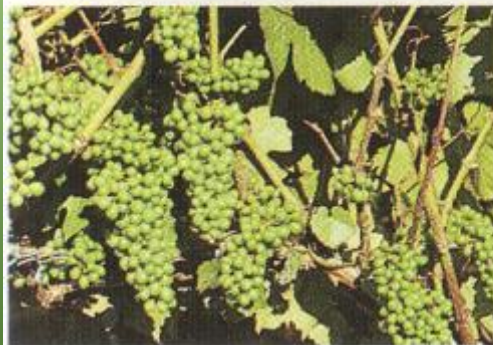
## 2. First Foliage

Once the buds have opened, foliage develops. The shoots grow rapidly and leaves appear. Tiny embryo bunches of flowers are found on the young shoots.



## 3. Flowering

The embryo bunches enlarge and small green flowers bloom. Over the next 10 days, pollination and fertilization take place.



## 4. Fruit Set

Most of the "set" or fertilized flowers (about 70 percent) now develop into berries; the others fail to grow and eventually fall off.



## 5. Veraison

The first sign of ripening is when the berries increase in size and change color (to red in red grapes and green/yellow in white).



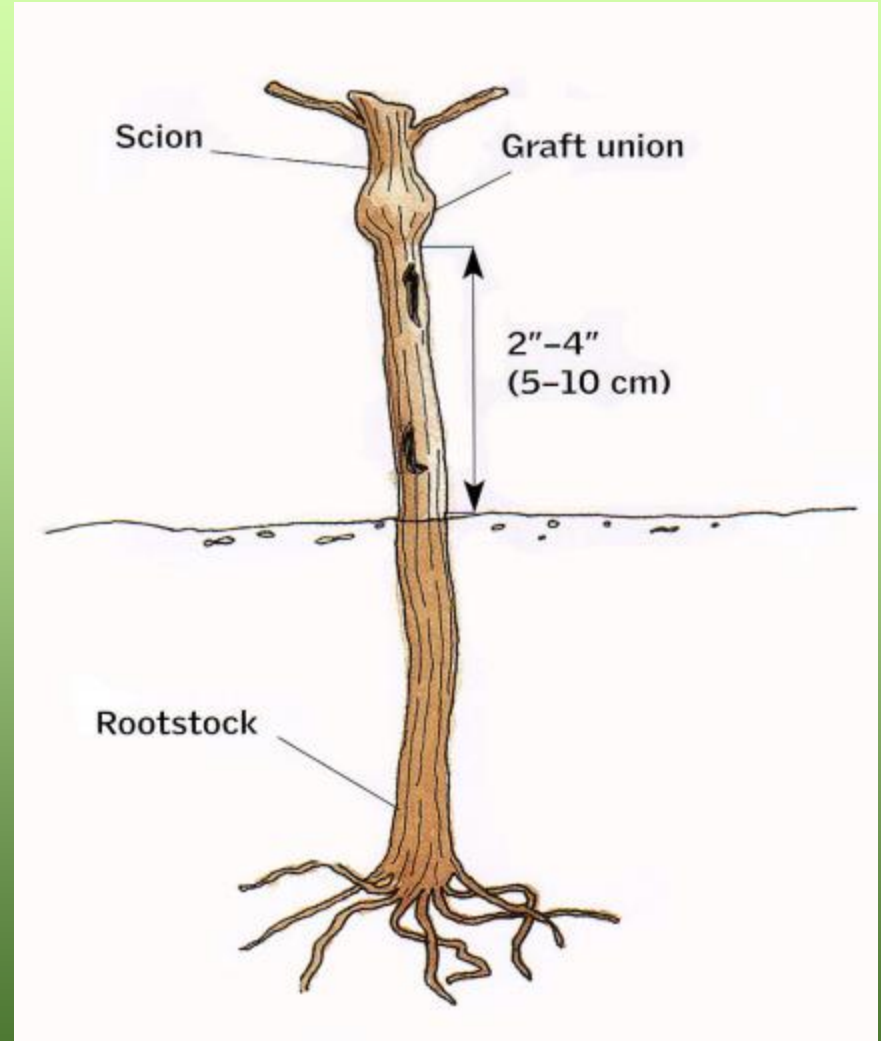
## 6. Leaf Fall

The leaves fall naturally from the vine some time after the grapes have ripened. This marks the end of its productive cycle.

# Planting

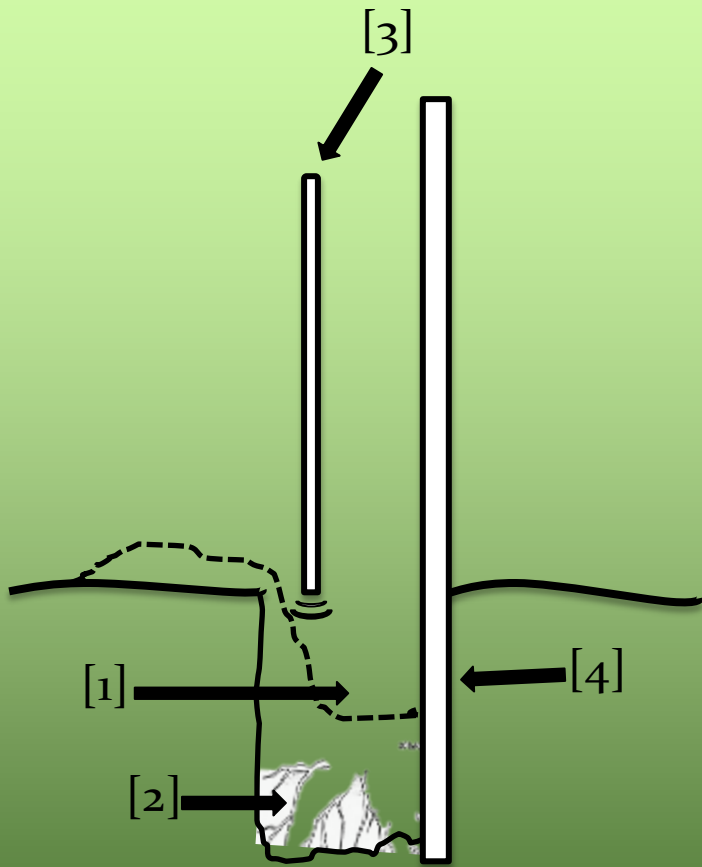


Bare rooted vines must be kept cool and moist until planted. Sometimes dipped in wax to prevent drying.



