

Texas Sized Vineyard Mistakes to Avoid

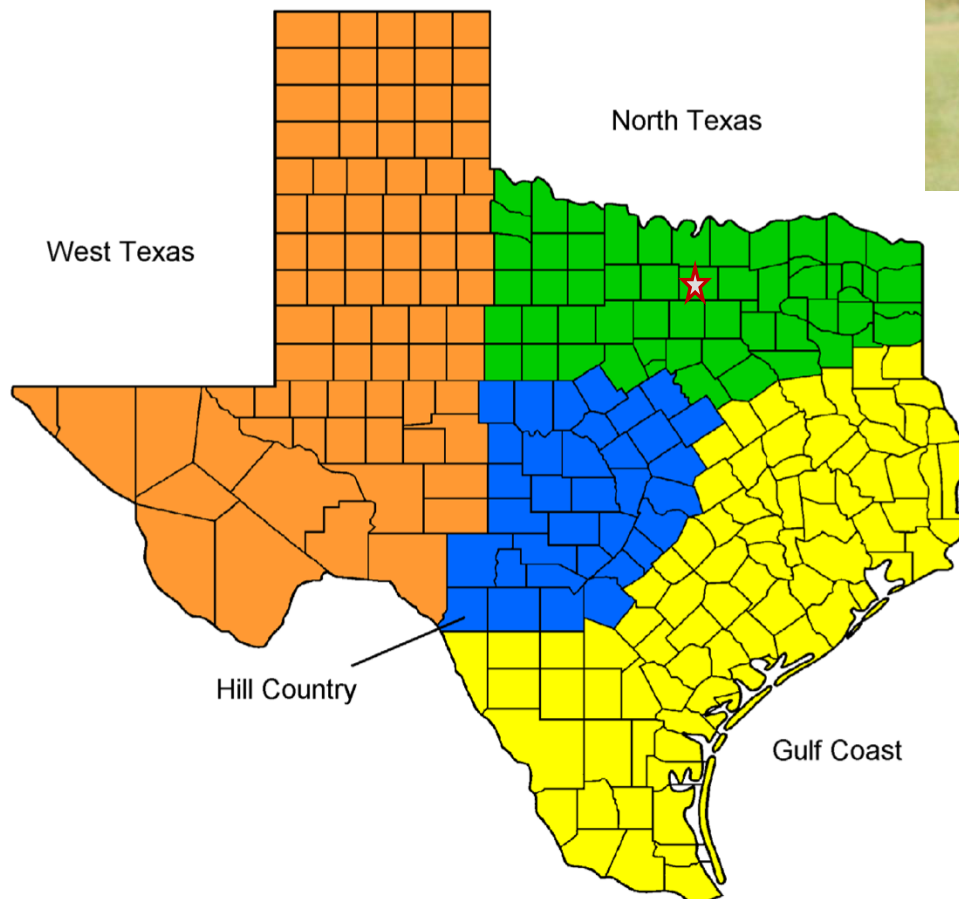
TEXAS A&M
AGRILIFE
EXTENSION

Planting on a Firm Foundation

Michael Cook & Daniel Hillin

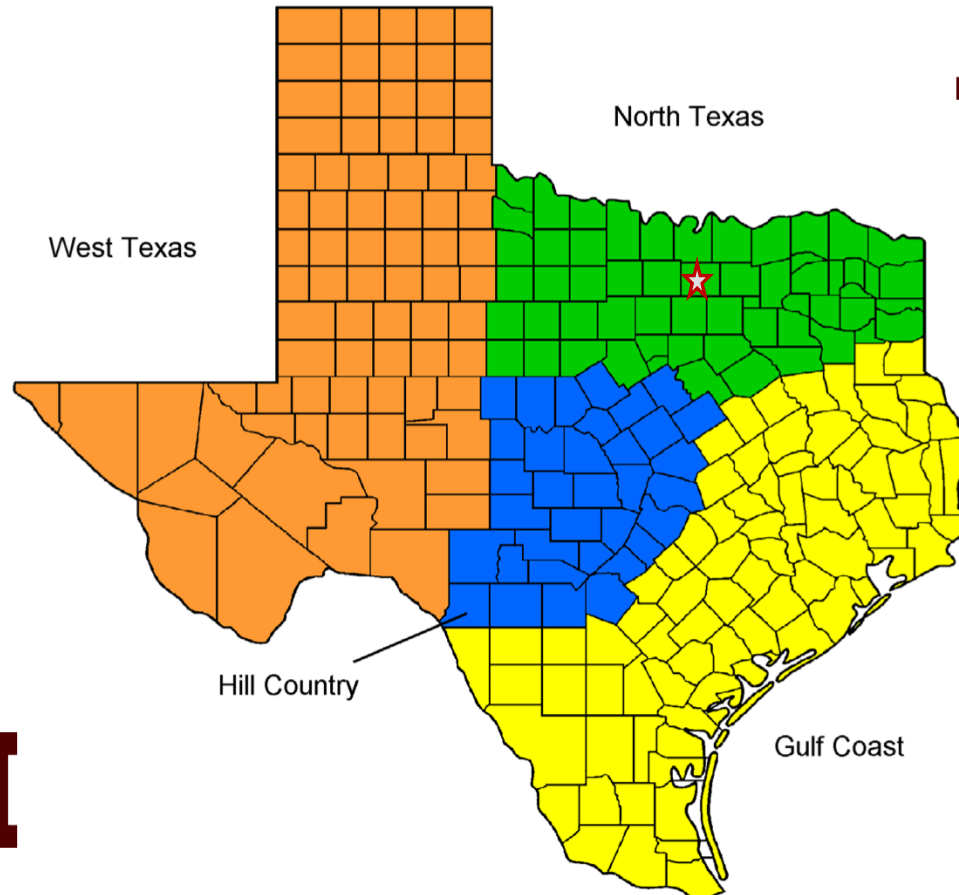
Who is this guy?

Texas Viticulture Regions



Who is this guy?

