



USDA/ARS Ft. Pierce, FL

Greg McCollum, Ed Stover

USDA Scion Field Trials

USDA Citrus Scion Program is organized such that Ed Stover's team generates genetic variability and makes initial selections.

Greg McCollum is responsible for evaluating advanced selections, with Stover as collaborator

Stover does manage several trials mainly directed at HLB-response and one focusing on cold-hardiness- these are focus of this talk

We are most importantly a breeding program, and make >2000 new hybrids each year. Most new hybrids from crosses intended to achieve HLB tolerance/resistance are planted at USDA Ft. Pierce



Wide range of strategies to combine resistance/ tolerance for diverse market phenotypes

FIRST new hybrids starting to fruit!

Better crosses each year



Significant resistance to HLB in existing cultivars?

Survey in groves with multiple types in 2010

-disease introduced into trees at maturity

Liberibacter per sample by cultivar

Stover & McCollum: HortScience 46:1344-1348.

	Pathogen titer: mean # CLas /100 mg sample by PCR	% trees “HLB+”
Minneola	304	43%
Murcott	168	44%
Sweet orange	236	31%
Grapefruit	40	20%
Temple	9	15%
Fallglo	13	18%
Sunburst	107	13%

Trees in Jan 2010

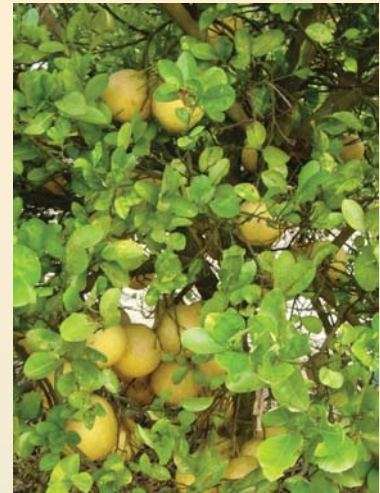


Trees in Jan 2014



Stover et al. Proc. Fla. State Hort. Soc. 125:40-46.

	3 yr Cumulative			2011-2012	
	Fruit		Fruit	Disease	TSS/TA
Cultivar	per tree		drop	rating	ratio
Flame	129.4	bc	50% b	4.2 b	7.0 b
Marsh	66.5	c	53% b	4.4 b	5.7 c
Jackson	219.9	ab	14% a	2.5 a	10.6 a
Triumph	255.1	a	15% a	2.4 a	9.6 a
F&M vs. T&J	0.0002		<0.0001	<0.0001	0.0001



- Fruit quality assessments were made each growing season with 'Triumph'/'Jackson' showing generally acceptable commercial fruit quality
- 'Flame'/'Marsh' had too low Brix/acid.
- In 2011/2012 many 'Flame'/'Marsh' were small and/or misshapen while 'Triumph'/'Jackson' were normal.
- Similar levels of HLB bacterium **Evidence of tolerance**

What if trees are exposed to CLas at planting?

> 6 yr replicated trial, scion/rootstock comparison

>CLas titers not significantly different HortScience 51:127-132

	Fruit/tree				Health	Change in	
Scion/Rootstock	Mortality (%)		Oct 2015 (no.)		Oct 2015 (3 pt)	diam. (mm)	
Fallglo/Kinkoji	20	a	28.4	b	1.9 cd	23.8	b
Hamlin/Cleopatra	20	a	18.6	bc	2.2 bc	20.4	b-d
Hamlin/Kinkoji	10	a	12.9	cd	1.9 cd	14.5	d
Ruby/Kinkoji	10	a	4.6	e	1.6 d	20.7	bc
SugarBelle/Sour	0	a	81.3	a	2.9 a	46.1	a
Tango/Kuharske	0	a	88.1	a	2.9 a	32.2	a
Temple/Cleopatra	18	a	35.6	a	2.3 ab	23.8	b

- Some scion/rootstock combinations continued to develop even with high titers of CLAs and strong mottle symptoms
- Not “tolerant” rootstocks used so likely a scion effect



SugarBelle/SourOr
and Tango/Kuharske
look particularly
good and are
producing more fruit

Hamlin/Kinkoji

SugarBelle/Sour Orange

Tango/Kuharske



Ongoing Evidence that some Mandarins have substantial HLB Tolerance



Clementine



Fairchild (Clem x Orl)