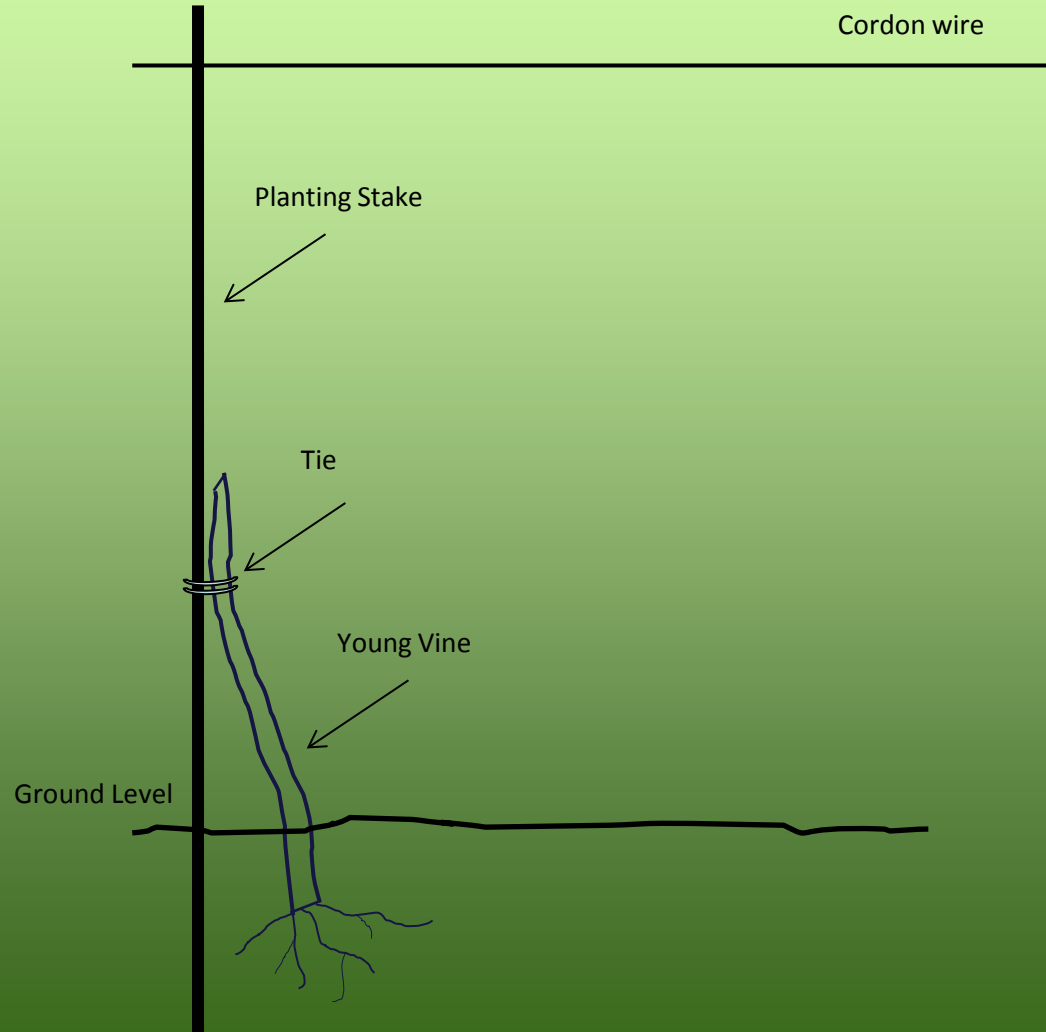
In grafted vines, place graft union 2"-4" above the ground.

# Planting the vine



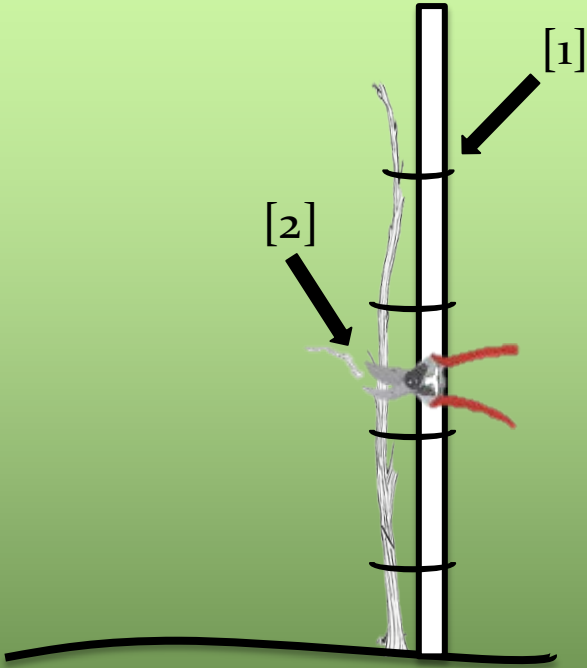
1. Place vine close to the stake
2. Spread roots
3. Pack soil
4. Water immediately after planting

# Trellis Setup



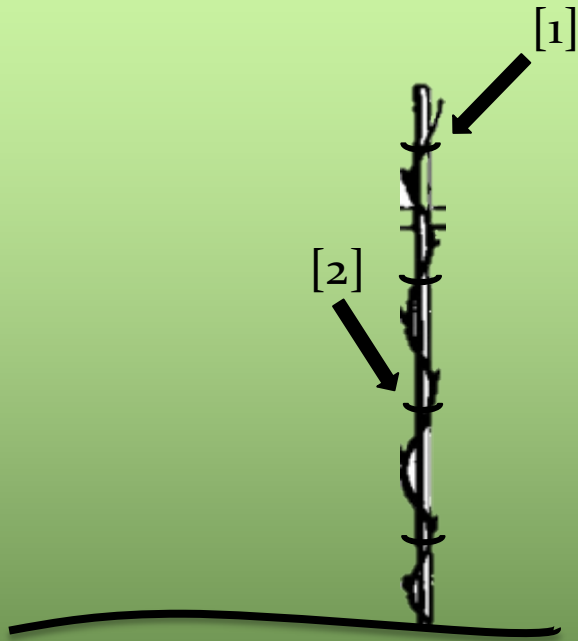


# First growing season



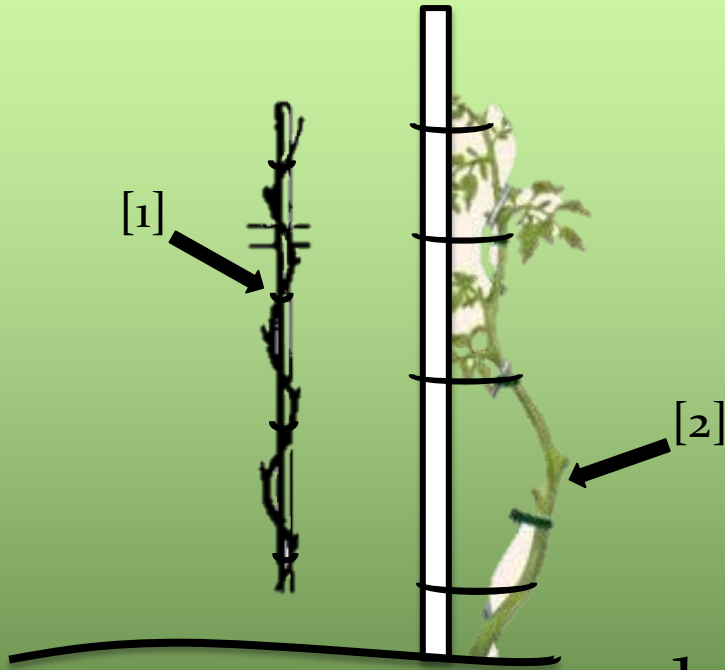
1. This is all we tie the first year
2. All other shoots are pruned off

