Thoughts on Muscadine Grape Cultivars

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Early work with grow tubes was done at Castle Hayne
Fresh Market muscadine planting at Castle Hayne -- 1998-present

• Determine which fresh-market cultivars might be suitable for NC
• Evaluate disease susceptibility
• Educate growers by providing mature, fruiting specimens of many cultivars for field days, hands-on evaluation
• Provide a source of fruit for future muscadine experiments
The best fresh cultivars have:

- Large size
- Uniform color
- Unblemished skin
- Dry stem scar
- Acceptable yield
- Good flavor
- Edible skin

‘Supreme’ and O.P. seedlings
Choosing a muscadine cultivar.

Muscadines cultivars can be female or self-fertile (perfect) flowered.

If you only want one vine, make sure it is self-fertile!
Choosing a muscadine cultivar.

Dry stem scars and firm flesh.

- Torn and split berries are often juiced rather than packed. Often juice up to 1/3 of cultivars with wet scars.
Choosing a muscadine cultivar.

Vigorous, disease resistant vines.

- Much easier to grow purple varieties as they seldom have much trouble with fruit rots. Bronze berries will rot if not sprayed well, especially when grown in the coastal plains.
SUMMIT – “Pink-bronze”, very productive and vigorous, edible skin, few rots
TRIUMPH – early-ripening, dry scar, productive, with edible skin, few rots
Prominent features of ‘Hall’ muscadine

• ‘Hall’ has good vigor and productivity, doesn’t overcrop.
• Better brix and flavor than ‘Tara’.
• Very good picking scar, low percentage of splits and tears.
• Color is more yellow than other bronze cultivars.
• Size is similar to other self-fertile cultivars (10g).
Prominent features of ‘Granny Val’ muscadine

• Late season self-fertile cultivar, probably latest one we have.
• Can be over-productive.
• Flavor is average to poor.
• Better disease resistance than ‘Late Fry’.
Prominent features of ‘Late Fry’ muscadine

• Late season self-fertile cultivar.
• Fruit rot is an issue.
• Soft berry with a wet scar.
• Usually good flavor.
SUPREME -- Very productive, largest black-fruited cultivar. Some vines died in years 2-4, probably due to overcropping. Thinning or removal of fruit is recommended in early years of production.
Prominent features of ‘Supreme’ muscadine

- Most popular fresh market cultivar.
- Excellent size (15 g) and fruit firmness with crisp skin.
- Vine vigor is low, and heavy cropping can stunt vines.
- Berries often split on picking scar.
- Cold-hardiness is not good.
NESBITT – Medium large, perfect-flowered, good vigor, productive, dry stem scar
### Berry quality of ‘Paulk’ muscadine at Tifton Ga., (2012-2016)

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Flower type</th>
<th>Berry color</th>
<th>Berry weight (g)</th>
<th>Berry diameter (mm)</th>
<th>Percent soluble solids of all harvests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paulk</td>
<td>SF</td>
<td>Black</td>
<td>15.5 a</td>
<td>30.2 a</td>
<td>14.2</td>
</tr>
<tr>
<td>Supreme</td>
<td>F</td>
<td>Black</td>
<td>15.1 a</td>
<td>29.9 a</td>
<td>14.3</td>
</tr>
<tr>
<td>Fry</td>
<td>F</td>
<td>Bronze</td>
<td>11.7 b</td>
<td>27.4 b</td>
<td>14.0</td>
</tr>
<tr>
<td>Hall</td>
<td>SF</td>
<td>Bronze</td>
<td>10.2 cd</td>
<td>26.0 cd</td>
<td>14.5</td>
</tr>
<tr>
<td>Lane</td>
<td>SF</td>
<td>Black</td>
<td>9.6 d</td>
<td>25.6 d</td>
<td>15.3</td>
</tr>
<tr>
<td>Tara</td>
<td>SF</td>
<td>Bronze</td>
<td>10.8 bc</td>
<td>26.4 c</td>
<td>13.9</td>
</tr>
<tr>
<td>Sig.</td>
<td></td>
<td></td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>NS</td>
</tr>
</tbody>
</table>
## Harvest date of ‘Paulk’ Muscadine