Fortune (Clem x Dancy)



Bower (Clem x Orl)



Dancy



Kunembo (*C. nobilis*)

Clementine, Orlando, and Dancy showing up repeatedly: But these trees were already fairly mature when exposed to HLB

NOT likely that these cultivars are extraordinary

- Increasingly apparent that potentially economically useful tolerance is not un-common in conventional citrus
- A replicated population of Fairchild (Clem x Orlando) x Fortune (Clem x Orlando) and other mandarins has been planted at the USDA Picos Farm
- Collaborating with Roose and Gmitter to ultimately identify genes for tolerance



133 F x F source trees
25 scion cultivars
11 advanced selections
8 trees of most in RCBD
Planted 6.25.2015



It's important to know how our new selections hold up to HLB!
Replicated plants of 50 USDA selections and standards planted after no-choice hot-ACP for a week and 4 months in the hot-ACP house.

At 3.5 yrs in field some are quite healthy and have grown well, while others are sickly and stunted.

Takes 5-6 years to clearly distinguish HLB tolerance



Selection/ cultivar	Canopy density (%)	Tree health (4 is best)	Canopy vol. (m ³)	Trees in health cat 3&4 (%)
FF6-46-15	100.0 a	4.0 a	11.8 a	100 a
FP6-17-28	92.0 a	3.5 a-c	7.6 bc	100 a
FP6-47-119	92.5 a	3.8 ab	7.5 bc	100 a
FP6-49-116	93.3 a	4.0 a	7.5 bc	100 a
FP6-49-96	90.0 a	3.4 a-d	7.0 b-e	80 ab
USSurpr	98.0 a	4.0 a	6.7 b-f	100 a
FF1-42-70	100.0 a	3.8 ab	5.8 b-g	100 a
Valencia	80.0 ab	3.3 a-e	4.1 c-i	75 ab
Jackson	91.7 a	3.6 a-c	4.0 c-i	83 ab
Carrizo	94.0 a	4.0 a	3.7 c-i	100 a
FF1-11-7	100.0 a	4.0 a	3.6 c-i	100 a
FF1-34-11	100.0 a	4.0 a	3.5 c-i	100 a
Temple	82.0 ab	3.1 a-e	3.4 c-i	60 ab
Clementine	96.0 a	3.8 ab	3.0 e-i	100 a
FF1-63-85	92.0 a	3.7 a-c	2.5 g-i	100 a
FP6-46-3	84.0 ab	3.6 a-c	2.4 g-i	100 a
Lee	98.0 a	3.3 a-e	2.4 g-i	80 ab
Flame	62.5 b	2.3 e	1.8 g-i	25 b

Leesburg farm-cold hardiness trial

- Only cultivar with wholesale commercial potential is seedless Foster
- Dancy, Kishu, Ninkat, Ruby Red, Shiranui, US Furr, Xie Shan
- Six numbered selections
- RCBD with 8 trees of each
- Planted July 2013 on US-812



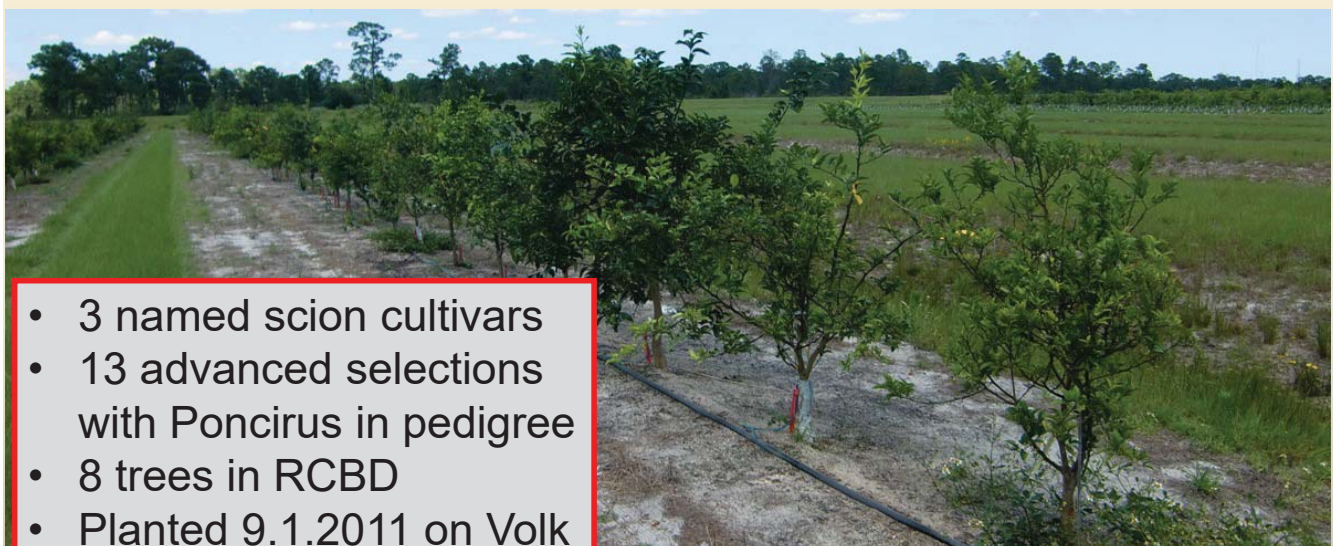
Row of Seedless Foster at USDA Leesburg may be healthiest row of GF in Florida- likely just lucky