# Selecting trunk shoot



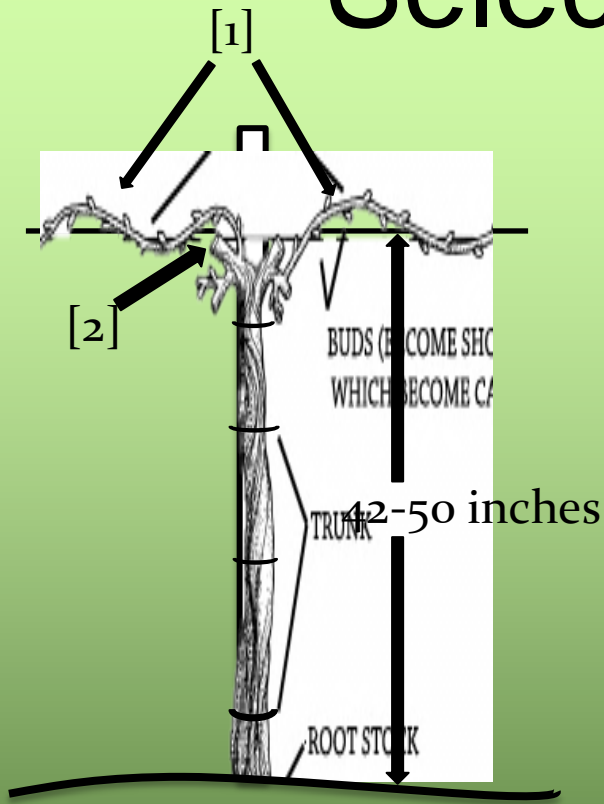
1. Always safely tie the shoot before cutting off the others
2. We have to tie every 5 to 10 days

# Use loose ties, keep trunk straight



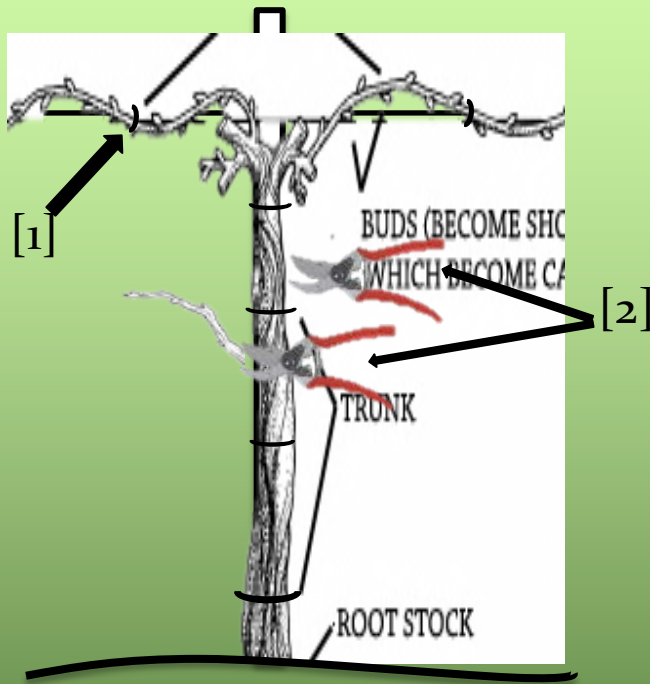
1. Never tie shoots or canes too tight!
2. Do not leave bows in the trunk

# Select cordon shoots



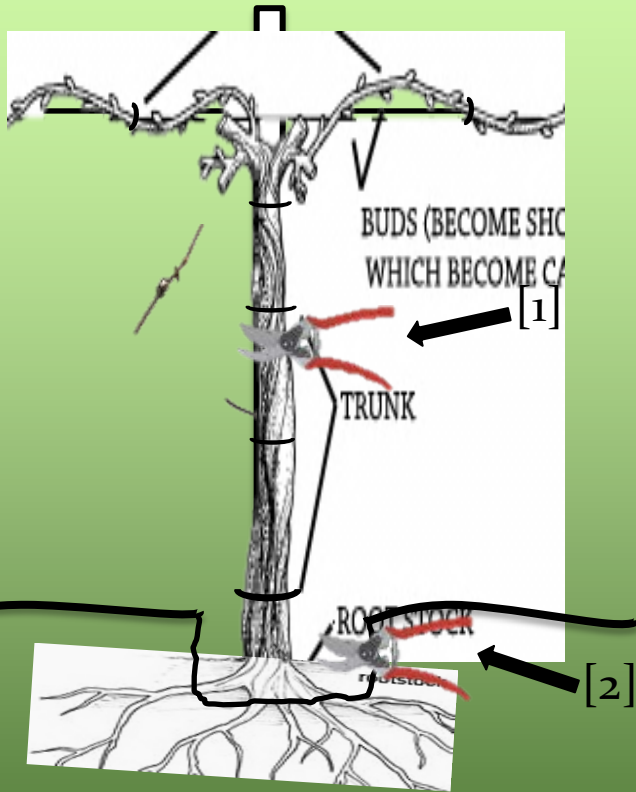
1. Select two cordon shoots 6 to 8 inches below wire
2. Cut out trunk shoot at the wire

# Remove lateral shoots



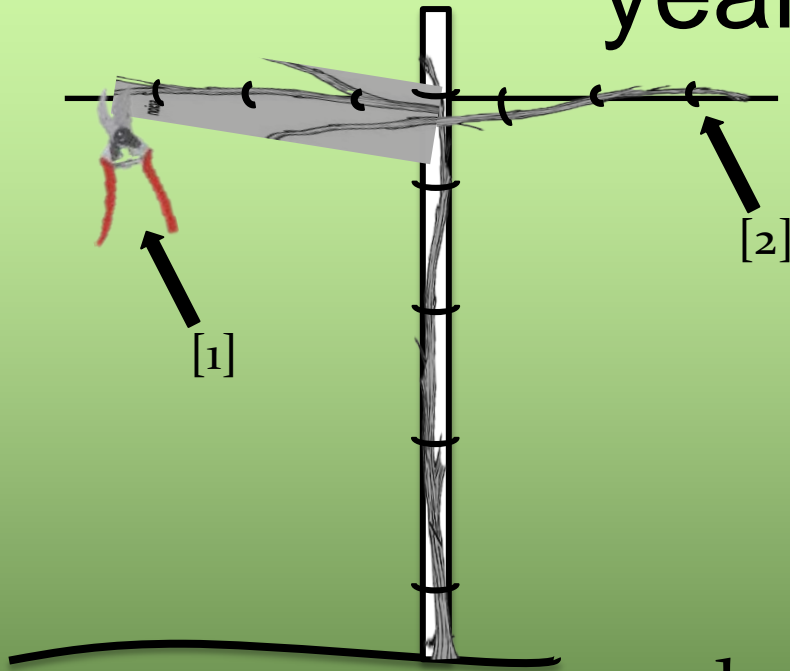
1. Loosely tie cordon shoot
2. Clean laterals off trunk
3. Pulling off laterals will damage the trunk

