An Update on UF/IFAS CREC Citrus Scion Varieties

Fred Gmitter, Jude Grosser, and Bill Castle

CITRUS EXPO
15 AUGUST 2019
• **Overcome the devastation of HLB**

• **Develop new, or recapture old, markets**
  
  • Sweet oranges for the juice business

  • Mandarin hybrids

  • Grapefruit and grapefruit like hybrids

  • Acid fruit, e.g. lemons
• Current portfolio of Hamlin, Midsweet, and Valencia; is that where we want the future OJ business to be?

• New midseason options include Valquarius, Vernia, and an earlier maturing LS Midsweet

• Later season, higher quality options include improved clones of Valencia and some of the OLL series

• Early season options, not only high colored Hamlin, but now the groundbreaking ‘Florida EV 1’ and ‘Florida EV 2’
7-year old reset of SF14W62 on rough lemon, showing yield potential.
B9-65 Valencia for processing
ORANGES

‘OLL-8’
- Key attributes: Excellent color and quality, extends harvest window of ‘Valencia’ quality juice
- Produces round oranges with internal and external color similar to ‘Rhode Red Valencia’
- Holds on the tree exceptionally well, and maintains quality into the summer
- Trees appear to yield better than standard ‘Valencia’
- High juice content and good pounds solids
- Peels easier than a standard ‘Valencia’
- With its added color, could also be a valuable addition to the Florida fresh market portfolio
- Most precocious bearing clone among the OLL somaclones

‘OLL-4’
- Key attributes: excellent color and quality, extends harvest window of ‘Valencia’ quality juice; also believed to be higher yielding than ‘Valencia’
- Produces fruit with excellent internal and external quality with exceptional juice color scores, juice content and soluble solids
- Holds on the tree exceptionally well
- Maintains quality into the summer; however, it matured earlier, and with better ratios than ‘Valencia’ in 2014
- Has been the highest yielding tree among the OLL somaclones
OLL-8 on UFR-4 (4 years)
Table 3. Juice data from 6-year old trees on rough lemon rootstock – Alligator Grove, St. Cloud, FL. Pilot-Plant Data from samples run on December 10, 2014.

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Vernia</td>
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<td>16.07</td>
<td>53.906</td>
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<td>5.56</td>
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<td>TI-19</td>
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<td>16.71</td>
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<td>9.72</td>
<td>58</td>
<td>5.0931</td>
<td>5.09</td>
<td>35.4</td>
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**EV-1 and EV-2 Early Valencias generally reach 15 ratio by Thanksgiving!**
OLL-20, A NEW LATE SEASON JUICE ORANGE
OLL-20, A NEW LATE SEASON JUICE ORANGE
LB8-9 (Sugar Belle®)
Sugar Belle® near Vero Beach, HLB+ >8 years!
Use of Sugar Belle® juice in OJ

<table>
<thead>
<tr>
<th>Sample</th>
<th>Brix</th>
<th>Acid</th>
<th>Ratio</th>
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<tbody>
<tr>
<td>100% VA</td>
<td>11.4</td>
<td>1.0</td>
<td>11.4</td>
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<tr>
<td>100% SB</td>
<td>15.4</td>
<td>1.5</td>
<td>10.3</td>
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<td>90/10 VA/SB</td>
<td>11.7</td>
<td>1.1</td>
<td>10.6</td>
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<tr>
<td>50/50 VA/SB</td>
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<td>1.2</td>
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<td>100% CP</td>
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<td>0.9</td>
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</table>

100% VA: 100% Valquarius; 100% SB: 100% Sugar Belle; 90/10 VA/SB: 90% Valquarius & 10% Sugar Belle; 50/50 VA/SB: 50% Valquarius & 50% Sugar Belle; 100% CP: 100% commercial product
Overall Liking

100% VA: 100% Valquarius; 100% SB: 100% Sugar Belle; 90/10 VA/SB: 90% Valquarius & 10% Sugar Belle; 50/50 VA/SB: 50% Valquarius & 50% Sugar Belle; 100% CP: 100% commercial product
Use of Sugar Belle® juice in OJ

Overall Flavor Liking

100% VA: 100% Valquarius; 100% SB: 100% Sugar Belle; 90/10 VA/SB: 90% Valquarius & 10% Sugar Belle; 50/50 VA/SB: 50% Valquarius & 50% Sugar Belle; 100% CP: 100% commercial product
Use of Sugar Belle® juice in OJ