Young Seedless Foster at USDA Leesburg mainly looks good but not statistically better than Ruby but 33% more fruit
Matures before Christmas in Lake County



100+ Poncirus hybrid genotypes all replicated and exposed to HLB/ACP for 5 years (Gmitter, Stover, Roose collaboration)

Stover folded in some standards and advanced selections



- 3 named scion cultivars
- 13 advanced selections with Poncirus in pedigree
- 8 trees in RCBD
- Planted 9.1.2011 on Volk

Irradiated trees

We typically irradiate 250-500 buds at 30 and 50 gray, shooting for 50% mortality. Trees are double budded. Vary wildly in sensitivity to radiation

- Ftp-6-16-172 GF-type 200 Planted with grower-cooperator
- FF-1-63-85 Mandarin 196 Planted at Whitmore
- FF-1-63-77 Mandarin 163 Planted at Whitmore
- FF-1-75-55 Peelable orange 105 Planted at Whitmore
- FF-1-84-2 Mandarin 38 Planted at Whitmore (Radiation sensitive)
- FF-1-32-67 Mandarin 71 Planted at Whitmore
- US Seedless Surprise 320 Planted with grower-cooperators
- Jackson Grapefruit 160 Planted with grower-cooperators – new 650 more
- Page ~100 Planted with grower-cooperator
- Nova ~200 Planted with grower-cooperator
- FF 1-83-179 Budded 276, Ftp 6-17-16 Budded 216, Ftp 6-17-48 Budded 288
 - All clean budwood from DPI



FF1-83-179

Complex hybrid containing pummelo, orange, tangelo, and grapefruit. Deep red interior color, pronounced skin blush. Not in HLB trial yet

Late ripening pummelo hybrid with thin skin. It has exceptionally firm internal texture with small juice vesicles and deep pink color. Has mild taste and holds its color well. Less HLB tolerant in trial- better than Flame



Ftp 6-17-48

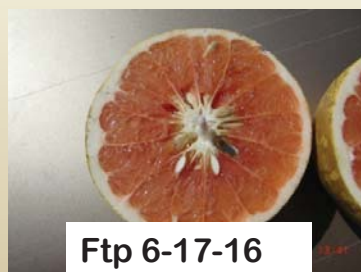
Irradiated GF-Like from Breeding Program

Late ripening pummelo hybrid with thin skin. Firm internal texture with small juice vesicles and deep pink color. Has mild taste and holds its color well. Among best growth in HLB tolerance trial



Ftp 6-16-172

Early ripening pummelo hybrid with relatively thin skin and deep red color. Very mild, low acid taste with slight bitterness. Among best growth in HLB tolerance trial