# Remove tendrils and suckers



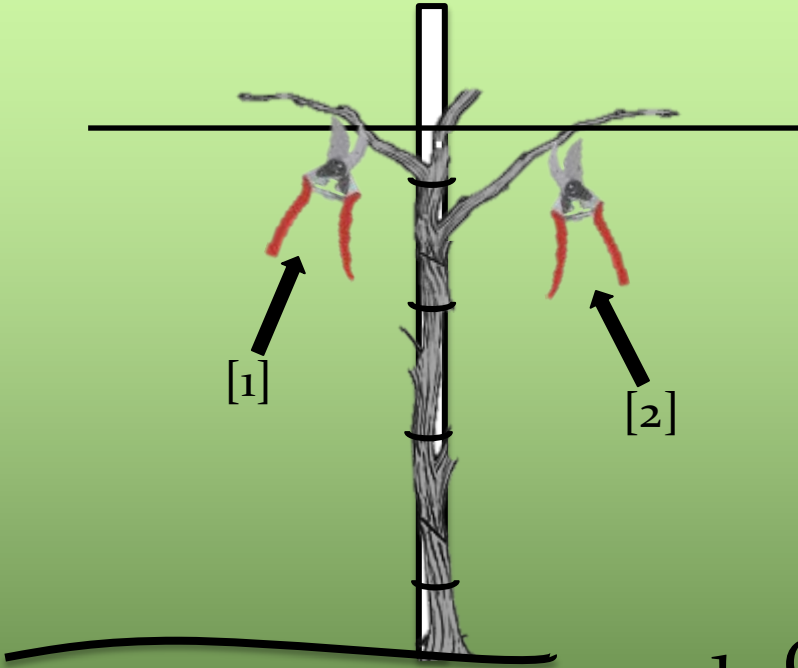
1. Cut out tendrils to prevent girdling the trunk
2. Cut suckers off at the trunk and below ground

# Dormant cordon training before 3<sup>rd</sup> years' growth



1. Cut at 8 inch diameter
2. Make three loose ties on the cordon canes

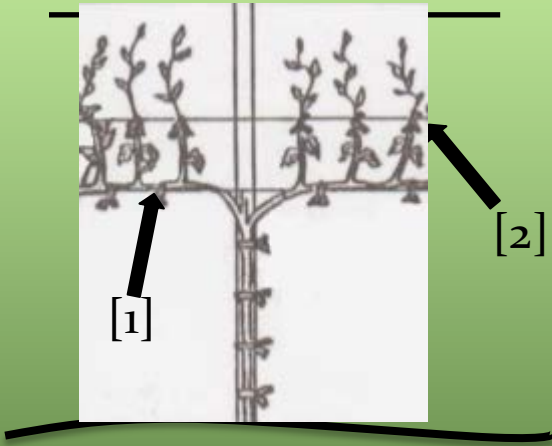
# Cut back weak vines



1. Cut at bend
2. Bud on lower side

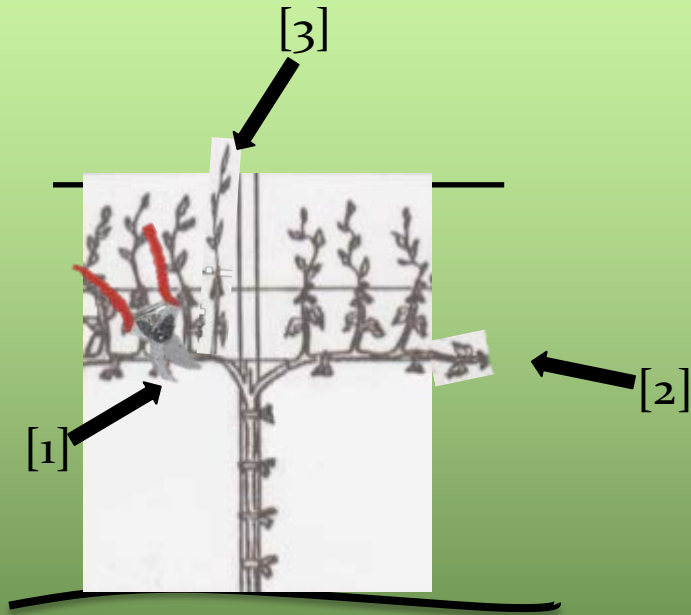


# Select and tie vertical shoots



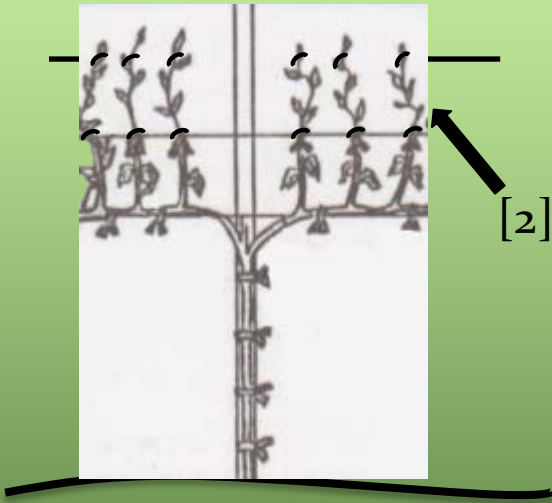
1. Vertical arms 5 to 6 inches apart
2. Catch wire 10 inches above cordon wire

# Summer pruning the 3<sup>rd</sup> year



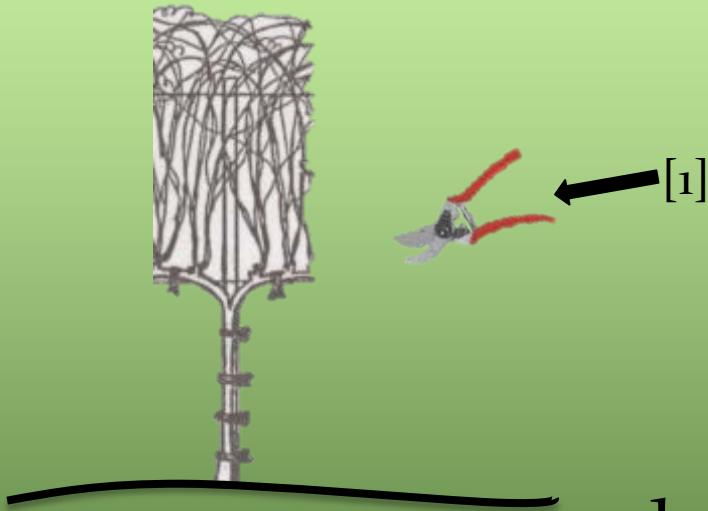
1. Rub off shoots on lower side of cordon
2. Tie cordon extension shoots
3. Pinch very vigorous shoots

