

The UF/CREC Citrus Scion Breeding Program



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CRDF Forum - 2017

Nine UF-CREC Orange Cultivar Releases

‘N13-32’ U.S. Patent PP27,145; high colored Hamlin (I = Industry)

‘Florida EV1’ U.S. Patent Pending; very early Valencia (I)

‘Florida EV2’ U.S. Patent Pending; very early Valencia(I)

‘SF14W-62’ Valquarius® U.S. Patent PP21,535; midseason Valencia (I)

‘UF 11-1-24’ U.S. Patent PP27,777; low seeded Midsweet, earlier maturity (CONSERV)

‘B9-65’ U.S. Patent PP27,144; high yielding Valencia (CONSERV)

‘N7-3’ U.S. Patent PP21,224; seedless late Valencia, dual purpose (I)

‘OLL-4’ (Orie Lee Late) U.S. Patent PP27,829; better flavor profile than Valencia, holds late

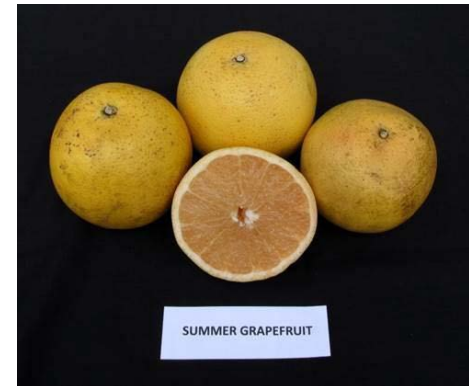
‘OLL-8’ Orie Lee Late) U.S. Patent PP26,087; better flavor profile than Valencia, HLB tolerant?

UF-CREC Grapefruit Cultivar Releases

‘914’; U.S. Patent PP26,177; grapefruit hybrid,
low FC, sweet and less acidic.



‘N2-28’ true grapefruit “cybrid”, higher Brix
holds on the tree into July.



Pummelo cultivars:

Red Pummelo ‘5-1-99-5’

Red pummelo ‘C5-2-12’

Red pummelo ‘5-1-99-2’ “Pummelette”



UF-CREC Mandarin Cultivar Releases

‘900’*: early maturity and color, seeded

‘Bingo’: seedless, EZ-peel, early maturity and color, HLB-tolerant? PP

‘N40W-6-3’ “Seedless Snack”: early to mid-season, seedless

‘C4-15-19’: Seedless, early, sweet, and EZ-peel PP

‘950’*: Seedless, EZ-peel, mid-season; HLB-tolerant PP

‘411’*: mid-late season, large, EZ-peel, attractive, excellent flavor

‘711’*: mid-late season, large, EZ-peel, attractive, deep color

*Alternaria tolerant



FL Glenn (l) vs. 'RBB 7-34' (r) PP



LB8-9: Sugar Belle® (PP)

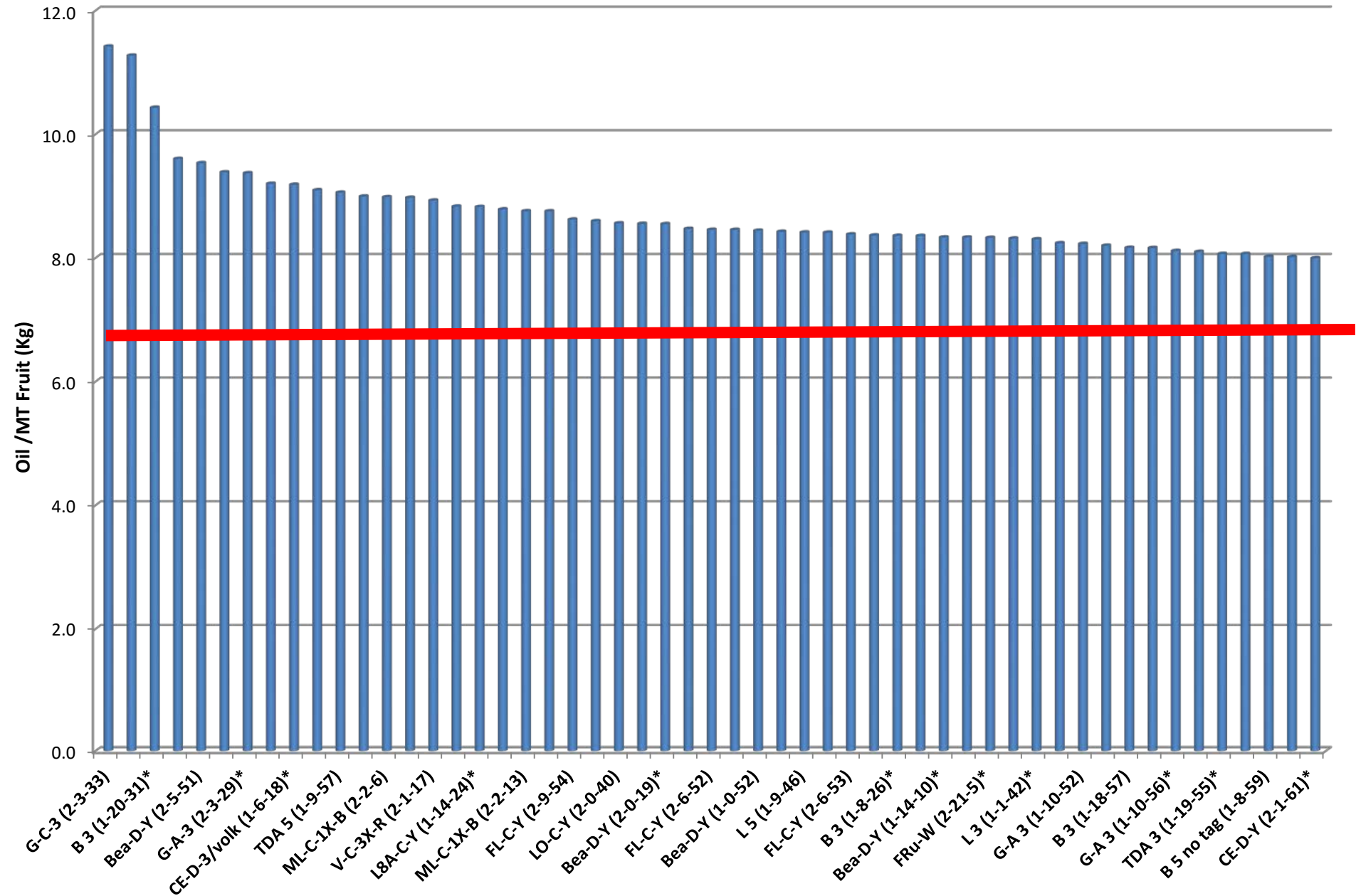
The HLB Tolerance of LB8-9: Sugar Belle®