Ftp 6-17-16

Test Conditions in Screening HLB-Tolerant Citrus

- a. No ACP control and pre-HLB care. Pros: may be fastest route to production as though HLB is resolved. Cons: may obscure useful tolerance
- b. Full ACP control and near optimal management. Pros: may reflect conditions that are prevalent in commercial production; Cons: will delay onset of HLB and may encourage selection of material which will not perform well without aggressive management
- c. No ACP control and near optimal management. Pros: may reflect conditions that are prevalent in commercial production, with increased confidence that ACP sprays can be reduced, and somewhat earlier onset of HLB than 3b; Cons: may encourage selection of material which will not perform well without aggressive management
- d. No ACP control and only controlled release fertilizer. Pros: will increase confidence that ACP sprays can be reduced, with somewhat earlier onset of HLB than 3b, and production costs similar to pre-HLB; Cons: prevent selection of material which will perform well with more aggressive management
- e. Other combinations..... Reflective mulches, bactericides etc

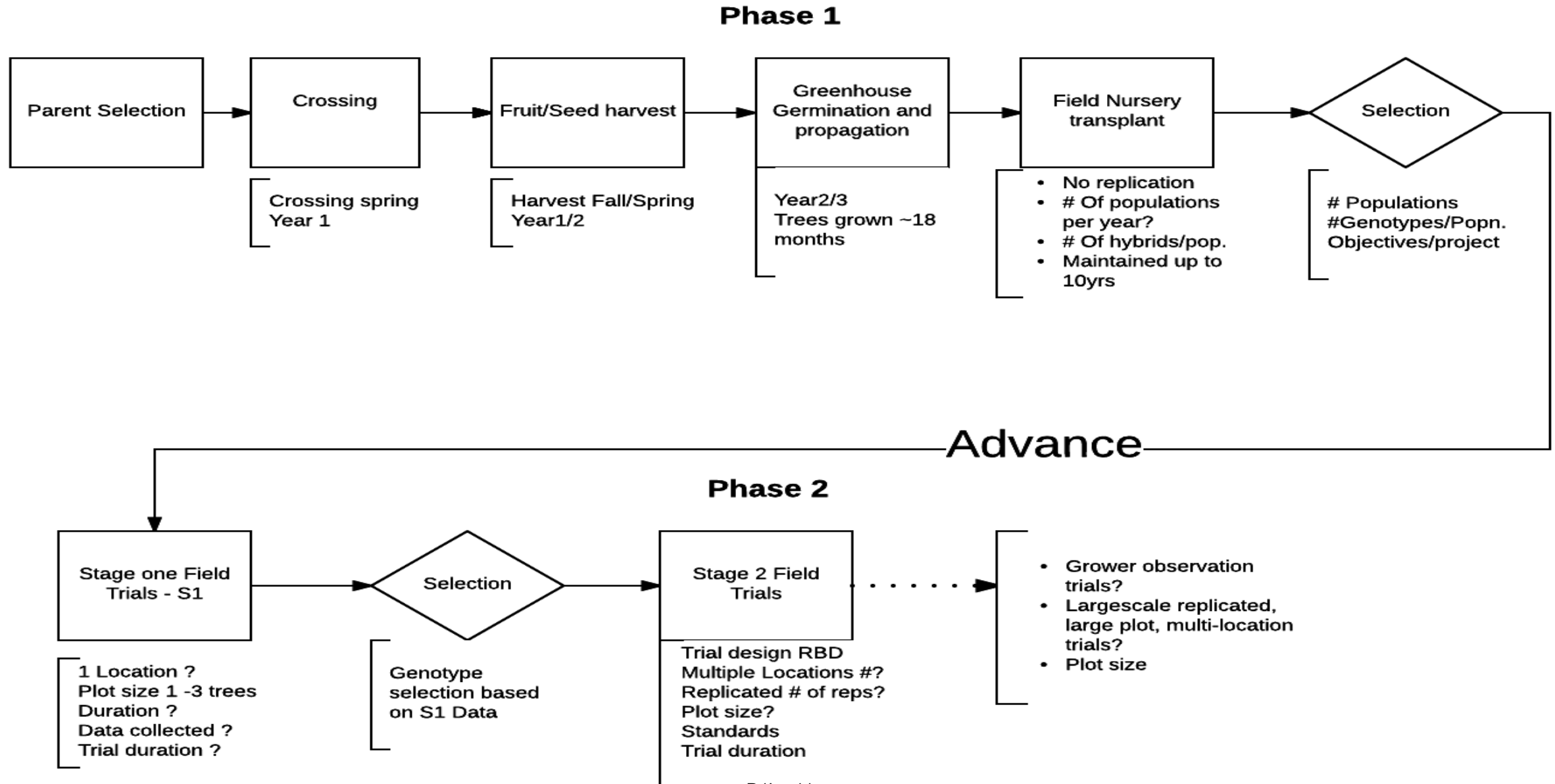
Thanks for supporting conventional citrus scion breeding!