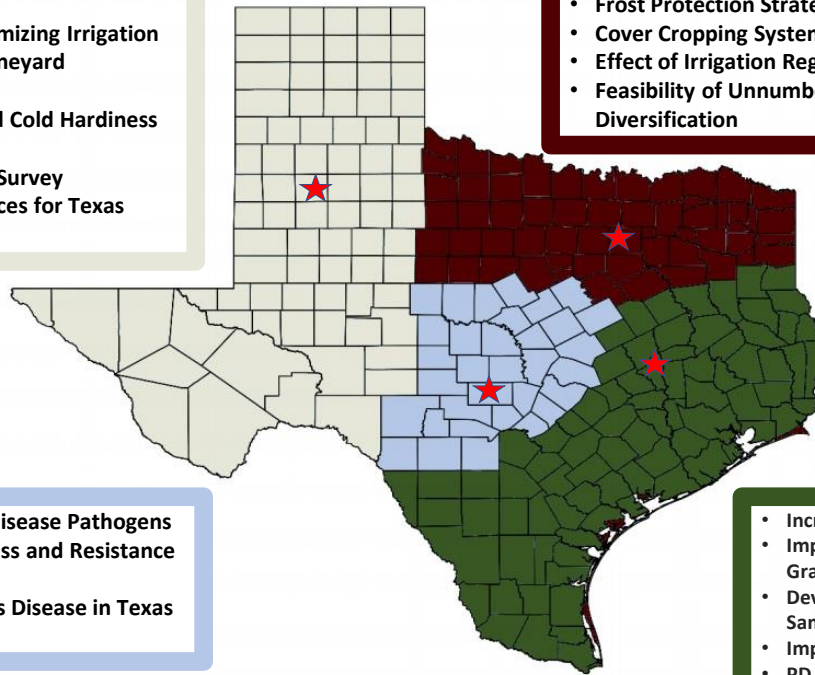
Texas Viticulture Regions



2023 AgriLife Extension Research Projects

We are committed to the Texas wine industry. As the land grant university for Texas, we support and collaborate closely with TWGGA, regional associations, grape growers and wine makers in conducting applied research trials and Extension outreach to help advance our industry.

- Improving Fruit Quality and Profitability by Increasing Vineyard Uniformity with Remote Sensing coupled with Precision Viticulture
- Sustainable Irrigation Management: Optimizing Irrigation Practices to Improve Wine Quality and Vineyard Economics
- High Plains Real-Time Grape Ripening and Cold Hardiness Data
- State-wide Grapevine Herbicide Damage Survey
- Defining Healthy Soil Management Practices for Texas Vineyards



- Reducing the Potential for Cold Injury to New Vineyards in Texas by Evaluating Vine Shelter Type
- Frost Protection Strategies of Novel Coffee Based Product in Vineyards
- Cover Cropping Systems and Soil Health in Texas Vineyards
- Effect of Irrigation Regime on Grape and Wine pH Relationships
- Feasibility of Unnumbered WSU Cider Apple Selections for Hard Cider Diversification

Enology

- Investigation of Grape Pomace as a Sustainable Remediation Option for Chloroanisole Contamination in Wines
- Understanding Chloroanisole Contamination in Texas Wines and Wineries
- Does Phonetic Spelling on Wine Menus and Labels Influence Consumers' Willingness to Buy Texas Wines?

- Mitigating the Effect of Grapevine Trunk Disease Pathogens
- How *X.f.* Infection Impacts Winter Hardiness and Resistance to Environmental Stressors
- Evaluating *XylPhi PD* for Control of Pierce's Disease in Texas Vineyards

- Increasing Efficiency of Cordon Re-establishment
- Impact of Timing of Leaf Removal and Crop Thinning on Acidity in Grapes
- Developing a Decontamination Procedure for Grape Tissue Samples
- Impact of Red Blotch Virus on Blanc Du Bois Grapes and Wine
- PD Tolerant Grape Variety Trialing
- Mitigating Risks of Cost Sharing Equipment & Labor in Small Vineyards
- Deep Dive Into Blanc Du Bois



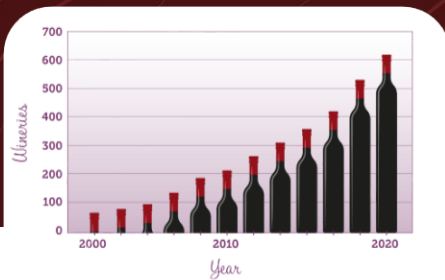
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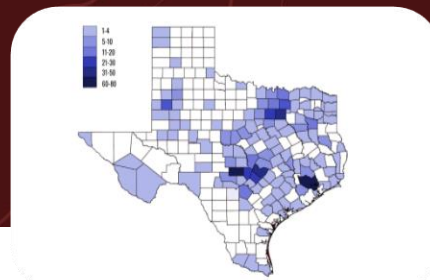
ATM
Viticulture & Enology

THE GRAPE STATE OF TEXAS



A Growing Industry

- 40 wineries in 2000
- 800 wineries in 2023
- >20 million bottles annually



Wineries

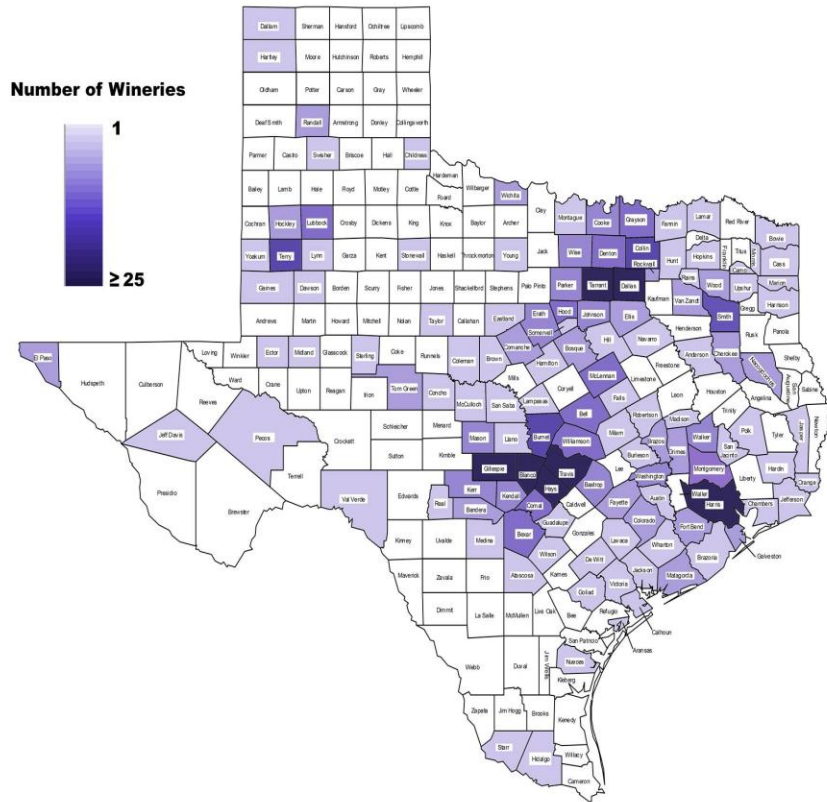
- Wineries in over half of the counties across Texas
- 2 million wine tourists



