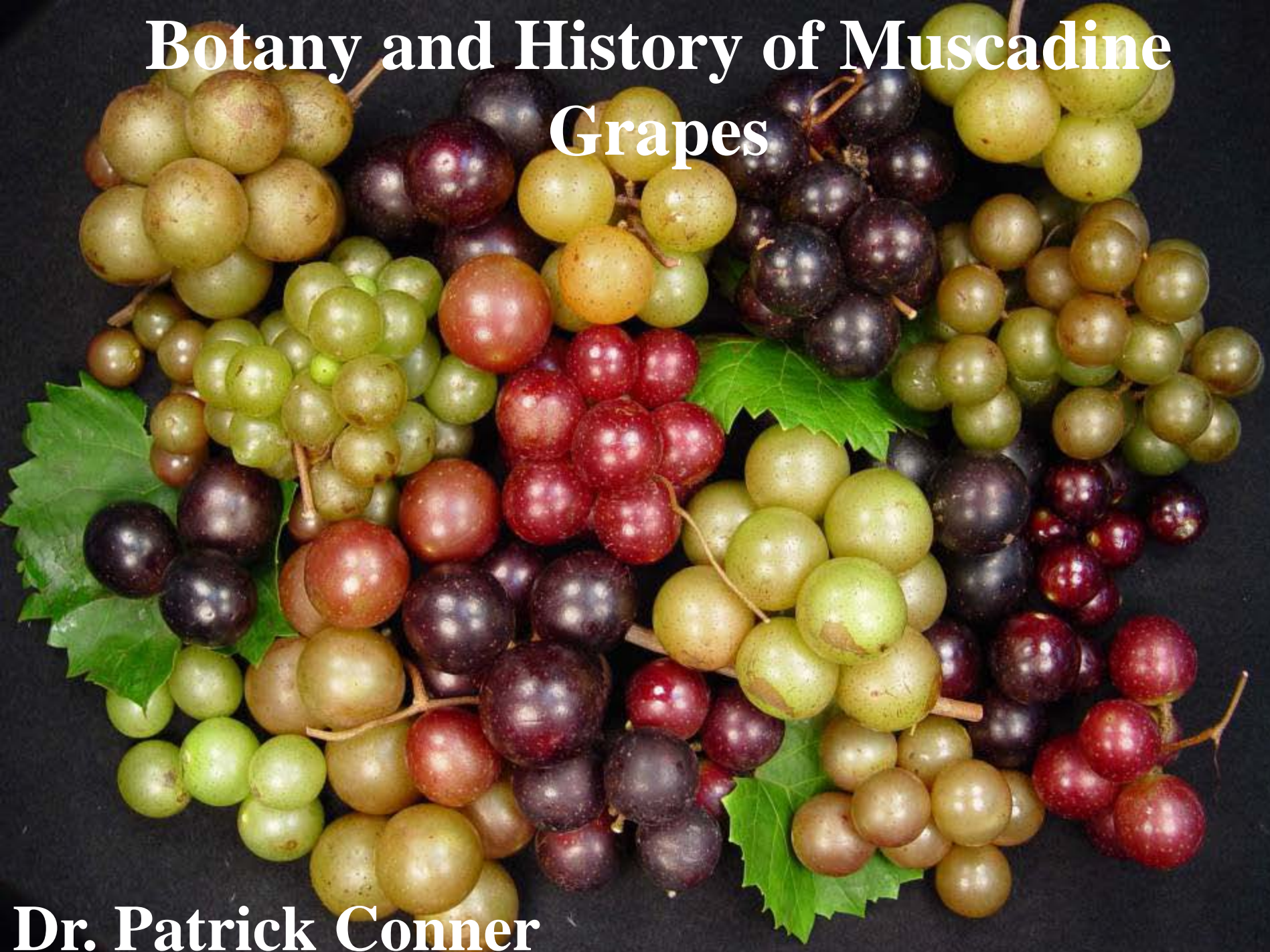


# Botany and History of Muscadine Grapes



**Dr. Patrick Conner**

# *Muscadinia*

- *V. rotundifolia*
- *V. munsoniana*
- *V. popenoei*

- 40 chromosomes
- unbranched tendrils
- berries abscise from cluster
- berries have thick skin and fruity aroma
- small clusters
- dense wood
- continuous pith



# *Vitis*

# *Euvitis*

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

- 38 chromosomes
- branched tendrils
- cluster picked
- big clusters
- light wood
- diaphragms at nodes



# V. munsoniana

Native to south Florida and a narrow strip along the gulf coast.

