



# Optimizing New Jersey Viticulture for Quality Wine Production-Part II

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2010 Symposium

Successful Winegrowing in the Garden State- Selected  
Climate, Site and Variety Considerations



# Questions for New Jersey Winegrowers

- What factors most determine wine quality?
- How can we consistently and sustainably grow quality wine in New Jersey?
- What shall be the identities of New Jersey terroirs?
- How does local and regional wine production flourish in a global wine industry?

# Grape and Wine Quality-Determinants and Measures

## Determinants

- Climate and soil (temp, light, H<sub>2</sub>O, N)
- Grape variety suitability
- Balanced canopy vigor to fruit yield
- Winemaking techniques

## Measures

- Healthy, mature berries
- Small berry size for a given variety
- Phenols, anthocyanins, Brix, TA
- NJQWA, wine ratings, awards, price



# Grape Variety Suitability

- Wine Grape Production Guide for Eastern North America
- Examination of other “Atlantic” Viticulture regions
- Viticulture Map of New Jersey
- Ongoing research- NE1020
- Own vineyard trials

# Bordeaux Red Varieties

VARIETY (2010)	%
Merlot	62
Cabernet Sauvignon	25
Cabernet Franc	12
Petit Verdot/Malbec	1

No single ideal climate for a given variety.  
Percentage variety grown varies over time.

# NE-1020 Multi-State Variety Evaluation

RAREC planting	Snyder planting
Sentinels	Sentinels
'Chambourcin'	'Chambourcin'
'Vidal'	'Vidal'
'Merlot #3'	Others
'Cabernet Sauvignon #8'	'La Crescent'
Others	'Marquette'
'Barbera'	MN 1235 (MN 1135 x 'Frontenac')
'Lemberger'	MN 1200 (MN 1057 x 'Landot 4511')
'Touriga Nacional'	NY 76.0844.24 ('Traminette' x 'Ravat 34')
'Tempranillo'	NY 81.0315.17 ('Cayuga white' x 'Riesling')
'Albariño'	'Lemberger'
'Malbec'	'Merlot' 88 BM (Italian clone)
'Petit Verdot'	'Frontenac'
'Vermentino'	'Petit Verdot'



# Italian Clones Released by Rutgers

- Merlot (88BM)
- Barbera (B12, B34)
- Nebbiolo (Chiavennasca)
- Vespolina
- Schiava Grossa
- Rossiola



# Why Study the Trentino Alto Adige?

- Benchmark for wines
- Excellent research and expertise
- Unique Italian varieties
- Similar climate to New Jersey