- USDA/ARS Base Funding
- New Varieties Development and Management Corp
- Florida Citrus Research & Development Foundation
- Florida Citrus Research Foundation (Whitmore)
- DPI Budwood Office
- MAC

Jodi Avila	Abby Bartlett	Wayne Brown
Ellen Cochrane	Jacqueline Depaz	Lynn Faulkner
J. Giandalone	Wes Glover	Amber Holland
Diane Helseth	David Lindsey	Spencer Marshall
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Sean Reif	Mike Rutherford	James Salvatore
Matthew Sewell	Jefferson Shaw	Jeff Smith
Regina Tracy	Ashley Witkowski	Patrick Zagorski



USDA/ARS FL Conventional scion Breeding Pipeline



USDA/ARS Scion Field Trials Stover

PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum	Stover	Whitmore 10B	2013	FF-1-4-59	5	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	Ftp-6-49-96	7	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	FF-1-5-35	4	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	FF-1-63-77	19	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	FF1-63-85	11	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	FF-1-70-5	20	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	FF-1-74-14	4	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	FF-1-75-113	20	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	FF-1-75-55	12	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	FF-1-76-50	12	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	FF-1-76-52	12	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	FF-1-83-179	4	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	FF-1-83-227	20	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	FF-1-84-2	4	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	Early Gold	14	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	Ftp-6-32-67	8	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	Hamlin	22	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	Tresca 10c	17	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	Tresca DPI	6	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	FF-1-76-51	3	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	FF-1-74-92	2	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	FF-1-74-52	6	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	FF-1-22-79	4	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	FF-1-35-21	4	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
McCollum	Stover	Whitmore 10B	2013	FF-1-19-58	2	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016	28.687962 -81.586140
				total	242				
PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
Stover		Whitmore Block 7	2013	FF-1-37-12	8	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016	28.679985 -81.880656
Stover		Whitmore Block 7	2013	FF-1-63-77	8	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016	28.679985 -81.880656
Stover		Whitmore Block 7	2013	FF-1-70-5	4	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016	28.679985 -81.880656
Stover		Whitmore Block 7	2013	FF-1-74-14	8	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016	28.679985 -81.880656
Stover		Whitmore Block 7	2013	FF-1-75-55	2	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016	28.679985 -81.880656
Stover		Whitmore Block 7	2013	FF-1-76-50	2	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016	28.679985 -81.880656
Stover		Whitmore Block 7	2013	FF-6-13-44	8	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016	28.679985 -81.880656
Stover		Whitmore Block 7	2013	FF-6-15-93	12	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016	28.679985 -81.880656
Stover		Whitmore Block 7	2013	FF-1-49-96	1	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016	28.679985 -81.880656
Stover		Whitmore Block 7	2013	Furr	6	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016	28.679985 -81.880656
Stover		Whitmore Block 7	2013	Irr Foster	8	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016	28.679985 -81.880656
Stover		Whitmore Block 7	2013	Kishu	14	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016	28.679985 -81.880656
Stover		Whitmore Block 7	2013	Nin-Kat	15	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016	28.679985 -81.880656
Stover		Whitmore Block 7	2013	Ruby Red	9	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016	28.679985 -81.880656
Stover		Whitmore Block 7	2013	Shiranui	8	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016	28.679985 -81.880656
Stover		Whitmore Block 7	2013	US-119	8	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016	28.679985 -81.880656
Stover		Whitmore Block 7	2013	Xie Shan	10	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016	28.679985 -81.880656
				total	131				