# Cluster thinning the 3<sup>rd</sup> year



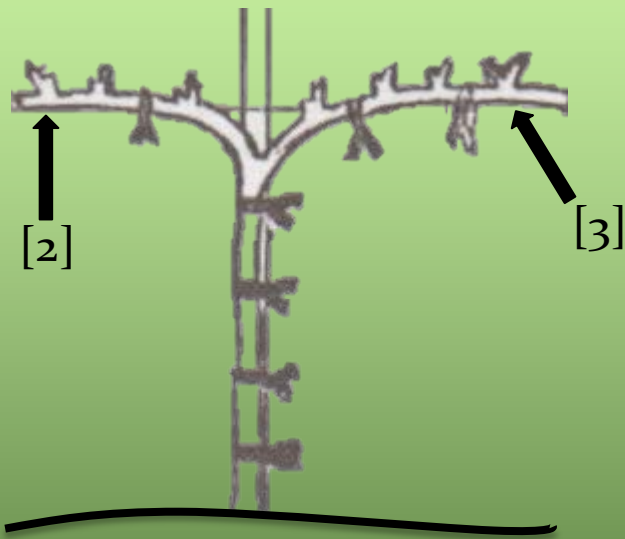
1. Why are we pulling off these beautiful grapes?
2. We must leave only one cluster per shoot to keep the vines healthy

# Before cordon pruning



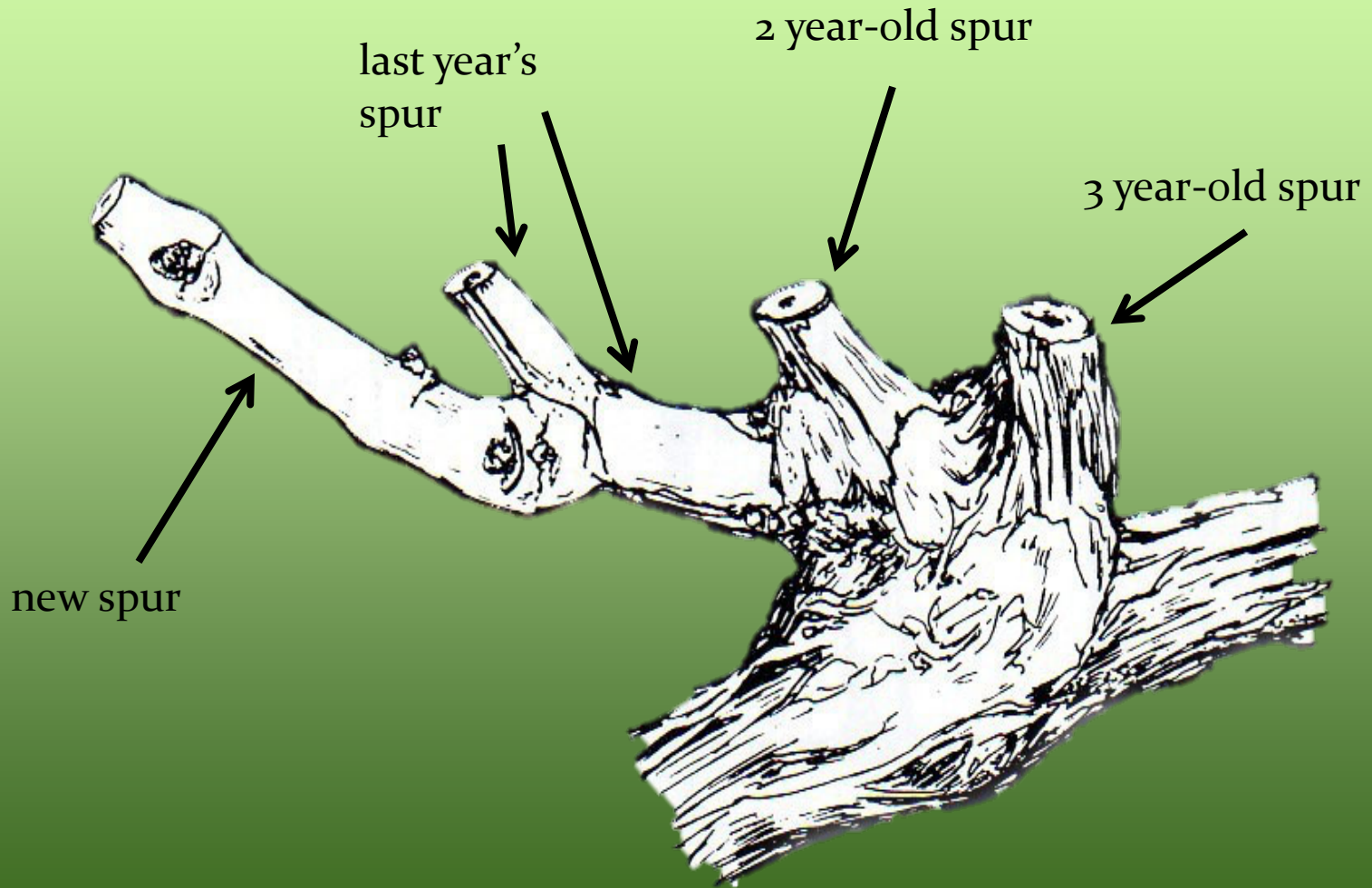
1. All 28 of these canes will be cut back to form 2 or 3 bud spurs