# Institute Agrario St Michael All'Adige Trento

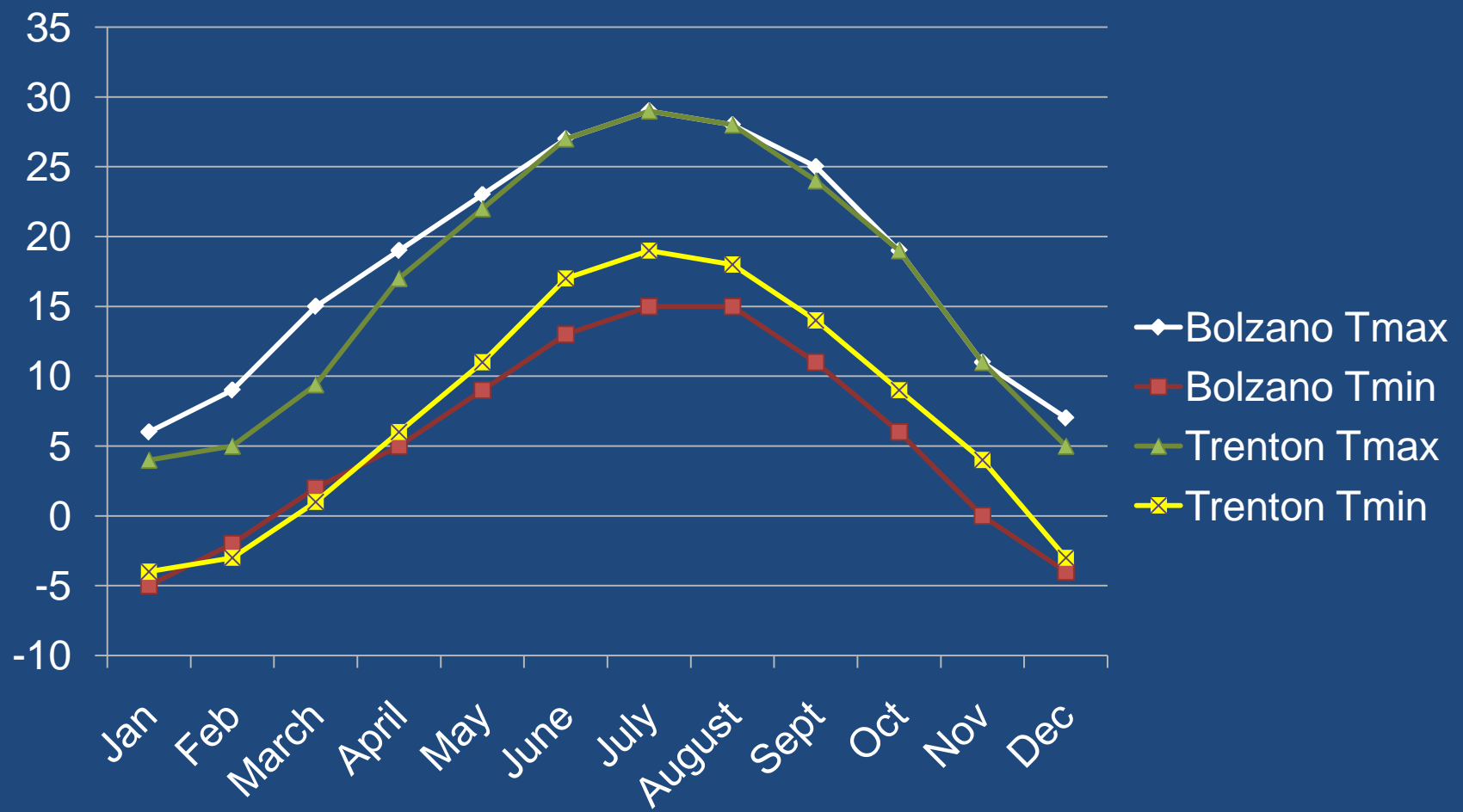




# General Similarities - Trentino Alto Adige and New Jersey

- Growing season length (160-210 days)
- Growing season sunshine (65%-75%)
- Growing season rainfall ( 475-670 mm)
- Growing degree days (1400-2000)
- Avg growing season temp ( 15-19 C)
- Winter minimum temperatures ( zones 6 & 7)