USDA/ARS Scion Field Trials Stover

PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Whitmore W Block 1	2016	USDA-7652LT	10	Replaced missing old trees	Hamlin 3; Valencia 5	New planting 2016	28.683587 -81.887817
McCollum		Whitmore W Block 1	2016	USDA-7650	10	Replaced missing old trees	Hamlin 3; Valencia 5	New planting 2016	28.683587 -81.887817
McCollum		Whitmore W Block 1	2016	USDA-7555	10	Replaced missing old trees	Hamlin 3; Valencia 5	New planting 2016	28.683587 -81.887817
McCollum		Whitmore W Block 1	2016	USDA83179	6	Replaced missing old trees	Hamlin 3; Valencia 5	New planting 2016	28.683587 -81.887817
McCollum		Whitmore W Block 1	2016	USDA7651	10	Replaced missing old trees	Hamlin 3; Valencia 5	New planting 2016	28.683587 -81.887817
McCollum		Whitmore W Block 1	2016	Hamlin	3	Replaced missing old trees	Hamlin 3; Valencia 5	New planting 2016	28.683587 -81.887817
McCollum		Whitmore W Block 1	2016	Valencia	5	Replaced missing old trees	Hamlin 3; Valencia 5	New planting 2016	28.683587 -81.887817
				total	54				
PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Picos Block 2e	2013	Early Gold	10	2 blocks	Early Gold 10; Hamlin 10	HLB Observations to this point	27.435166 -80.428612
McCollum		Picos Block 2e	2013	FF-1-75-113	10	2 blocks	Early Gold 10; Hamlin 10	HLB Observations to this point	27.435166 -80.428612
McCollum		Picos Block 2e	2013	FF-1-75-55	9	2 blocks	Early Gold 10; Hamlin 10	HLB Observations to this point	27.435166 -80.428612
McCollum		Picos Block 2e	2013	FF-1-76-50	11	2 blocks	Early Gold 10; Hamlin 10	HLB Observations to this point	27.435166 -80.428612
McCollum		Picos Block 2e	2013	FF-1-76-52	10	2 blocks	Early Gold 10; Hamlin 10	HLB Observations to this point	27.435166 -80.428612
McCollum		Picos Block 2e	2013	Hamlin 1-4-1	10	2 blocks	Early Gold 10; Hamlin 10	HLB Observations to this point	27.435166 -80.428612
				total	60				
PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		O'Berry	2016	USDA-7555	37	Replaced missing old trees	Hamlin 4	New planting 2016	28.123744 -81.118126
McCollum		O'Berry	2016	USDA-7650	31	Replaced missing old trees	Hamlin 4	New planting 2016	28.123744 -81.118126
McCollum		O'Berry	2016	USDA7651	14	Replaced missing old trees	Hamlin 4	New planting 2016	28.123744 -81.118126
McCollum		O'Berry	2016	USDA-7652	34	Replaced missing old trees	Hamlin 4	New planting 2016	28.123744 -81.118126
McCollum		O'Berry	2016	Hamlin	4	Replaced missing old trees	Hamlin 4	New planting 2016	28.123744 -81.118126
				total	120				
PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum	Stover	Sunag 2015	2015	Early Pride	6	Randomized	Hamlin 10; Glenn 8	New Planting 2015	27.721910 -80.626354
McCollum	Stover	Sunag 2015	2015	Glen	8	Randomized	Hamlin 10; Glenn 8	New Planting 2015	27.721910 -80.626354
McCollum	Stover	Sunag 2015	2015	Hamlin	10	Randomized	Hamlin 10; Glenn 8	New Planting 2015	27.721910 -80.626354
McCollum	Stover	Sunag 2015	2015	Thompson	8	Randomized	Hamlin 10; Glenn 8	New Planting 2015	27.721910 -80.626354
McCollum	Stover	Sunag 2015	2015	USDA-2448	6	Randomized	Hamlin 10; Glenn 8	New Planting 2015	27.721910 -80.626354
McCollum	Stover	Sunag 2015	2015	USDA-3267	6	Randomized	Hamlin 10; Glenn 8	New Planting 2015	27.721910 -80.626354
McCollum	Stover	Sunag 2015	2015	USDA-4996	8	Randomized	Hamlin 10; Glenn 8	New Planting 2015	27.721910 -80.626354
McCollum	Stover	Sunag 2015	2015	USDA-5512	6	Randomized	Hamlin 10; Glenn 8	New Planting 2015	27.721910 -80.626354
McCollum	Stover	Sunag 2015	2015	USDA-6377	6	Randomized	Hamlin 10; Glenn 8	New Planting 2015	27.721910 -80.626354
McCollum	Stover	Sunag 2015	2015	USDA-6385	6	Randomized	Hamlin 10; Glenn 8	New Planting 2015	27.721910 -80.626354
McCollum	Stover	Sunag 2015	2015	USDA-7555	8	Randomized	Hamlin 10; Glenn 8	New Planting 2015	27.721910 -80.626354
McCollum	Stover	Sunag 2015	2015	USDA-7650	8	Randomized	Hamlin 10; Glenn 8	New Planting 2015	27.721910 -80.626354
McCollum	Stover	Sunag 2015	2015	USDA-7651	8	Randomized	Hamlin 10; Glenn 8	New Planting 2015	27.721910 -80.626354
McCollum	Stover	Sunag 2015	2015	USDA-7652	8	Randomized	Hamlin 10; Glenn 8	New Planting 2015	27.721910 -80.626354
McCollum	Stover	Sunag 2015	2015	USDA-8402	6	Randomized	Hamlin 10; Glenn 8	New Planting 2015	27.721910 -80.626354
McCollum	Stover	Sunag 2015	2015	W. Murcott	6	Randomized	Hamlin 10; Glenn 8	New Planting 2015	27.721910 -80.626354
				total	114				