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Avg. day of first harvest</th>
<th>Percent of total yield of first harvest</th>
<th>Percent soluble solids (Brix) of first harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paulk</td>
<td>Aug. 20</td>
<td>65</td>
<td>14.3</td>
</tr>
<tr>
<td>Supreme</td>
<td>Aug. 16</td>
<td>60</td>
<td>14.8</td>
</tr>
<tr>
<td>Fry</td>
<td>Aug. 15</td>
<td>64</td>
<td>14.3</td>
</tr>
<tr>
<td>Hall</td>
<td>July 31</td>
<td>47</td>
<td>14.9</td>
</tr>
<tr>
<td>Lane</td>
<td>Aug. 1</td>
<td>56</td>
<td>14.6</td>
</tr>
<tr>
<td>Tara</td>
<td>Aug. 2</td>
<td>61</td>
<td>14.2</td>
</tr>
</tbody>
</table>

* Early berries of ‘Supreme’ could have been picked, ‘Paulk’ does not have early ripening berries.
Prominent features of ‘Paulk’ muscadine.

- First self-fertile cultivar where berry size has continued to be large over time.
- Excellent yield potential.
- Good vigor, much better than ‘Lane’, but still can be overcropped.
- Overcropped berries will lack flavor and be later.
MARKETABLE yields at Castle Hayne, NC 2005 (wet year, vineyard not irrigated, no fungicides used).

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Berry (g)</th>
<th>Tons/Acre</th>
<th>Cultivar</th>
<th>Berry (g)</th>
<th>Tons/Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carlos</td>
<td>5.2</td>
<td>5.8</td>
<td>Noble</td>
<td>3.6</td>
<td>4.6</td>
</tr>
<tr>
<td>Darlene</td>
<td>14.0</td>
<td>1.8</td>
<td>Pam</td>
<td>16.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Doreen</td>
<td>4.6</td>
<td>--</td>
<td>Scarlett</td>
<td>12.0</td>
<td>0.9</td>
</tr>
<tr>
<td>Fry</td>
<td>11.0</td>
<td>5.4</td>
<td>So. Home</td>
<td>6.6</td>
<td>--</td>
</tr>
<tr>
<td>Gr. Val</td>
<td>14.0</td>
<td>5.5</td>
<td>Sw. Jenny</td>
<td>15.0</td>
<td>1.9</td>
</tr>
<tr>
<td>Higgins</td>
<td>9.5</td>
<td>2.5</td>
<td>Sugargate</td>
<td>14.0</td>
<td>2.4</td>
</tr>
<tr>
<td>Ison</td>
<td>8.0</td>
<td>2.8</td>
<td>Summit</td>
<td>8.5</td>
<td>5.8</td>
</tr>
<tr>
<td>Jumbo</td>
<td>9.3</td>
<td>--</td>
<td>Supreme</td>
<td>16.4</td>
<td>3.6</td>
</tr>
<tr>
<td>Nesbitt</td>
<td>--</td>
<td>--</td>
<td>Triumph</td>
<td>8.2</td>
<td>3.7</td>
</tr>
</tbody>
</table>

\(^{a}\)Yield not shown for immature vines  
\(^{b}\)Sweet Jenny had only 43% marketable due to rots  
\(^{c}\)Sugargate had 24% splits, Supreme 7%  
\(^{d}\)Summit with 10% loss due to macrophoma rot
Best performers at Castle Hayne (unfortunately the experiment did not include Tara, Early Fry)

- **Triumph** (Bronze, early, perfect-flowered)
- **Summit** (Bronze, mid, female-flowered)
- **Nesbitt** (Black, late, perfect-flowered)
- **Supreme** (Black, mid-late, female)
- Scarlett, Pam, Ison recommended for further trial
- Cluster harvest might be used for Fry, Granny Val, Pam (lg brz) and Ison (med blk)
2019 suggested fresh market varieties for North Carolina

- **Tara** (Bronze, early, perfect-flowered)
- **Triumph** (Bronze, early, perfect-flowered)
- **Hall** (Bronze, early, perfect-flowered)
- **Late Fry** (Bronze, late, perfect-flowered)
- **Lane** (Black, early, perfect-flowered)
- **Supreme** (Black, mid, perfect-flowered)
- **Paulk** (Black, mid, perfect-flowered)
- **Nesbitt** (Black, mid-late, perfect-flowered)
Information Sources

• Google NCSU and UGA muscadines for cultivar information

• Sources of plants
  • Ison’s Nursery
  • Bottoms Nursery
  • Old Courthouse Nursery
  • Tinga Nursery
  • AgriStarts
NCSU Breeding Program – greenhouse pollination study
NCSU Breeding Program

Seedlings

Crosses
Grape seedlings in root trainer trays
Majesty vs Olmo U67-21
Normal spacing vs Seedling field
NC 1005