# Monthly Temperatures (°C) Bolzano vs Trenton



# Italy Cold Hardiness Zones

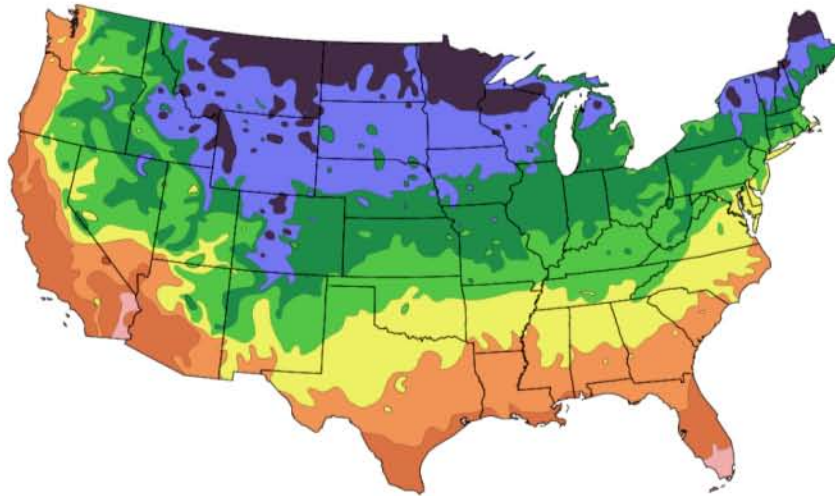


Trentino  
Alto Adige

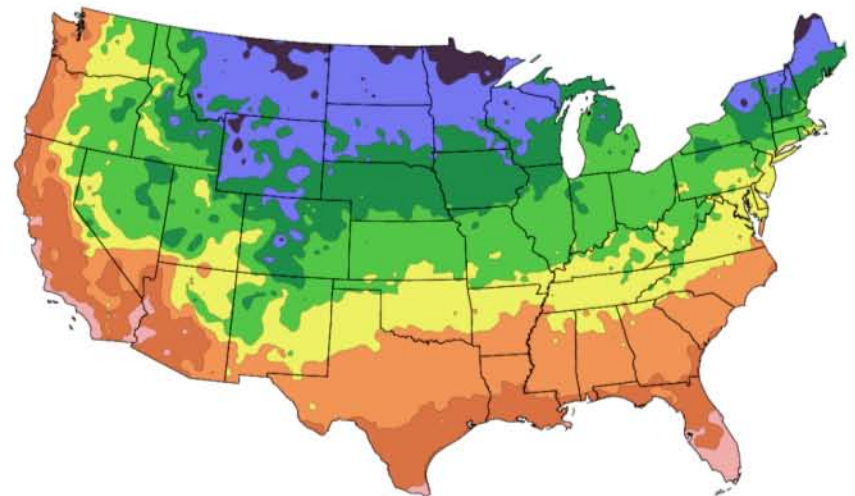
# U.S. Cold Hardiness Zones 1990-2006

1990 Map

2006 Map

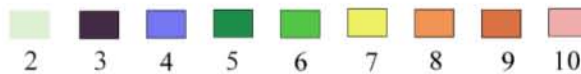


After USDA Plant Hardiness Zone Map, USDA Miscellaneous  
Publication No. 1475, Issued January 1990



National Arbor Day Foundation Plant Hardiness Zone Map  
published in 2006.

Zone



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# Comparative Winter Hardiness of Selected Grape Varieties

Grape Variety	Hardiness ( least hardy=1, most hardy=5))
Barbera	1
Merlot	1
Nebbiolo	1
Pinot Grigio	2
Lemberger	2
Cabernet Sauvignon	2
Cabernet Franc	3
Chardonnay	3
Chambourcin	3