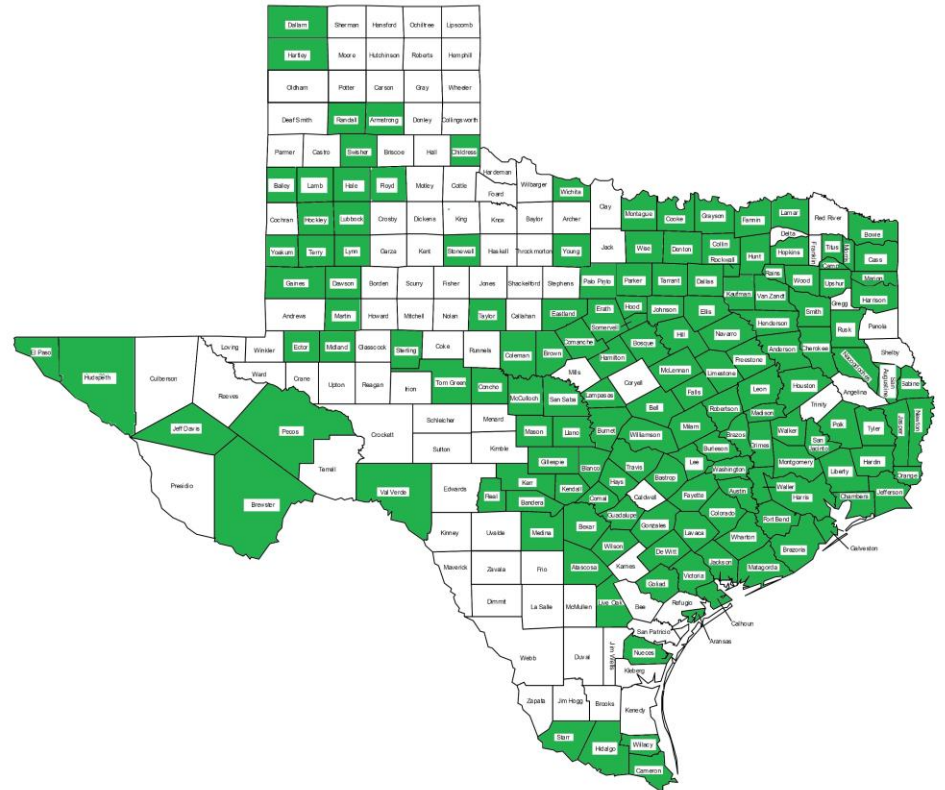
Vineyards

- Vineyards in over half of the counties across Texas
- >70 grape varieties
- 9,300 acres of vineyard

Wineries (G Permits) By County in Texas



Commercial Vineyards By County



Courtesy of Dr. Justin Scheiner, TAMU

What's Wine Worth?



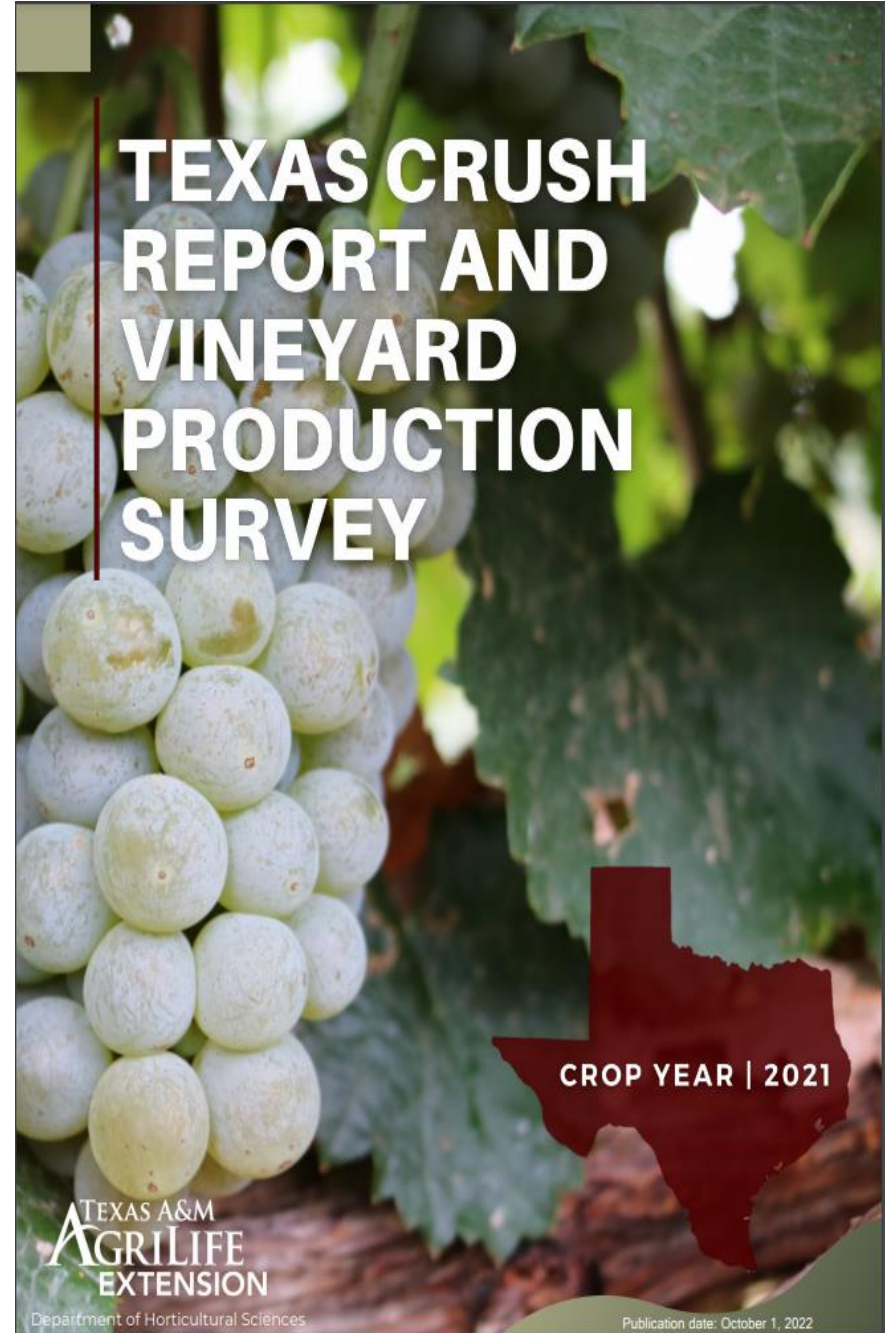
2022 Texas

Economic Impact Study

presented by WineAmerica,
The National Association of American Wineries



TEXAS CRUSH REPORT AND VINEYARD PRODUCTION SURVEY



CROP YEAR | 2021

TEXAS A&M
AGRILIFE
EXTENSION

Department of Horticultural Sciences

Publication date: October 1, 2022

Texas Grape & Wine Industry Today

5th in overall winegrape and wine production in U.S.