- Noble
- Regale
- Magnolia
- Tarheel



# Muscadine Production

1. Georgia – 898 acres
2. North Carolina – 662 acres
3. Mississippi – 600 acres
4. Florida – 551 acres
5. South Carolina – 498 acres

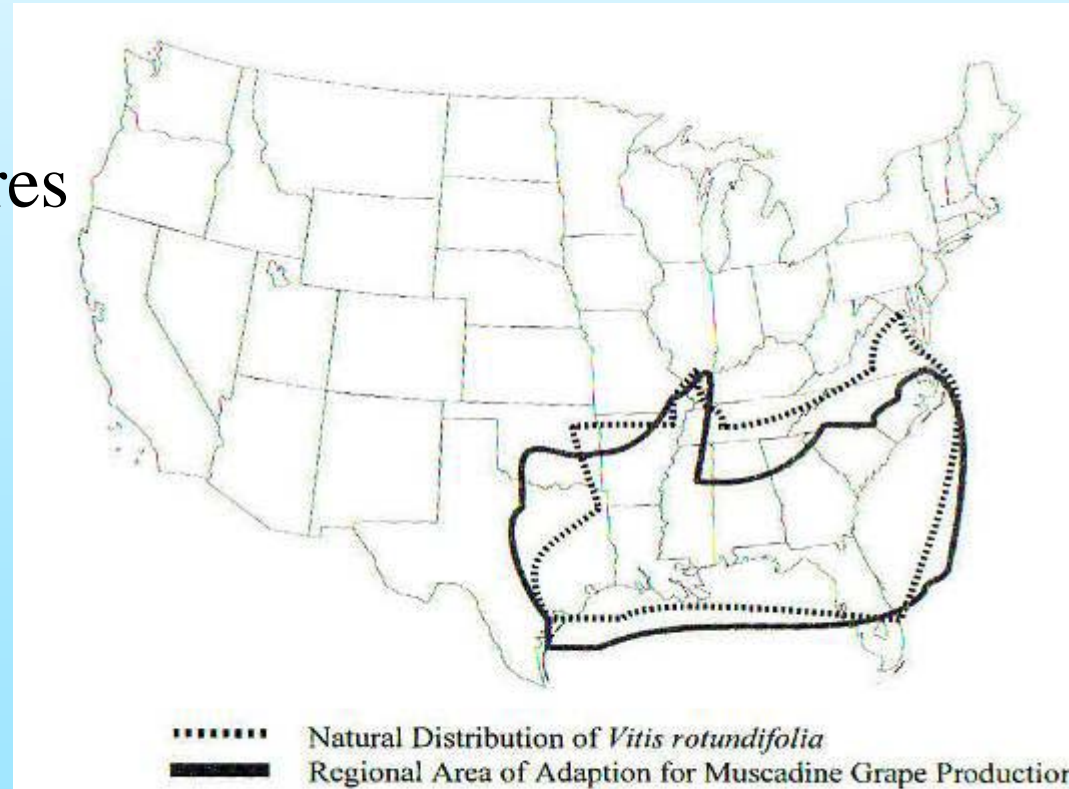


Fig. 1-2. Distribution of wild and cultivated muscadines.

# Native Muscadines

- Found growing wild throughout the Southeast.
- Excellent regional adaptation.
- Muscadine was the first domesticated American grape.



"In all of the world the like  
abundance of this grape is  
not to be found"  
-Amadas and Barlowe, 1584.



# Scuppernong or Muscadine?

**Scuppernong** – from the scuppernong river in North Carolina. Refers to a particular cultivar of bronze grape that was widely planted in that region.

**Muscadine** – should refer to all *V. rotundifolia* grapes of which 'Scuppernong' is one cultivar. Often used to refer to black colored varieties.

'Scuppernong' muscadine



# Mother Scuppernong

- Planted in 1584 (1770's?) in the Roanoke colony, still alive and producing.





# 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 that period.

*“Show me the way to your homes” says Virginia Dare.  
“So you folks can enjoy the only wine of its kind in the world”.*



# First Cultivars - Wild selections

## Female vines

- 'Scuppernong'
- 'Thomas'
- 'Flowers'
- 'Mish'
- 'James'
- 'Memory'

## Male vines

- 'White Male #1'
- 'Black Male'



'Scuppernong' was the dominant cultivar from 1750-1947.

Several different 'Scuppernong' cultivars likely exist.

# History of the UGA muscadine program

First era: 1909-1938

H.P. Stuckey and J.G. Woodroof

- 3 female vines and 2 male vines used as parents.
- 13 cultivars released (1917-1938).
- 'Hunt', 'Dulcet', 'Yuga', 'Creek' most important cultivars.
- Selected for yield, sweet tender pulp, and non-shattering berries. Often cluster picked.