# Selected Cold Hardy Red Grape Varieties of Trentino Alto Adige

- **Casetta**
- **Teroldego**
- **Marzemino**
- **Lagrein**
- **Schiava Grossa**



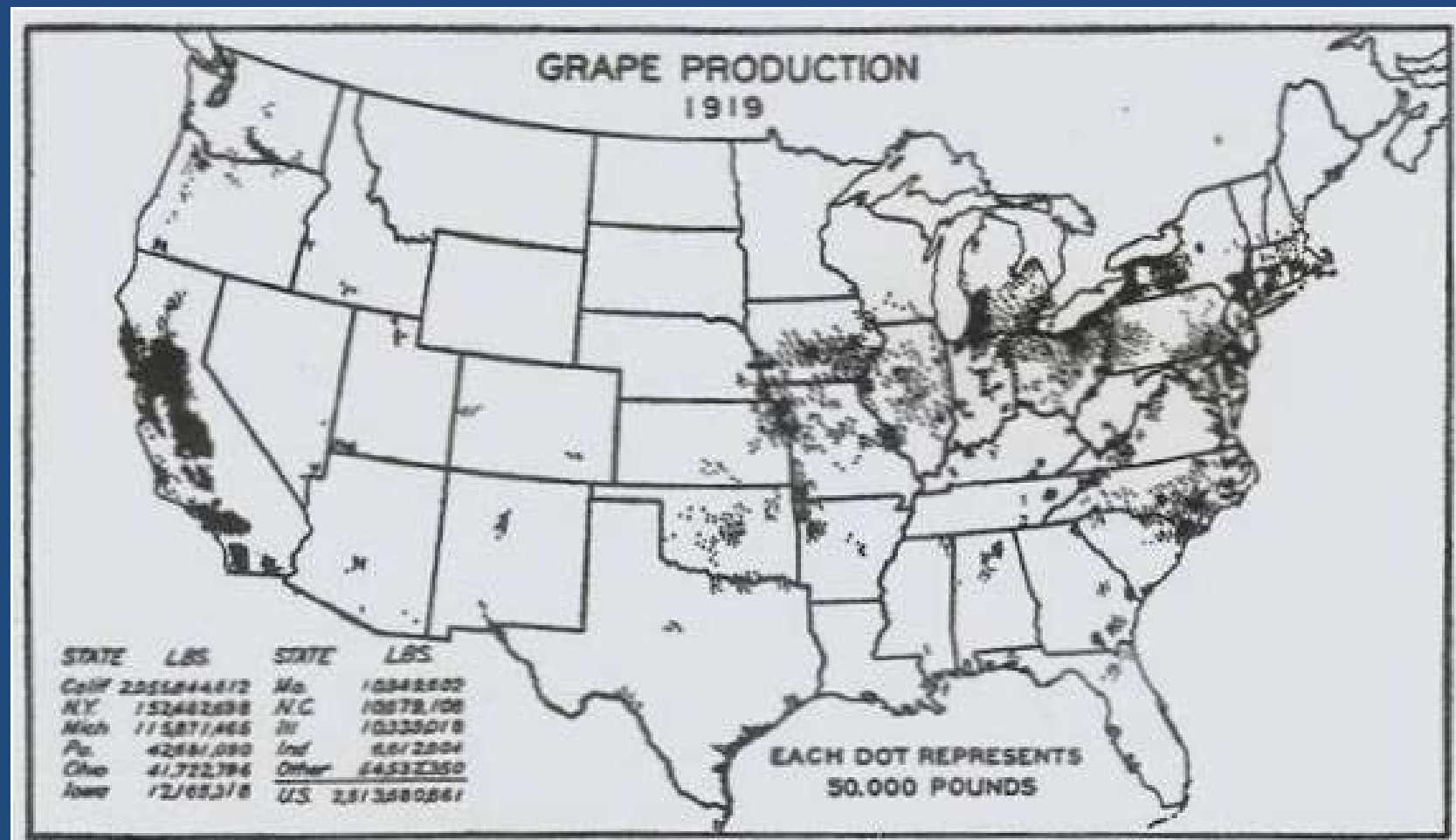
# “Atlantic” Viticulture

- Examples- Bordeaux, Galicia, Mid-Atlantic USA, ? TAA
- Growing season temps- Intermediate/Hot GDD ( 1400-2200), mod to high humidity and rainfall (400-780mm)
- Soil characteristics- deep, non limited water and mineral supply, good drainage is essential
- Excessive vigor-control by low vigor rootstock, limited nitrogen fertilization, sod between rows
- Need to limit yields for optimum leaf area to fruit ratio by shoot and bunch thinning, ( specific for each variety?)
- Need for sun exposure of fruit- leaf pulling, hedging
- High fungal disease pressure- diligent IPM program
- High production costs

# Canopy Management Vertical Shoot Positioning



# US Grape Production Prior to Prohibition





# Regional Dynamics and Globalization of Agriculture and Wine Industry

- Local/regional systems can not be expected to replace large scale agriculture production but can supplement it
- New Jersey can grow high quality wine grapes. We must grow competitively and sustainably.
- NJ has a high population density, high per capita consumption and its citizens spend more per bottle.

# Summary

- Benchmarking to winegrowing areas like Bordeaux and TAA is crucial to facilitate rapid progress in optimizing NJ viticulture
- Organizations exist to further progress in viticulture-Rutgers, GSWGGA, OCPVA, Viticulture Consortium, USDA/NJDA, SARE
- High quality wine in New Jersey can be produced if proper attention is given to all 4 aspects of terroir- climate, soil, variety, management
- Economics of winegrowing will determine sustainability- Need to produce unique, quality wine at a competitive price