Price Willingness to Pay

100% VA: 100% Valquarius; 100% SB: 100% Sugar Belle; 90/10 VA/SB: 90% Valquarius & 10% Sugar Belle; 50/50 VA/SB: 50% Valquarius & 50% Sugar Belle; 100% CP: 100% commercial product
411 mandarin hybrid showing a resurgence against HLB on multiple rootstocks. HLB+ tree on WGFT+50-7 rootstock shown on right dug up from lost Haines City trial and moved to CREC 4 years ago, among several showing a remarkable recovery and productivity! An absolutely delicious piece of fruit!
**UF 950**

- EZ to peel, seedless
- Clementine size
- Convenient to eat
- Crisp texture
- Better color and flavor than Clementine
- December maturity
- Alternaria resistant
- HLB tolerant
- Moved into commercial plantings
‘Bingo’ on 4/4/16
• Twig and young tree dieback
  • Some evidence of Colletotrichum
  • Recovery can be vigorous

• Three year old trees set very heavy crops in most groves
  • Fruit thinning to increase size?
  • Fruit split and drop

• Some fruit likely to enter the marketplace this season

• Much to learn!

2019 Status of Bingo
UF 914
UF Mandarin Selection 1420

Suggested name: ‘Marathon’

A FAST-TRACK Release

Fred G. Gmitter Jr.
University of Florida

…on behalf of the Team!
Typical Fruiting Habit and Foliage
• Brix: 12.5  Acid: 0.89  Ratio: 14.04  19 August 2015

• Brix: 13.0  Acid: 0.59  Ratio: 22.03  25 September 2015

• Brix: 14.0  Acid: 0.69  Ratio: 20.28  29 October 2015

• Brix: 17.4  Acid: 0.62  Ratio: 28.06  17 December 2015

• Fruit remained in sound condition until early January

• No clipping required
### Post-harvest Behavior

<table>
<thead>
<tr>
<th>Selection</th>
<th>Degreening</th>
<th>6 weeks of storage</th>
<th>8 weeks of storage</th>
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<tr>
<td></td>
<td></td>
<td>Healthy Fruit (%)</td>
<td>Healthy Fruit (%)</td>
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<tr>
<td>BB-4-8-20</td>
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<td>Bingo</td>
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<td>92.85</td>
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<td>1420</td>
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<tr>
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<td>83.33</td>
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• Seedless under all circumstances, and easy to peel

• Acceptable color, good flavor, and segment structure

• Very early maturity, with long on-tree storage capacity

• Firm fruit that can be harvested without clipping, saving labor costs at harvest

• Responds well to ethylene, and performs very well in long term cold storage

• ‘Daisy’ mandarin x ‘Mukaku Kishu’ parentage
UF-CREC Lemon Cultivars for Florida: Current Status and Future Perspectives

Fred Gmitter on behalf of the CREC Team

OJ Break: Lemon Workshop
Lake Alfred, FL
September 11, 2018
<table>
<thead>
<tr>
<th>IDENTIFICACION</th>
<th>Nro CULTIVAR</th>
<th>SUP. (HAS)</th>
<th>CANT. PLANTAS</th>
<th>First harvest</th>
<th>kg per plant</th>
<th>Snd. Harvest</th>
<th>kg per plant</th>
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<tr>
<td>L8A-C-Y 2-0-31</td>
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</table>

Yield Data from Bolivia: Two year old trees
Why Consider UF Lemon Cultivars?

• They have been selected and developed in Florida

• They are all true lemons, derived from existing cultivars

• Yields, juice quality, etc. essentially unchanged

• Lemon oil is an extremely valuable commodity globally

• Current Florida industry targeted to juice, but no one will discard oil; bring more VALUE to the chain
• Field trial performance: We are drawing conclusions from the Bolivia field trial

• Propagations, trial plantings in Florida in progress

• Commercialization of the top 3 selections in South Africa

• Plans for commercialization in Florida
  
  • Approved for release by UF-IFAS
  • Patent application underway (top 3-5 selections)
  • Pathogen tested materials in the DPI Parent Tree Program
  • Nursery increase/propagation could begin immediately
THANK YOU!

USDA-NIFA-SCRI

CRDF

FCPRAC

OUR TEAM

NVDMC

THANK YOU!