8 American Viticultural Areas (AVAs) - 2 Pending -

~ 9,000 acres of vineyards

~ 7,100 tons of grapes

~ [Texas High Plains AVA produces 80-85% of the grapes for the entire state.](#)

~ 800 wineries & ~ 400 tasting rooms

~ 20 million bottles annually

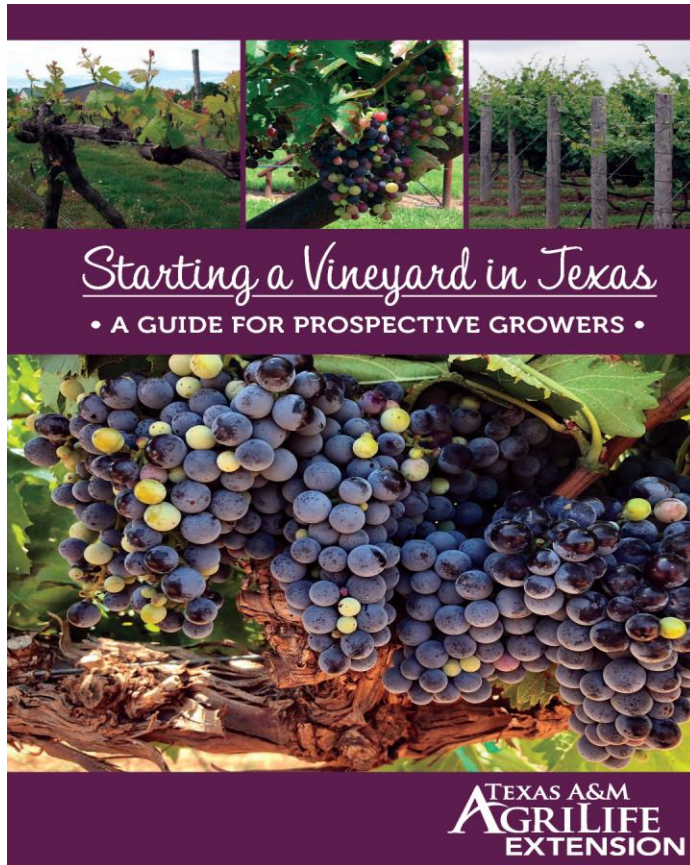


Light Blue: Texas High Plains
Purple: Texoma
Dark Blue: Mesilla Valley
Pink: Texas Hill Country

Red: Escondido Valley
Orange: Texas Davis Mountains
Green: Bell Mountain
Dark Blue: Fredericksburg

Source: 2021 Texas Crush Report & Vineyard Production Survey – AgriLife Extension

How to Start Your Vineyard



Why do you want to plant a vineyard?

popular answers:

- something to do during retirement
- for aesthetics/pleasure
- to make wine at home
- to make wine commercially
- to make money



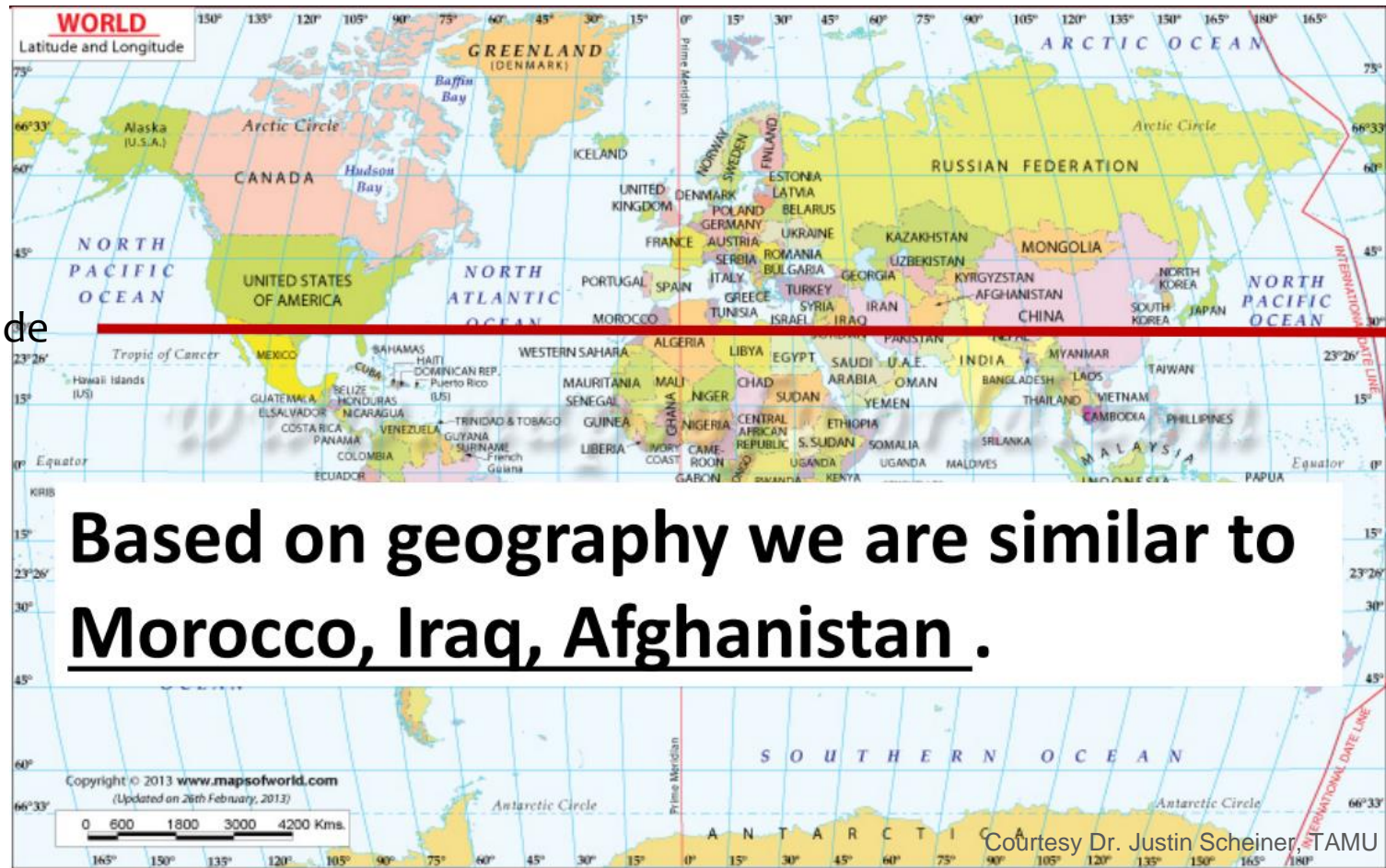
A Comparison of Regions

Region	Average Growing Season Temperature	
	High	Low
Dallas, TX	85.9	66.3
Napa, CA	77.6	50.5
Bordeaux, France	70.4	51.5
Finger Lakes, NY	71.9	47.8
Tuscany, Italy	78	57.5

Courtesy Dr. Justin Scheiner, TAMU

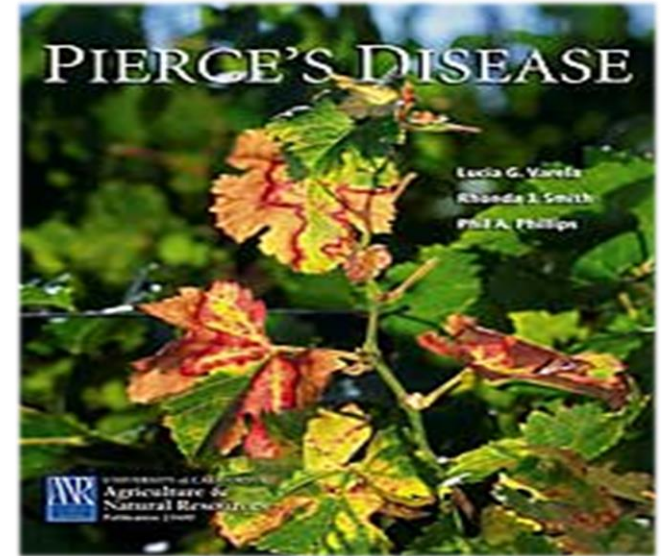
Lower acidity, higher alcohol potential, rapid ripening

Texas isn't Tuscany...