# After cordon pruning

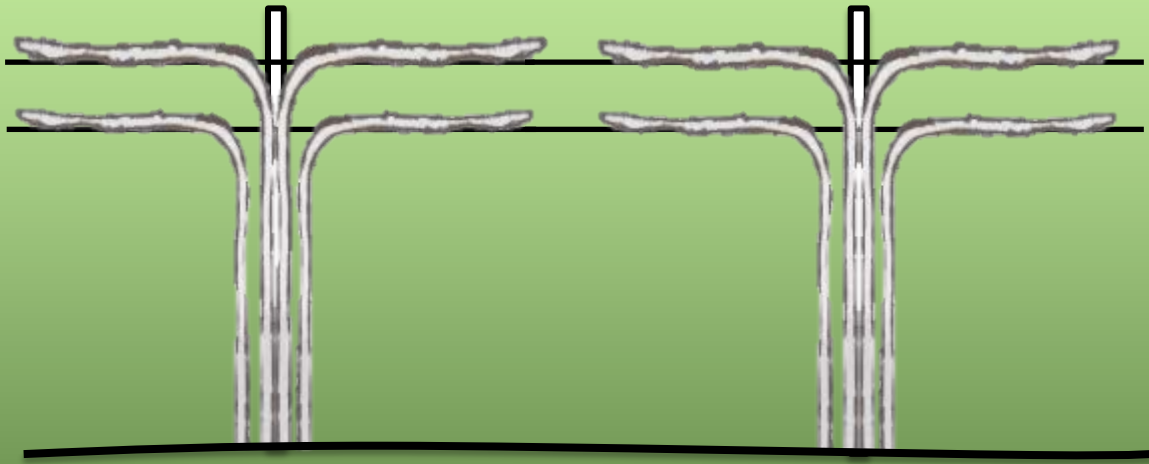


1. We now have only 14 spurs and 30 to 40 buds left on the vine
2. Wrap the cordon around the wire 1 ½ turns and tie
3. Leave 3 buds per spur