'Hunt'



'Stuckey'

# History of the UGA muscadine program

Second era: 1951-1968

B.O. Fry

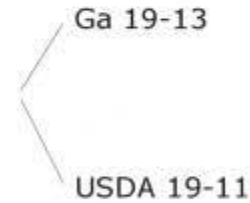
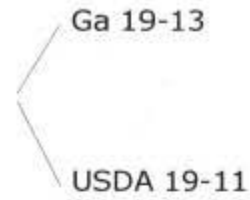
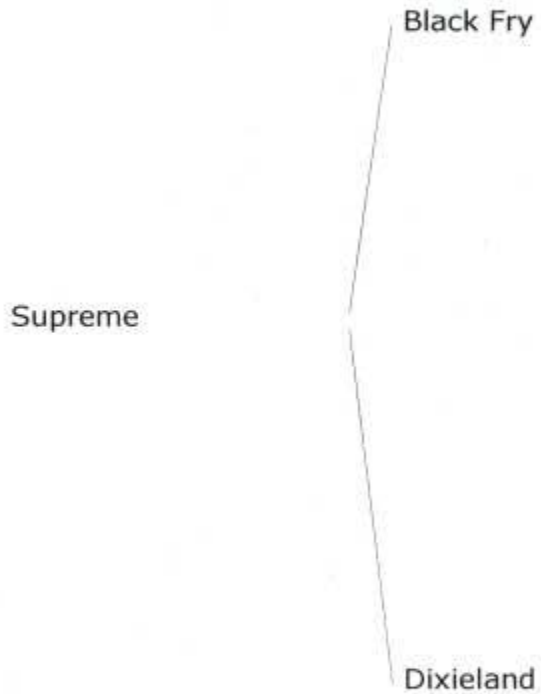
'Fry', 'Cowart', 'Higgins', 'Jumbo'

- Selected for large size, bronze color, high soluble solids.
- 'Higgins' created – source of large size in most muscadine cultivars.
- Lower vine vigor and increased susceptibility to fruit rots.

'Higgins' - 1955



# Pedigree for Supreme



# 'Fry' muscadine

'Fry' most important fresh use cultivar developed,  
9.3 g / berry.

Bronze

Large Size

High soluble solids

Good green flavor

Fruit rot susceptible

Female



'Fry' - 1971

# Perfect flowered cultivars developed.



Male



Perfect



Female

'Cowart', first perfect flowered cultivar with good fruit quality released.



# History of the UGA muscadine program

Third era: 1969-1996

R.P. Lane

Wanted large size of 'Fry' combined with perfect flowers.

- 'Triumph' – bronze perfect flowered.
- 'Summitt' – female with higher productivity than 'Fry'.
- 'Tara' – large size with perfect flowers.
- 'Scarlett' – new red color.
- 'Golden Isles' – juice grape with less pronounced muscadine taste

Most of these cultivars feature 'Fry' heavily in their pedigree.





				<b>Higgins</b>
			Ga. 19-13	Ga. 20-38
		Fry		Dulcet
			USDA 19-11	USDA 27-9B
	Summitt			Yuga
			<b>Higgins</b>	White Male
		Ga. 29-49		Hunt
			Ga. 1	Tarheel
Scarlett				<b>Higgins</b>
			Ga. 19-13	Ga. 20-38
		Fry		Dulcet
			USDA 19-11	USDA 27-9B
	Triumph			Yuga
			<b>Higgins</b>	White Male
		Ga. 29-49		Hunt
			Ga. 1	Tarheel

# Current Goals of the Program

- Very large berry size with perfect flowers.
  - Need to replace all female cultivars.
- Pistillate cultivars
  - Fry – 13g
  - Summitt – 10g
  - Supreme – 18g
  - Sweet Jenny – 16g
  - Pam – 18g
  - Darlene – 16g
- Self-fertile cultivars
  - Cowart – 9g
  - Nesbitt – 10g
  - Tara – 13g
  - Triumph – 9g

# Avg. % full crop 2004-2008

- Pistillate cultivars

- Fry – 70
- Supreme – 90
- Sweet Jenny – 50
- Pam – 60
- Scarlett – 30
- Darlene - 40

- Self-fertile cultivars

- Alachua - 100
- Cowart – 90
- Nesbitt – 100
- Polyanna – 80
- Tara – 90
- Triumph - 100



Scarlett



Pam



Nesbitt



- Self-fertile cultivars are usually smaller than female cultivars.
  - Linkage?
  - Metaxenia?
- Minimum = 10-11 grams, 1 inch diameter



'Supreme'  
14.7 g

Ga. 5-1-38  
13.9 g

# Too much productivity!



# *Euvitis* x *Muscadinia* Hybrids

– Expanding the germplasm

## Possible traits from *Euvitis*

- Fruit rot resistance
- Stable juice color
- Earlier ripening
- Improved berry flesh
- Larger clusters





Muscadine  
40 chromosomes

X

Vinifera  
38 Chromosomes



Hybrid  
39 Chromosomes

NC B4-50

Dearing, 1917 *V. rotundifolia* x Black Morocco (*V. vinifera*)



# *Euvitis* x *Muscadinia* Hybrids

## 'Southern Home'

J. Mortensen

*V. rotundifolia*

*V. munsoniana*

*V. popenoei*

*V. vinifera*



'Southern Home' is reported to be highly resistant to ripe rot, bitter rot, and black rot, and has shown no symptoms of Pierce's disease (*Xylella fastidiosa*).