Is it easy growing grapes?

- 1) Pierce's Disease*
- 2) Pest & Disease Pressure
- 3) Spring Frost
- 4) Herbicide Injury
- 5) Rain – excess and timing
- 6) Vigor
- 7) Variety Selection
- 8) Hail
- 9) Labor
- 10) Suppliers
- 11) Education



Quality Starts in the Vineyard

*You can make bad wine from good grapes
but cannot make good wine from bad
grapes....*

*Remember, if managed [★]well, vines can
live 20+ years in Texas*



1. Plan, Plan, Plan



New Growers

1. soil test

2. water quality test

3. perc test



Michael Cook¹ and Justin Scheiner²

Selecting a suitable site is the most important decision when establishing or expanding a new vineyard. There are many factors involved in selecting the optimum site, and this resource provides a protocol for four essential tests that should be performed when evaluating prospective locations. Consult your regional viticulture program specialist for assistance interpreting the results of each report generated.

✓ Web Soil Survey

County soil maps have been digitized and can be accessed at no cost from the United States Department of Agriculture (USDA) National Resources Conservation Service (NRCS) website. This satellite image-based survey provides the user with the specific soil series present within a designated area of interest (AOI) while giving the general soil characteristics of each soil series. This first step can help growers determine locations for detailed soil sampling and testing of the site as well as vineyard design and generalized management strategies for individual blocks.

1. To generate a soil survey for a particular parcel of land, visit websoilsurvey.sc.egov.usda.gov and click on the "Start WSS" button.



Figure 1. Start WSS button. source: USDA

3. Create an AOI and select the "Soil Map" tab to explore the individual soil series that are present. Doing this gives you a base reference of the soil type and diversity of a specific site and will help in determining where to collect soil samples, percolation tests, and topographical analyses, such as slope.

✓ Soil Test

Soil testing can provide critical information about a soil's chemistry, such as pH and conductivity. Testing can also include the essential nutrient composition, including macronutrients and micronutrients, as well as organic matter content and the soil's texture (sand, silt, and clay). Many soil testing labs will analyze soil and, at the very least, a soil test should include the pH, sodium adsorption ratio (SAR), macronutrient, and micronutrient analysis. Submitting a topsoil sample and a separate subsoil sample from each test parcel is often recommended. Remember,



1. **Why are you doing this?**
2. **How are you going to make the dream work?**
3. **What is your business model?**
4. **Do the economics work out?**
 - to produce clean high quality fruit year after year at a sufficient yield that provides a profit
 - grapes are a long-term investment
 - rely on your strengths and recognize your weaknesses

Crunching the Numbers

Cost to establish an acre: **\$20-60,000**

Cost to manage an acre per season: **\$3-5,000**

First Full Harvest: **3-5 years**

Yield per acre: **2-4 tons**

Price paid per ton: **\$1,400-2,500**

General Rule: **takes 10 acres to break even**

****Expect to lose some/all crop every 5 years****

Crunching the Numbers

Labor Requirements

Couple working every weekend: **0-3 acres**

Full time job with seasonal help: **0-5 acres**

How to make a profit:

- ⦿ increase plantings, yields and/or prices
- ⦿ lower production costs
- ⦿ diversify to Events and Tourism
- ⦿ make and/or sell wine

2. Location, Location, Location

*You only get to pick your site
once....*

Most important decision!

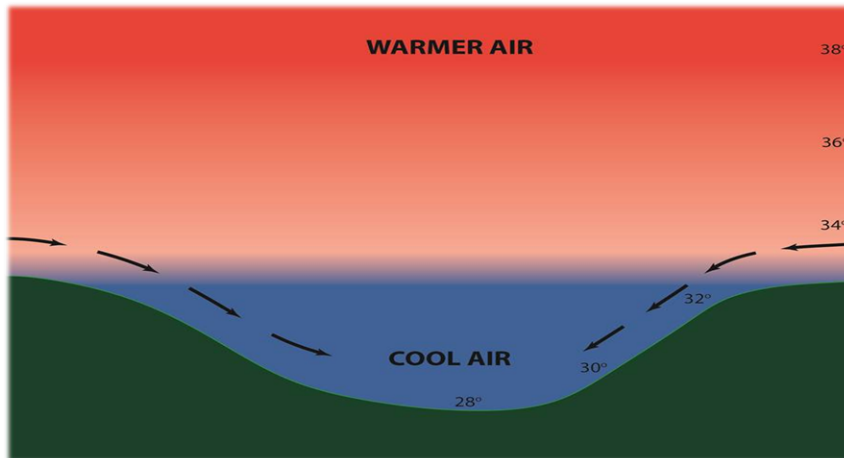
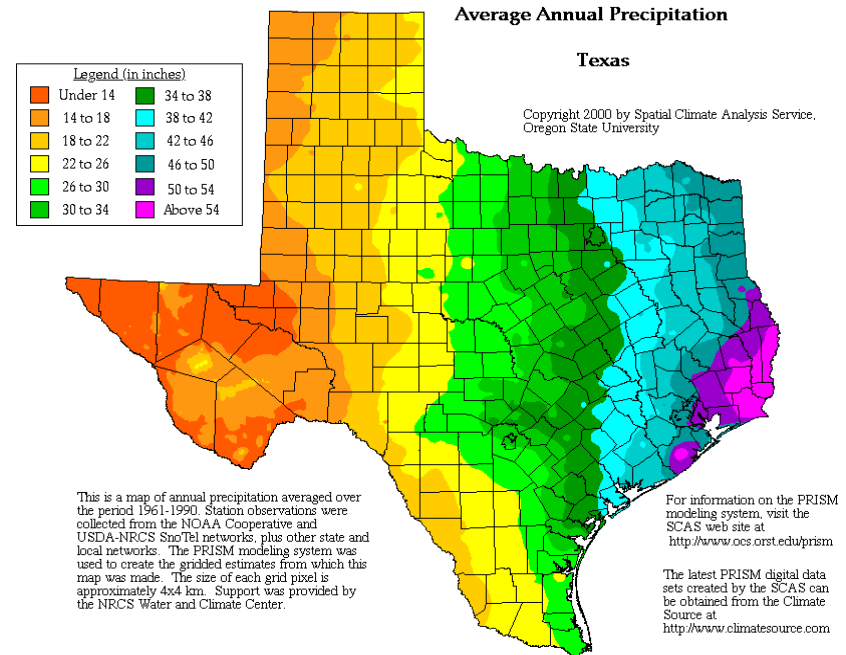
⊙ Climatic Region

⊙ West, Central, East

⊙ Topography & Soil

⊙ drainage, salts

⊙ frost abatement



Cold hardiness – Winter Injury

Ability of a grapevine to tolerate cold temperatures in the winter.

