New Blueberry Cultivars from the UF Breeding Program

Dr. James Olmstead
February 17, 2015
Information contained in this document is not to be distributed without the consent of the author.

All patented UF blueberry varieties are licensed by Florida Foundation seed Producers, Inc. (FFSP)

Anyone propagating plants for personal use or sale is required to be licensed by FFSP.

Licenses are available to any grower in Florida by contacting FFSP http://ffsp.net, (352) 392-9446
Advanced Selection Trial Sites

- Straughn Farms
  Windsor/Waldo, FL
- Dole/Sunnyridge
  Haines City, FL
- PSREU
  Citra, FL
- Island Grove Ag Prod.
  Arcadia, FL

- Miller Blueberry Plant.
  Interlachen, FL
Avanti™
‘FL06-203’ (USPPAF)
FL06-203 (Proposed: Avanti)

FL06-203 is a very low chill (100 chill hours 0 to 7°C), early maturing genotype adapted to production regions in central and south-central Florida. The key positive attributes for FL06-203 are:

• Early production (late January/February in south central FL)
• Produces well under evergreen management systems
• Can be grown using hydrogen cyanamide with some yield loss
• Firm, high quality fruit
• Small dry picking scar

• Smaller fruit size, particularly later in the season.
• Susceptible to Botrytis fruit rot that can cause fruit deformation.
• Susceptible to gall midge damage on flowers.
• Early bloom requires much longer periods of freeze protection when grown in northern FL production regions.
• Almost too early for current market window.
Arcadia™
‘FL07-399’ (USPPAF)
FL07-399 (Proposed: Arcadia)

FL07-399 is a low chill (< 200 chill hours 0 to 7°C), mid-season maturing genotype adapted to production regions in central and south-central Florida. The key positive attributes for FL07-399 are:

- High yield when grown in an evergreen management system.
- Peak production in central and south central Florida during high value market window.
- Large fruit size, sweet flavor.
- Excellent survival and leaf disease tolerance.

- Low yield in northern areas of Florida.
- Very long harvest season when grown as an evergreen plant.
- Fruit firmness just meets program minimum (but no apparent packing/postharvest problems).
- Vigorous, spreading growth habit may make machine harvest for fresh market difficult.
Endura
‘FL06-377’ USPPAF
FL06-377 (Proposed: Endura)

FL06-377 is a very low chill (150 chill hours 0 to 7°C), mid-to-late maturing genotype adapted to production regions in central Florida. The key positive attributes for FL06-377 are:

• Very low chill requirement.
• Produces well under both evergreen and hydrogen cyanamide management systems.
• Firm, large fruit.
• Excellent, persistent blue color
• High season-long yield.

• Fruit is tart very early in the season and when not fully ripe.
• Very long harvest season when grown as an evergreen plant.
• Susceptible to leaf rust (but no leaf drop).
• Susceptible to Phytophthora root rot.
• Later peak harvest window.
## North Florida Field Ratings (2012-2014)

<table>
<thead>
<tr>
<th>Genotype</th>
<th>50% Bloom DOY (date) (^Z)</th>
<th>50% Harvest DOY (date) (^Y)</th>
<th>Surv. (^X)</th>
<th>Yield</th>
<th>Leaf.</th>
<th>Size</th>
<th>Color</th>
<th>Scar</th>
<th>Firm.</th>
<th>Flavor</th>
</tr>
</thead>
<tbody>
<tr>
<td>FL06-203</td>
<td>26 (1/26)</td>
<td>100 (4/10)</td>
<td>8</td>
<td>6.4</td>
<td>6.8</td>
<td>7.0</td>
<td>6.8</td>
<td>7.8</td>
<td>8.2</td>
<td>7.4</td>
</tr>
<tr>
<td>FL06-377</td>
<td>38 (2/7)</td>
<td>115 (4/25)</td>
<td>8</td>
<td>8.0</td>
<td>6.7</td>
<td>7.7</td>
<td>8.8</td>
<td>7.7</td>
<td>8.0</td>
<td>6.7</td>
</tr>
<tr>
<td>FL07-399</td>
<td>43 (2/12)</td>
<td>115 (4/25)</td>
<td>9</td>
<td>6.0</td>
<td>8.3</td>
<td>8.0</td>
<td>8.0</td>
<td>7.5</td>
<td>7.8</td>
<td>8.0</td>
</tr>
<tr>
<td>Emerald</td>
<td>35 (2/4)</td>
<td>122 (5/2)</td>
<td>9</td>
<td>8.0</td>
<td>7.7</td>
<td>8.0</td>
<td>7.2</td>
<td>7.5</td>
<td>7.5</td>
<td>6.8</td>
</tr>
<tr>
<td>Farthing</td>
<td>50 (2/19)</td>
<td>125 (5/5)</td>
<td>8</td>
<td>8.0</td>
<td>5.8</td>
<td>7.2</td>
<td>6.7</td>
<td>8.3</td>
<td>8.5</td>
<td>7.2</td>
</tr>
<tr>
<td>Meadowlark</td>
<td>34 (2/3)</td>
<td>105 (4/15)</td>
<td>7</td>
<td>6.7</td>
<td>7.8</td>
<td>8.5</td>
<td>8.5</td>
<td>6.8</td>
<td>8.0</td>
<td>7.5</td>
</tr>
</tbody>
</table>

\(^Z\) Average of 3 seasons in Citra, FL.