# Spur Pruning

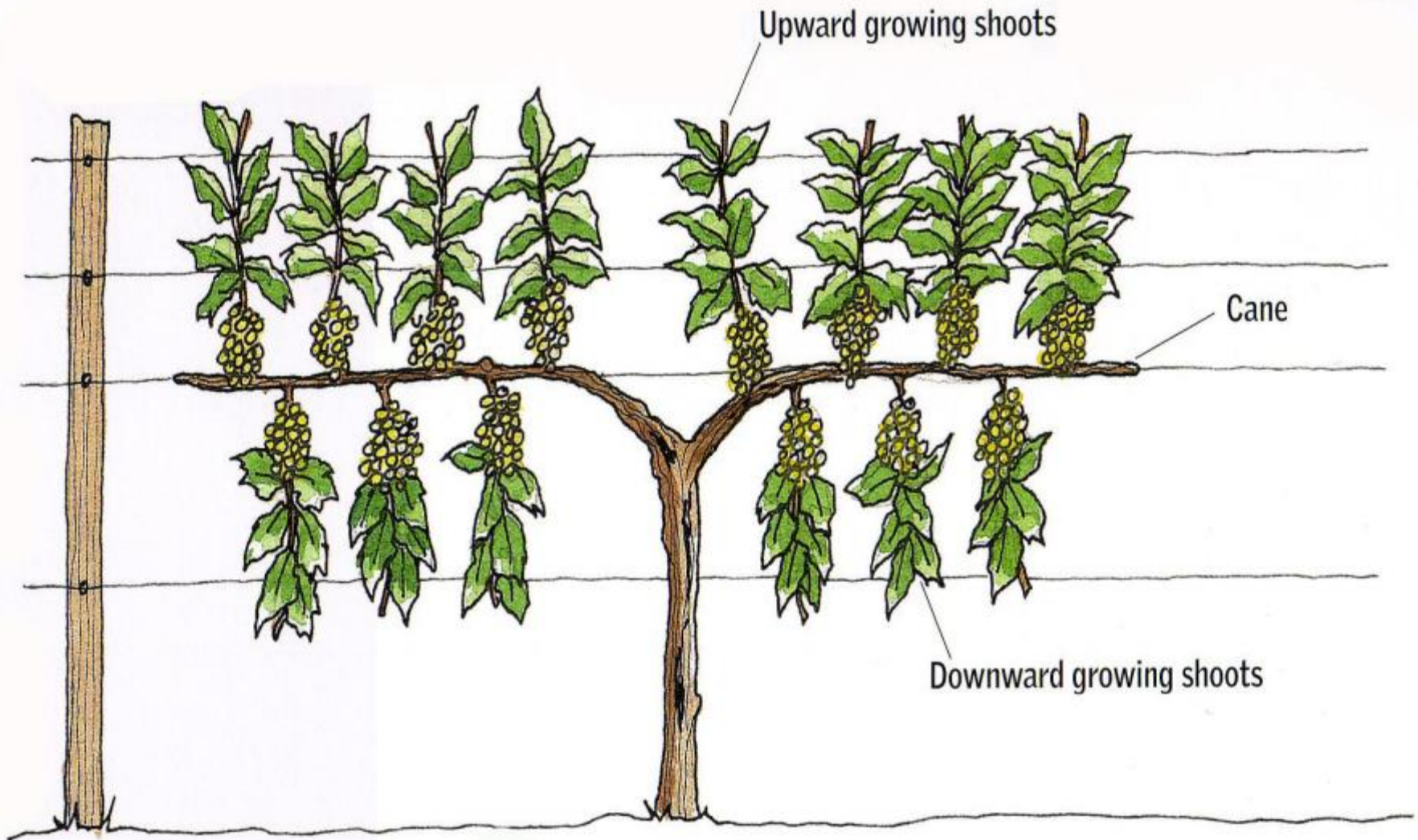


# Multiple Trunks



# Training System

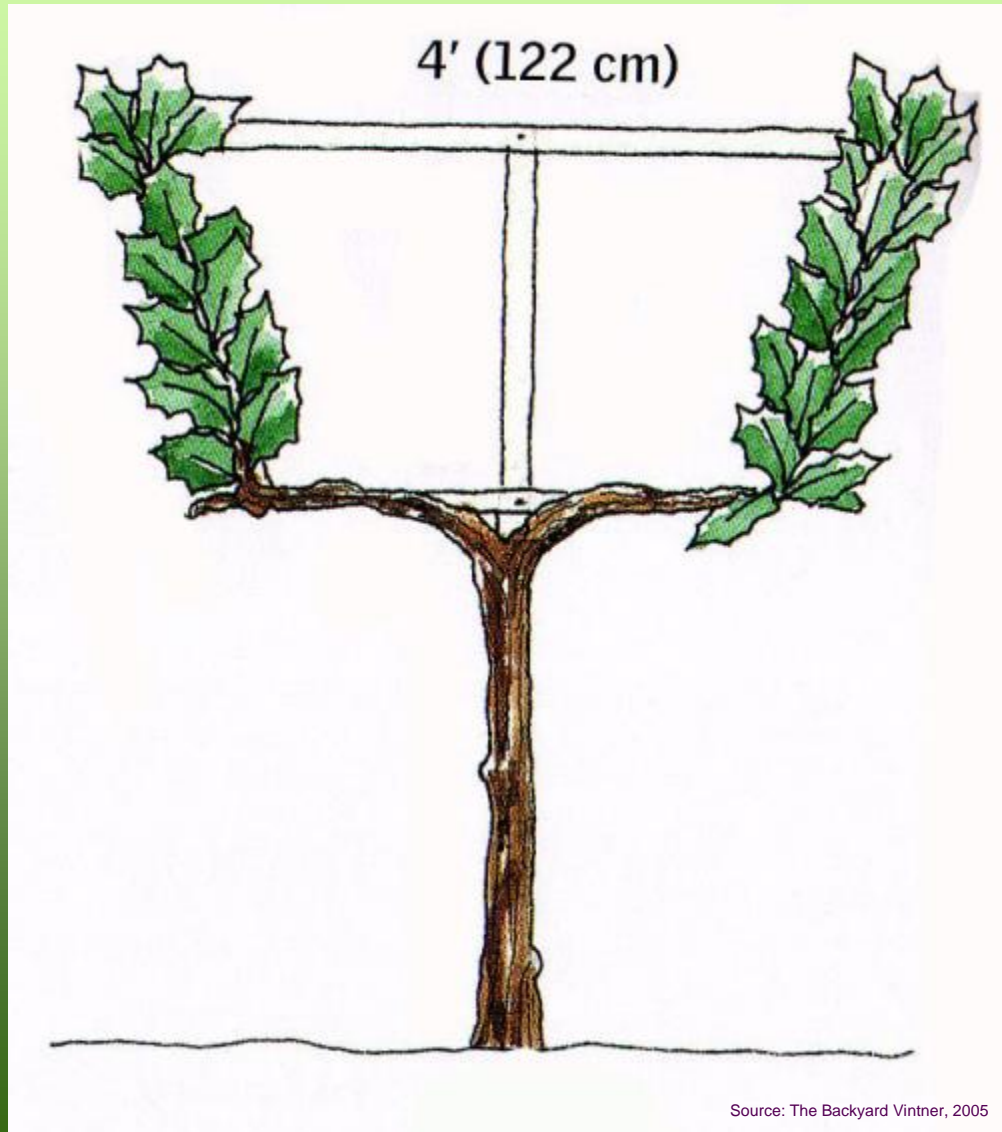
## Divided Canopy





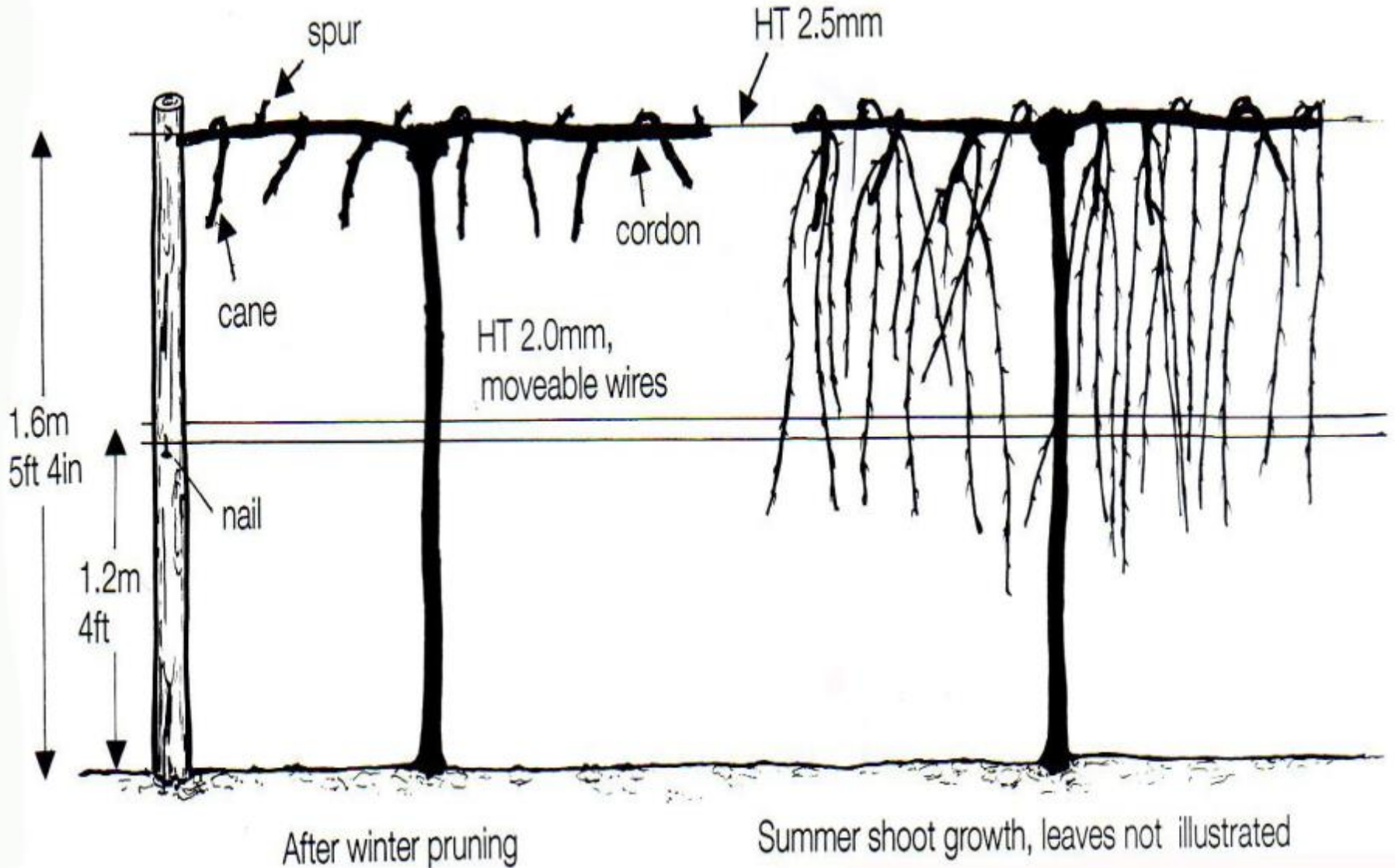
# Training System

## Lyre



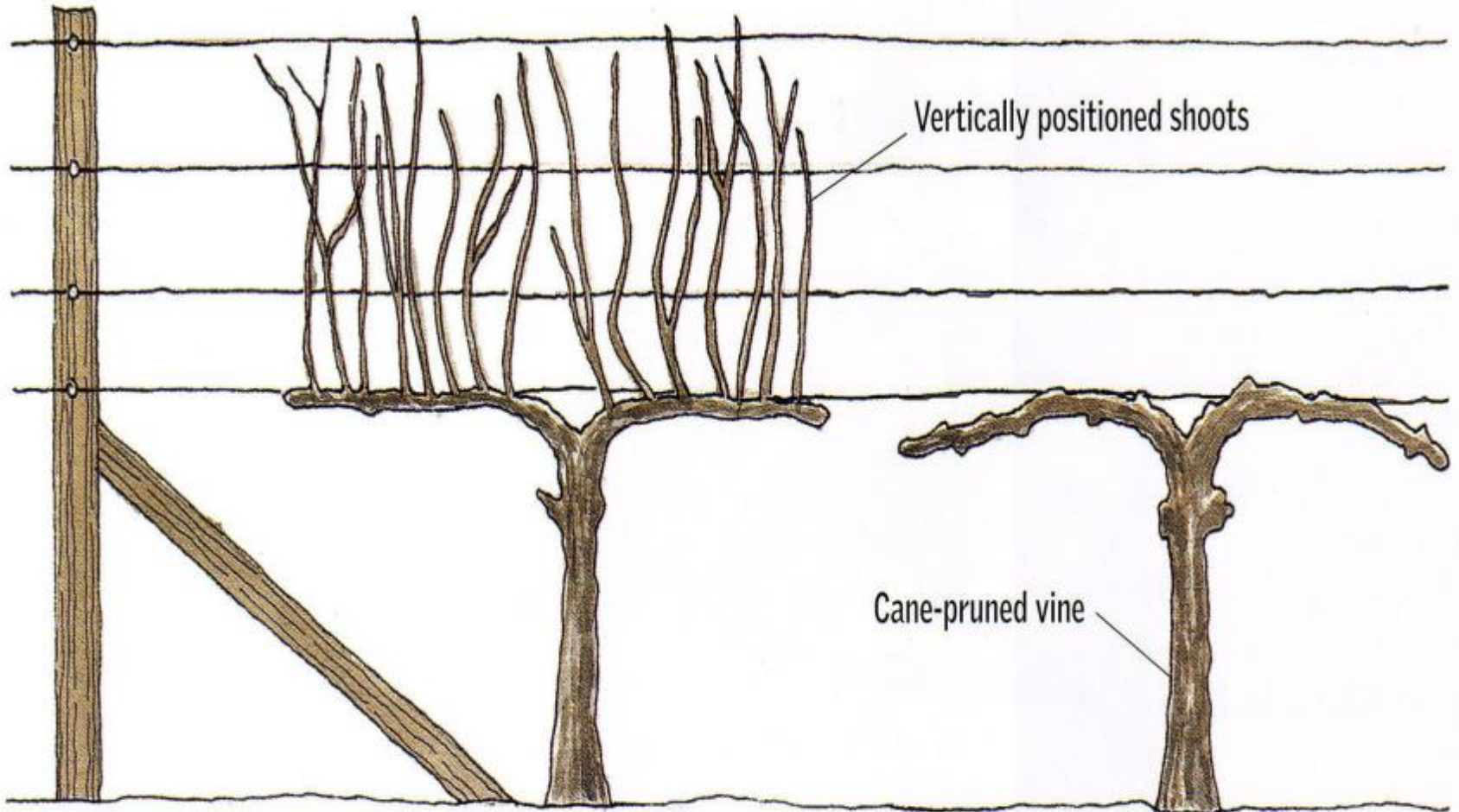
# Training System

## Sylvoz System



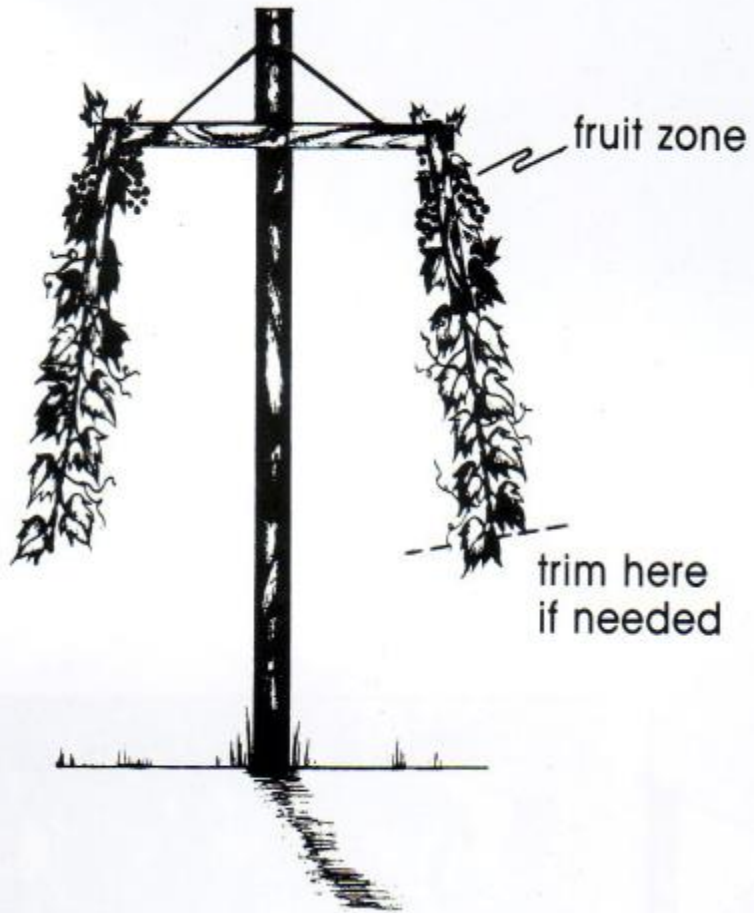
