

MUSCADINE GRAPE BOTANY AND PRODUCTION



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Vitis

- *Muscadinia*

- *V. rotundifolia*
- *V. munsoniana*
- *V. popenoei*
 - 40 chromosomes



- *Euvitis*

- *V. vinifera* – wine grapes
- *V. labrusca* – concord grapes
 - 38 chromosomes





Muscadine (*Vitis rotundifolia*)

- Native woody vine.
- Dioecious (polygamous), but with some perfect flowered cultivars.
- Round, serrate leaves.
- Unbranched tendrils.
- Fruit in small clusters.
- Grapes abscise when ripe, picked singly.
- Thick-skinned, seeded, edible fruit.





Muscadine Distribution

- Generally require 100 days to fruit.
- Growing region rarely falls to -12 to -18 °C.
- Frost is seldom a problem due to late flowering.
- Not well known outside of their region.
- Difficult to grow most other grapes in this region due to hot, humid summers.

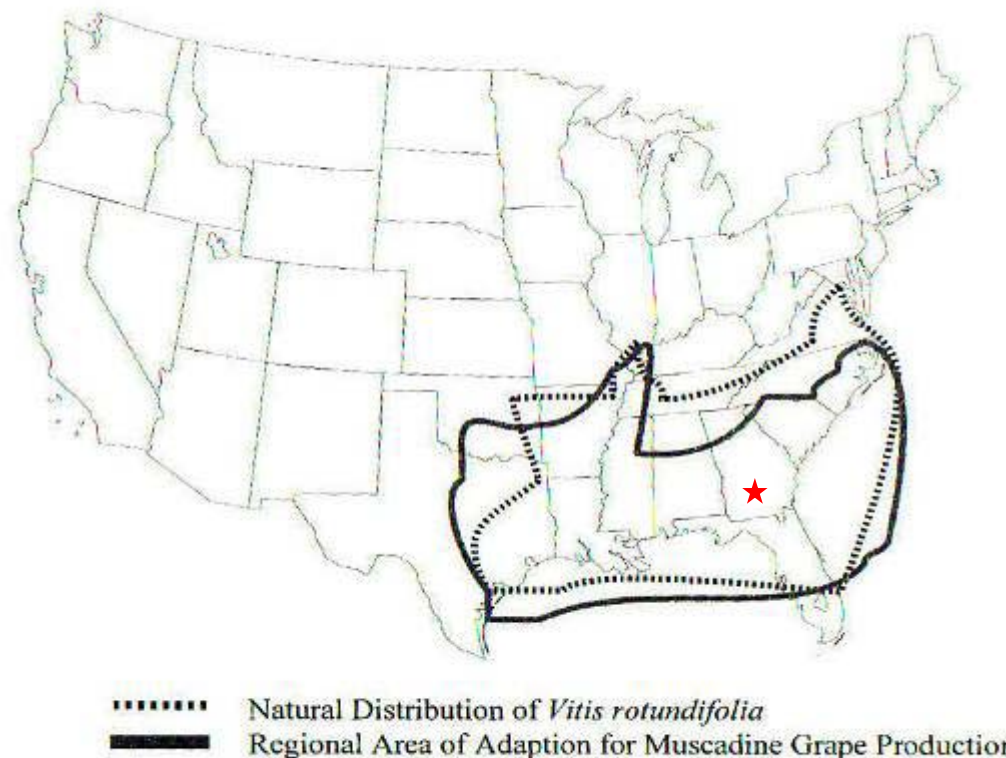


Fig. 1-2. Distribution of wild and cultivated muscadines.



Muscadine Production

1. Georgia – 567 hectares
2. North Carolina – 527 hectares
3. Florida – 324 hectares
4. Arkansas – 182 hectares
5. South Carolina – 122 hectares
6. Mississippi – 122 hectares