Influenced by:

- Environment/site
- Vine growing conditions
- Varieties

High Plains Environment

- Major Challenge every year
- Late Spring Frosts
- Early Winter Freezes

“It is better to live where you farm, rather than farm where you live.” - Multiple



3. *Grow with the Flow*

**Select the appropriate varieties
that fit your business model...
high input vs. lower input**

What are my options?

1. *Vitis vinifera*

- European varieties, over 8,000
- New PD Tolerant UC-Davis Varieties

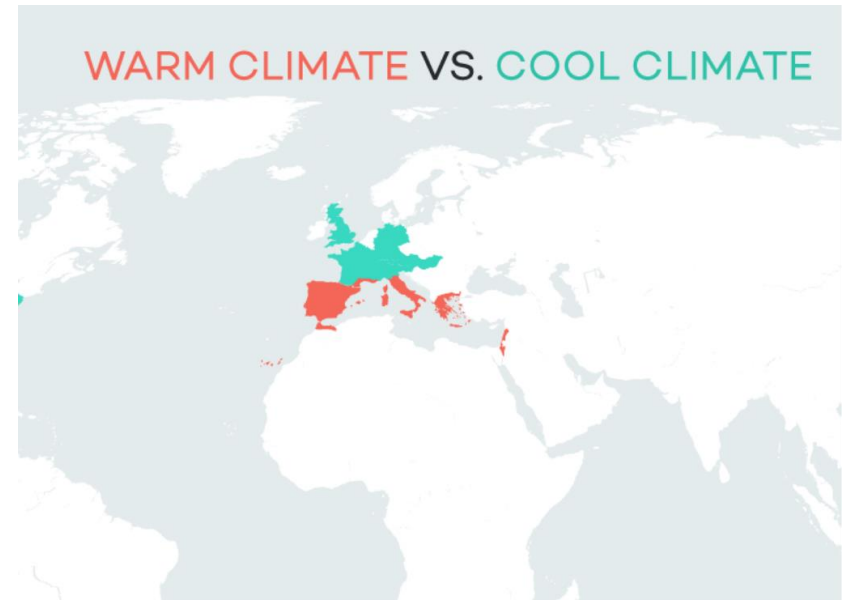
2. American Varieties

Hybrids


- European x American
- American x American

3. Muscadines

- *Muscadinia rotundifolia*



Purchasing and Planting Vines

- ⦿ **Do not settle with what you do not want**
 - ⦿ all rootstocks are not created equal
 - ⦿ Buy from a reputable nursery, avoid cuttings, buy certified-disease-free (2010P)
 - ⦿ check in with them
 - ⦿ Ordering often requires 1.5-2 years advance
 - ⦿ Store vines properly
 - ⦿ Plant at the right time, train a vine, and implement **TOUGH LOVE**
- 

Cultivar Selection is Key

- ✓ Disease susceptibility
- ✓ Production potential
- ✓ Timing of budbreak
- ✓ Demand



Top Ten Grape Varieties in Texas by Acreage

Cabernet Sauvignon: This Bordeaux grape is the number one wine grape by acreage in Texas and in the U.S. It is best known for producing bold, intense wines and often produces the best quality at moderate crop loads. In the vineyard, Cabernet Sauvignon is vigorous and has very small berries with thick skins.

Tempranillo: A red wine grape of Spanish origin, Tempranillo acreage in Texas has grown rapidly over the last 10 years. This grape is thought to be well adapted to the heat of Texas, where it consistently produces high-quality wines. Tempranillo can produce large crops, but color and flavor intensity may decrease with overcropping.



Merlot: Like Cabernet Sauvignon, this French grape has broad name recognition and high wine quality potential. Merlot is best grown at moderate crop loads as color and flavor intensity suffer when overcropped.

Blanc Du Bois: This is the premier PD-tolerant white wine grape. It is most widely grown in the Gulf Coast Region, but also in North Texas and the Hill Country. Blanc Du Bois produces aromatic white wines, and a range of styles from dry to sweet to fortified are routinely made. In the vineyard, Blanc Du Bois is very vigorous and benefits from grafting on alkaline soil.



Mourvedre (Mataro): Mourvedre has recently grown rapidly in popularity. It is often considered to be a grape grower's friend due to its upright growth habit that makes it easy to train. Mourvedre is made into varietal wines and is also an important blending grape, as it is one of the components of GSM.



Black Spanish (Lenoir, Jacquez): Black Spanish is the most widely grown PD-tolerant red wine grape. Acreage is highest in the Texas Gulf Coast, but Black Spanish is also grown in North Texas and the Texas Hill Country. It is a reliable producer and makes an attractive vineyard due to its large clusters and leaves.



Sangiovese: This Italian grape is the primary component of Chianti wines. In Texas, Sangiovese is one of the first grapes to break bud in the spring, making it prone to late spring freeze damage. It is relatively cold tender but produces very high-quality red wines. Like other hot climate grapes, Sangiovese is well adapted to the climate of Texas.



Viognier: This Rhone variety has produced several award-winning wines in Texas. Viognier breaks bud early in the spring, making it prone to late spring freeze damage, but has very high wine quality potential. When harvested at advanced maturity, Viognier often has tropical fruit and spicy flavors.



Malbec: This red wine grape hails from France but is often associated with Argentina due to high production there. In Texas, Malbec can produce very high-quality wines, but in the vineyard, it can be challenging to grow and produce consistently.

Syrah (Shiraz): Syrah is a Rhone variety that can produce wines with a characteristic black pepper flavor. In the vineyard, Syrah is a vigorous grower and can be finicky to set crops in younger vineyards. Syrah represents the "S" in "GSM," and it is made into varietal wines as well as blends.



Many other grape varieties are grown commercially in Texas, and many others have been tried. The chances are high that if you are interested in growing a lesser-known grape, it has been planted in Texas before. Over 50 other grapes not listed here are grown on a commercial scale in Texas.