\(^Y\) Average of 2 seasons in Citra and Windsor, FL.

\(^X\) 1-9 scale, average of 3 seasons in Citra and Windsor, FL.
### Fruit Quality – 2012-2014

<table>
<thead>
<tr>
<th>Genotype</th>
<th>Fruit wt (g)</th>
<th>Fruit firmness (g/mm)</th>
<th>Soluble solids (%)</th>
<th>Titratable acidity (%)</th>
<th>SS/TA ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meadowlark</td>
<td>2.8&lt;sup&gt;a&lt;/sup&gt;</td>
<td>228&lt;sup&gt;a&lt;/sup&gt;</td>
<td>10.9&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.25&lt;sup&gt;c&lt;/sup&gt;</td>
<td>63.9&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>FL07-399</td>
<td>2.7&lt;sup&gt;a&lt;/sup&gt;</td>
<td>176&lt;sup&gt;b&lt;/sup&gt;</td>
<td>12.6&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>0.49&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>27.1&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>FL06-377</td>
<td>2.7&lt;sup&gt;a&lt;/sup&gt;</td>
<td>226&lt;sup&gt;a&lt;/sup&gt;</td>
<td>11.1&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.46&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>37.9&lt;sup&gt;ab&lt;/sup&gt;</td>
</tr>
<tr>
<td>Farthing</td>
<td>2.6&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>223&lt;sup&gt;a&lt;/sup&gt;</td>
<td>11.3&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.39&lt;sup&gt;b&lt;/sup&gt;</td>
<td>39.9&lt;sup&gt;ab&lt;/sup&gt;</td>
</tr>
<tr>
<td>Emerald</td>
<td>2.5&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>195&lt;sup&gt;b&lt;/sup&gt;</td>
<td>11.1&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.57&lt;sup&gt;a&lt;/sup&gt;</td>
<td>25.5&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>FL06-203</td>
<td>2.3&lt;sup&gt;b&lt;/sup&gt;</td>
<td>211&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>13.3&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.37&lt;sup&gt;bc&lt;/sup&gt;</td>
<td>50.0&lt;sup&gt;ab&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

**Thresholds**

- 2.0 g min.
- 150 g/mm min
- 12% min.
- 1.0% max.
- >14
**Yield trial – Arcadia, FL**

<table>
<thead>
<tr>
<th>Genotype</th>
<th>Total yield (2-yr old plants)</th>
<th>Total yield (3-yr old plants)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lb/bush</td>
<td>lb/acre*</td>
</tr>
<tr>
<td>FL06-203</td>
<td>4.2</td>
<td>7,560</td>
</tr>
<tr>
<td>FL07-399</td>
<td>2.3</td>
<td>4,140</td>
</tr>
<tr>
<td>FL06-377</td>
<td>2.6</td>
<td>4,680</td>
</tr>
<tr>
<td>Kestrel</td>
<td>2.2</td>
<td>3,960</td>
</tr>
</tbody>
</table>

* Assumes 1,800 plants / acre
Yield trial – Haines City, FL

### Total yield (3-yr old plants)

<table>
<thead>
<tr>
<th>Genotype</th>
<th>lb/bush</th>
<th>lb/acre*</th>
</tr>
</thead>
<tbody>
<tr>
<td>FL06-203</td>
<td>3.7</td>
<td>6,660</td>
</tr>
<tr>
<td>FL06-377</td>
<td>7.8</td>
<td>14,040</td>
</tr>
<tr>
<td>Flicker</td>
<td>7.5</td>
<td>13,500</td>
</tr>
<tr>
<td>Emerald</td>
<td>6.2</td>
<td>11,160</td>
</tr>
</tbody>
</table>

* Assumes 1,800 plants / acre

### Total yield (4-yr old plants)

<table>
<thead>
<tr>
<th>Genotype</th>
<th>lb/bush</th>
<th>lb/acre*</th>
</tr>
</thead>
<tbody>
<tr>
<td>FL06-203</td>
<td>6.2</td>
<td>11,160</td>
</tr>
<tr>
<td>FL06-377</td>
<td>11.2</td>
<td>20,160</td>
</tr>
<tr>
<td>Flicker</td>
<td>6.6</td>
<td>11,880</td>
</tr>
<tr>
<td>Emerald</td>
<td>7.4</td>
<td>13,320</td>
</tr>
</tbody>
</table>
Summary

• FL06-203, FL06-377, and FL07-399 are particularly suited for evergreen production in the very southern areas of Florida blueberry production.

• When grown together, the three genotypes would offer a nearly 4 month production period in south central Florida with significantly higher yields than existing cultivars.

• These genotypes may also have potential for high tunnel protected culture systems.
Dr. Jim Olmstead
UF-IFAS Horticultural Sciences Dept.
2211 Fifield Hall
Gainesville, FL 32611
(352) 273-4837
http://www.hos.ufl.edu/faculty/jwolmstead