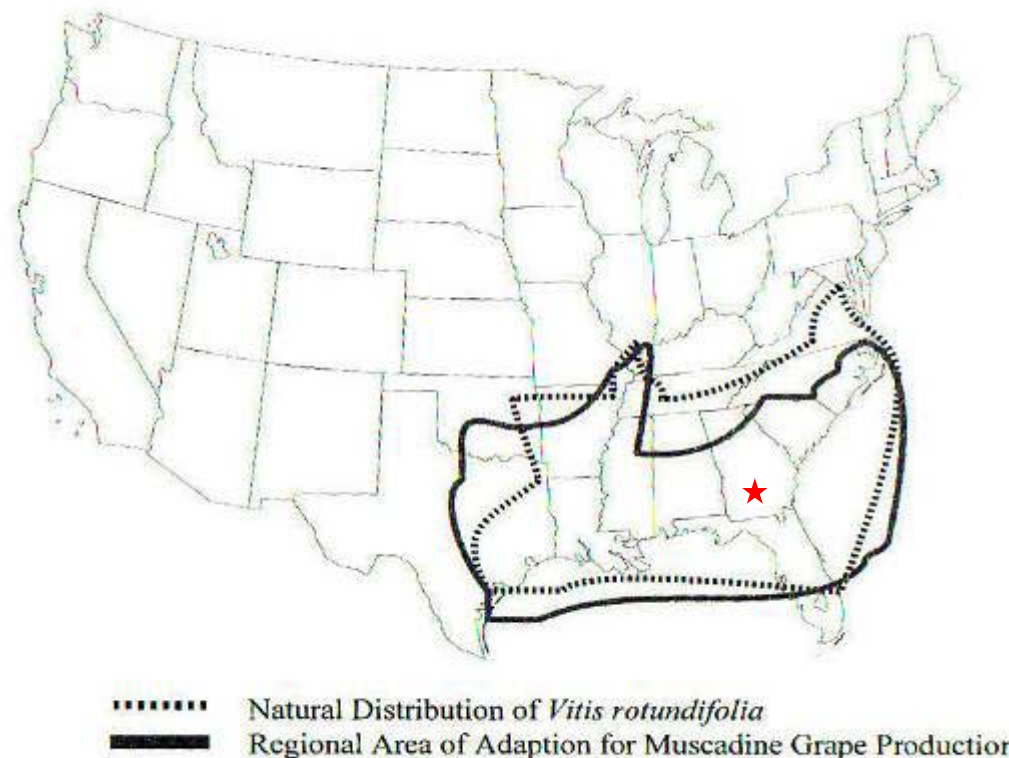


Fig. 1-2. Distribution of wild and cultivated muscadines.



Native Muscadines

Found growing wild throughout the Southeast.

Excellent regional adaptation.

Muscadine was the first domesticated American grape.





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Early Production – Muscadine Wine

- Very popular from 1809 – 1919. Never recovered after prohibition and development of California *vinifera* industry. 'Virginia Dare' was the most popular wine in U.S. in its period.





Muscadine Vineyard





Muscadine Fruit





Muscadine Berries





Fresh Fruit Muscadine Harvest





Juice Muscadine Harvest





Packing of berries

Typically sold in 1 quart clamshell containers.

\$ 4.00 - \$ 5.00 per pack retail.

Yield = 6,726 kg / ha





Muscadine Wine

Mostly local sales.

Tend to be sweeter than *vinifera* wines.

Generally family run businesses.

Juice yield = 532 L / metric ton.

\$12 - \$20 per bottle.





Muscadine Products

Wine, Juice, Fresh Fruit, Neutraceuticals

Fresh fruit sales predominate Georgia industry.

Wine and juice sales dominate in North Carolina.

Neutraceutical products are increasing the demand for muscadines.





Muscadine Cultivars

Cultivars vary widely in color, size and suitability for fresh market or wine production



From: Dr. Bill Cline



Limitations to increased production.

Wine/Juice

Slim profit margins, limited market and fluctuating prices.
Wine quality usually not competitive with *vinifera* wines.

Fresh

Seeds, and unfamiliar fruit texture.
Lack of storage ability, 2-4 weeks typical.

Overall

Not a familiar crop outside of the American Southeast.
Vine survival -- Lack of cold hardiness, intolerance of wet sites.



Opportunities for increased production.

Health benefits

Muscadines have high levels of antioxidants.

Adaptation

Muscadines are naturally resistant to most diseases that make grape culture difficult in the southern U.S., can be grown organically.

Quality

Muscadines have a unique flavor and taste not found in other grapes.

Locality

Muscadines can be grown locally and marketed as “farm fresh”.



Current Goals of the Breeding Program

- Very large berry size with perfect flowers.





Current Goals of the Breeding Program

- Dry stem scars.





Current Goals of the Breeding Program

Superior eating quality.

- Thin edible skins, small seeds, crisp soft pulp.





Current Goals of the Breeding Program

- New colors





Current Goals of the Breeding Program

Euvitis x *Muscadinia* Hybrids

- Possible traits from *Euvitis*
 - **Seedless berries**
 - Stable juice color
 - Earlier ripening
 - Improved berry flesh
 - New flavors
 - Larger clusters





Thank you!



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