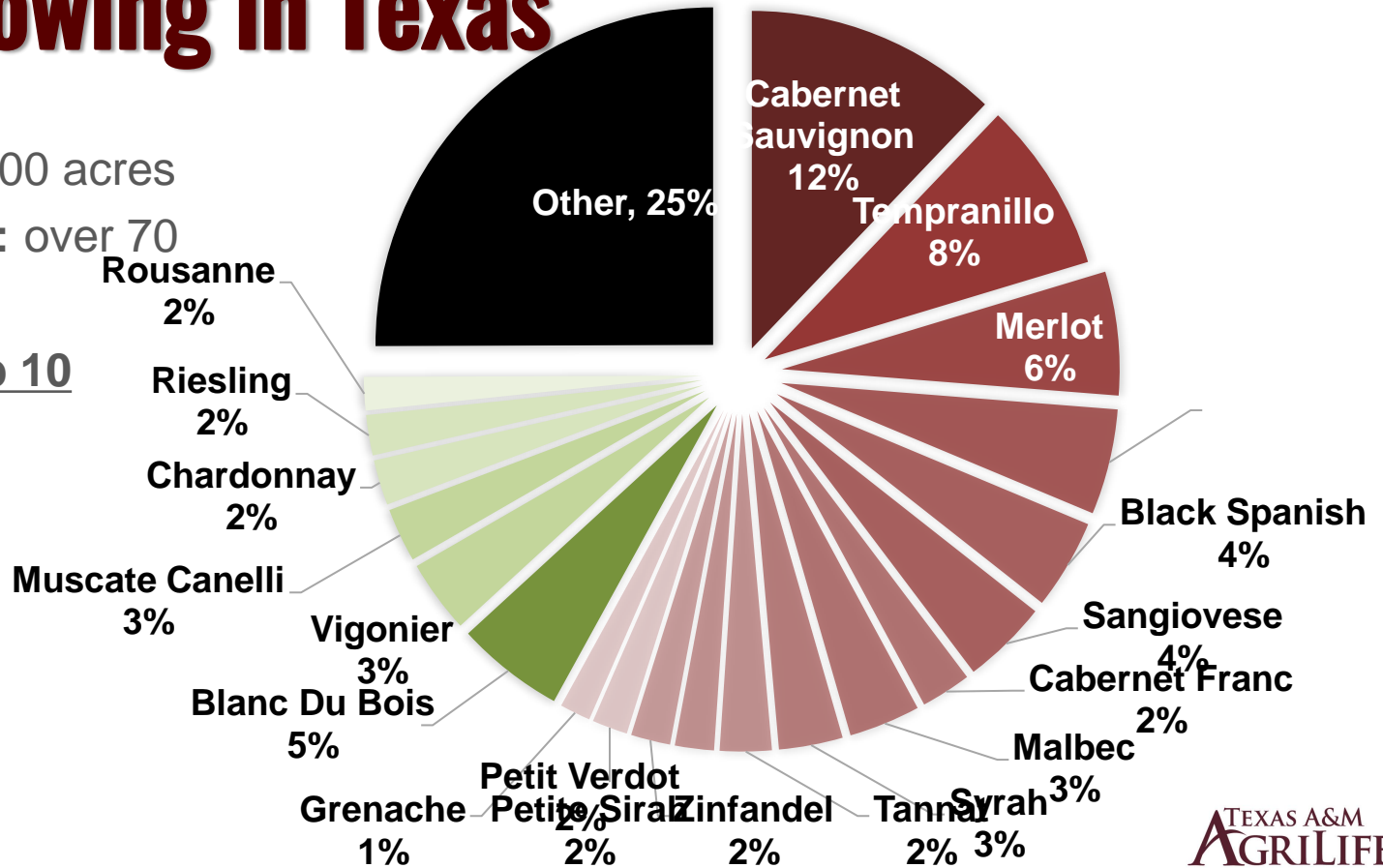
Grape Growing in Texas

Production: 9,300 acres

Grape varieties: over 70

High Plains Top 10

- Cabernet Sauvignon
- Merlot
- Tempranillo
- Mourvedre
- Sangiovese
- Vigonier
- Malbec
- Muscat Canelli
- Cabernet Franc
- Petit Verdot



Training Systems

- Many Different Training systems
- Variety Dependent
- Mechanization Dependent



COMMON VINE TRAINING METHODS



single cordon



double cordon



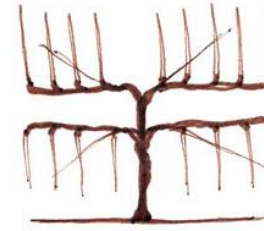
single guyot



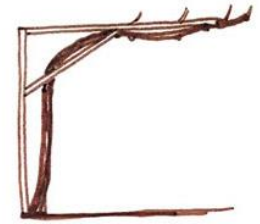
double guyot



geneva double curtain



scott henry



pergola



lyre



goblet / head



basket / kouloura

 WINE FOLLY

Vineyard Irrigation

- ◎ Efficient methods of applying water for growth
 - ◎ Above Ground Drip System - 85-90%
 - ◎ Subsurface Irrigation – 100%



- ◎ Each have their own unique challenges

Mechanization & Equipment

- ⦿ Every major vineyard task can be mechanized
- ⦿ Prior planning is essential



“As your vineyard increases in size your management must become more effective.” -JW

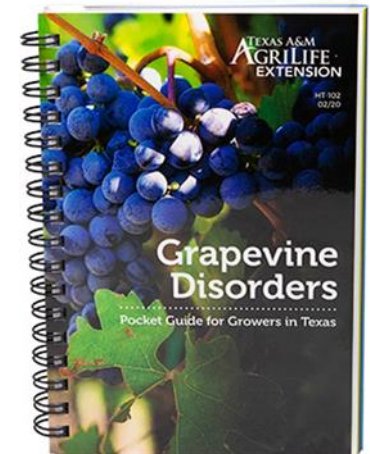
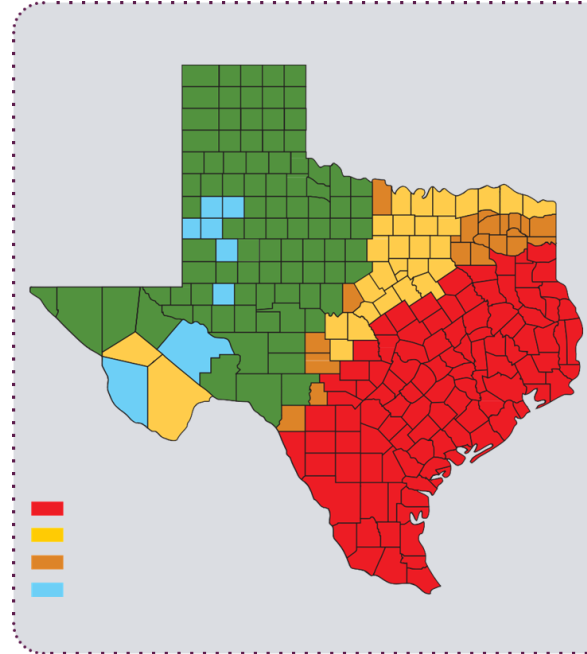
What Tasks Can Be Mechanized?

