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)

‘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®
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.
THANK YOU!

CRDF

GROWER COOPERATORS

NVDMC

TEAM MEMBERS

FCPRAC