# Training System

## Vertical Shoot Position (VSP)



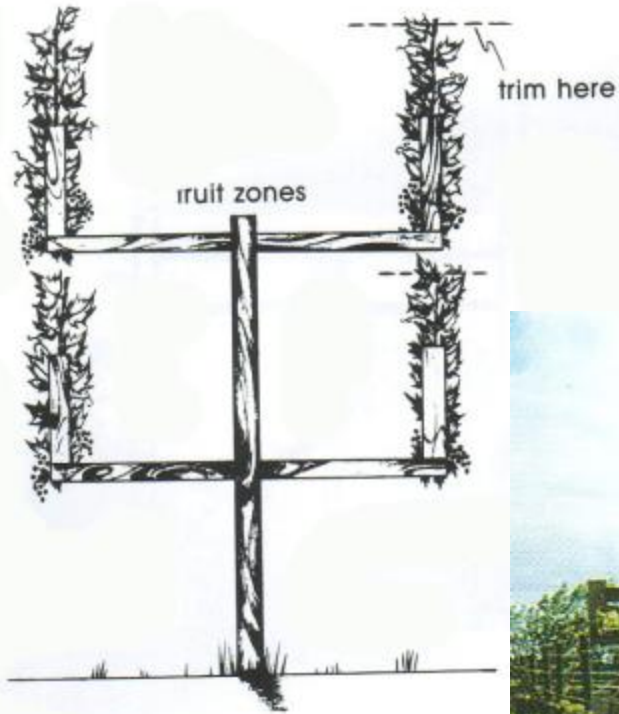
# Training System

## Geneva double Curtain



# Training System

## Ruakura Twin Two Tier (RT2T)



# Grow Tubes

Source: The Backyard Vintner, 2005



Source: The Backyard Vintner, 2005



**Young vines can be damaged by swings in temperature, blowing sand, and wildlife. Grow tubes provide a more stable climate.**

# Vertical Shoot Positioned Vines