LEMON PRODUCTION IN FLORIDA?

Average oil content per MT Fruit (2002 to 2007) (Control =6.48)



Formal Scion Cultivar Trials

- MAC projects (UCR-UF-USDA, orange & mandarin, 2018, and ROGERS, oranges 2017)
- Juice industry, 3 trials (oranges, 2011-13)
- Bolivia (lemons, 2015)
- CONSERV II (sweet oranges, 2000); ended

Types of Data Collected

- Tree size
- HLB rankings: Severity, symptoms, tree survival
- Juice quality: Soluble solids, acid, color, other
- Yield: Boxes, pounds solids/box and per acre
- Other performance variables, as observed

UCR-UF-USDA MAC Project

- Focus on potential HLB-tolerant scion cultivars
- 7 UF and 5 USDA sweet oranges and hybrids
- 6 UF and 7 USDA mandarins
- 4 controls
- 1 rootstock
- 3 locations
- Data planned: HLB impact, survival, yield and quality
- To be planted in 2018

Rogers MAC Project – CREC Lake Alfred – SUMMARY

55+ acres just north of the CREC: Planting Date: May/June, 2017

70 sweet orange/rootstock combinations (19 early and 51 late orange)

Sugar Belle on 4 rootstocks

All new rootstock candidates from the UF/CREC citrus improvement program.

Plot size: 50 trees/plot; >12,000 trees, four plots for most combinations

Data: HLB impact, survival, yield, quality

Juice Industry, 3 Trials

1. 30 new oranges, 6 rootstocks, 10 tree plots, planted 2011
2. 30 new oranges, 3 rootstocks, 10 tree plots, planted 2012
3. 20+ new oranges, 12 rootstocks, 10 tree plots, planted 2013

Data collected: commercial juice quality assessment, tree condition, yield estimates



3.5 year old OLL-8 sweet orange/UFR-4 rootstock planted June, 2013 at the Industry/CREC Demonstration Project

Bolivia High Peel Oil Lemons

- Beverage industry supported
- 43 experimental lines selected in FL for peel oil yields, plus 2 controls
- 4 reps each on 4 commercial rootstocks, 0.34 acres each rep
- Planted 2015
- Data to be collected: fruit yield, oil yield and quality
- Smaller demonstration block, 2014
- Results could inform Florida citrus industry
- Currently, 2 trials in FL, top 10 selections
- Commercial introduction to South Africa

CONSERV II

- Sweet orange trials, planted in 2000
- 9 low-seeded Midsweet and 44 Valencia somaclones
- 3 reps of 14-tree blocks
- > 10 years data collected: Yield, juice quality, fruit size, time of maturity, tree condition
- 2 cultivars released from the project: 'LS Midsweet 11-1-24' and 'Valencia B9-65'
- 'LB8-9' release support data also collected at CONSERV II

Fresh Scion Cultivars, Fast Track

- In collaboration with NVDMC
- Fast Track, a system of early release and grower-based evaluations, demanded by industry
- 8 mandarin hybrids, 2 grapefruit, and 3 pummelos
- Ranges from 17-42 growers/cultivar
- 5-30 trees each

UF-CREC Demonstration Block

- Planted from 2016 until present
- All UF scions that have gone through the Parent Tree Program, released or not
- 32 oranges, 47 mandarins, 6 mandarange, 12 grapefruit/pummelos, 13 acid fruits
- Up to 20 single-tree reps

Other Scion Plantings

- Various growers with non-replicated, observational plantings, mostly sweet oranges
- New seedless mandarin planting with new rootstocks, grower's location
- 16 germplasm blocks, CREC, GCREC, and 2 growers: raw materials, some second level propagations of promising selections

Transgenic Citrus Trials

A: Planted 2010: mostly orange, also grapefruit, W. Murcott, Key lime, and Orange 16 rootstock; 968 trees; HLB severity & qPCR

B: Planted 2015; mostly orange, several rootstocks; HLB severity and qPCR

C: Planted 2013; mostly orange, some grapefruit and rootstocks; trees from 2 years in “hot ACP” house; cooperator collects data, observations

D: Planted 2010; mostly grapefruit, some W. Murcott; canker and HLB; discontinued 2016.

CRDF

NVDMC



GROWER COOPERATORS

FCPRAC

TEAM MEMBERS

THANK YOU!