- Planting
- Pruning
- Shoot thinning
- Desuckering
- Shoot positioning
- Leaf removal
- Hedging
- Binding
- Tilling
- Mulching
- Fruit thinning
- Netting
- Harvest
- Fruit sorting
- Spraying
- Irrigation
- Fertilization
- Transportation
- Mowing
- Weed Control



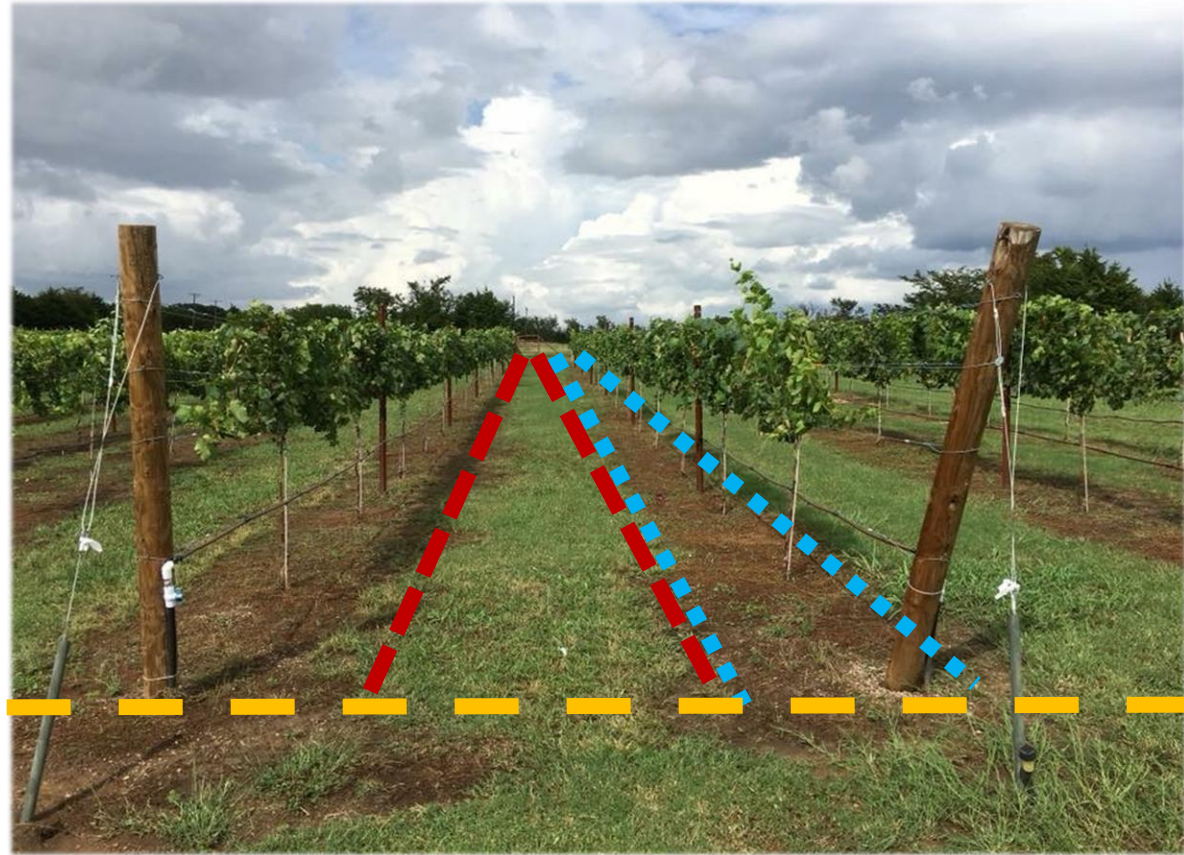
Disease control is critical...

- ◎ **Pierce's Disease**
 - ◎ Most limiting factor
- ◎ Multiple Canopy Diseases
- ◎ Multiple Trunk Diseases
- ◎ Multiple Soil Borne Diseases
- ◎ Viruses



Weed control is critical...

- ◎ **Soil** - ecology
- ◎ **Plants**
 - ◎ vines
 - ◎ vegetation in **vine row**, **row middle (alley)**, and **headlands**
- ◎ **Pest & Disease**
 - ◎ sharpshooter (PD)

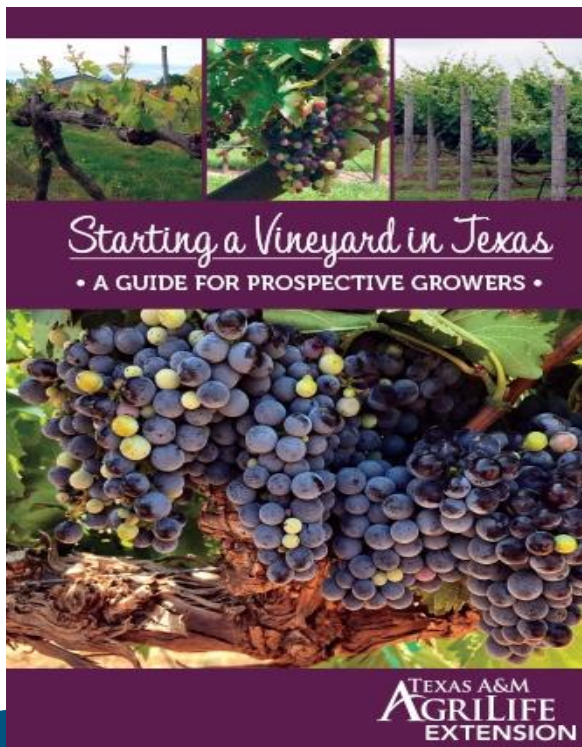


You do not have to journey alone

- ⦿ Network
- ⦿ Seek out advice from growers, industry members, and research-based educators, such as AgriLife Extension
- ⦿ Attend programs, workshops, webinars, field days, tailgates, demonstrations, and research symposiums in Texas
- ⦿ Travel & Taste!

Further Resources

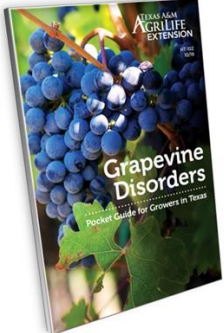
- ⦿ Growing Grapes in Texas – Jim Kamas
- ⦿ Texas Grape Pest Management Guide
- ⦿ Texas Disorders - Pocket ID Guide



**New
for
2020**

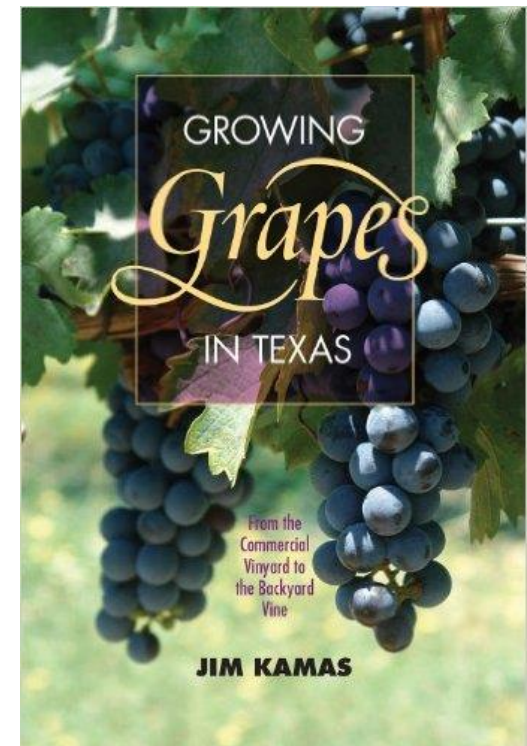
**Grapevine
Disorder
Pocket ID
Guide**

**200+ Photos of Texas
Disorders in Texas Vineyards**



\$30.00
Purchase online at:
www.agrilifebookstore.org

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Questions?



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