USDA/ARS Scion Field Trials Stover

PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum	Stover	Sunag 2016	2016	USDA-3521	52	Parallel rows at owner's request	none	New planting 2016	27.721628 -80.626247
McCollum	Stover	Sunag 2017	2016	USDA-2279	50	Parallel rows at owner's request	none	New planting 2016	27.721628 -80.626247
				total	102				
PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Carbeneau	2016	Early Pride	3	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016	28.465360 -80.712998
McCollum		Carbeneau	2016	USDA-7452	2	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016	28.465360 -80.712998
McCollum		Carbeneau	2016	USDA-7555	28	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016	28.465360 -80.712998
McCollum		Carbeneau	2016	USDA-7650	58	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016	28.465360 -80.712998
McCollum		Carbeneau	2016	USDA-7651	31	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016	28.465360 -80.712998
McCollum		Carbeneau	2016	USDA-7652	11	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016	28.465360 -80.712998
McCollum		Carbeneau	2016	USDA-7652 LT	4	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016	28.465360 -80.712998
McCollum		Carbeneau	2016	USDA-7652 Top	7	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016	28.465360 -80.712998
McCollum		Carbeneau	2016	USDA-83179	6	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016	28.465360 -80.712998
McCollum		Carbeneau	2016	USDA-83227	1	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016	28.465360 -80.712998
McCollum		Carbeneau	2016	USDA-1716	1	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016	28.465360 -80.712998
McCollum		Carbeneau	2016	USDA-1748	10	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016	28.465360 -80.712998
McCollum		Carbeneau	2016	Hamlin	12	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016	28.465360 -80.712998
McCollum		Carbeneau	2016	LP36-39	1	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016	28.465360 -80.712998
McCollum		Carbeneau	2016	Navel DPI-846-N	1	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016	28.465360 -80.712998
McCollum		Carbeneau	2016	Navel DPI-846-2c	12	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016	28.465360 -80.712998
McCollum		Carbeneau	2016	Navel DPI 846-3S	11	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016	28.465360 -80.712998
McCollum		Carbeneau	2016	Thompson	2	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016	28.465360 -80.712998
McCollum		Carbeneau	2016	Washington	1	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016	28.465360 -80.712998
				total	202				
PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Dingman	2016	Early Pride	3	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016	28.470368 -80.714262
McCollum		Dingman	2016	USDA-7650	14	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016	28.470368 -80.714262
McCollum		Dingman	2016	USDA-7555	8	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016	28.470368 -80.714262
McCollum		Dingman	2016	USDA-7651	10	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016	28.470368 -80.714262
McCollum		Dingman	2016	USDA-7652	4	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016	28.470368 -80.714262
McCollum		Dingman	2016	FF-5-93-42	5	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016	28.470368 -80.714262
McCollum		Dingman	2016	Glenn	29	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016	28.470368 -80.714262
McCollum		Dingman	2016	Hamlin	8	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016	28.470368 -80.714262
McCollum		Dingman	2016	Jackson	5	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016	28.470368 -80.714262
McCollum		Dingman	2016	LP-3639	4	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016	28.470368 -80.714262
McCollum		Dingman	2016	Thomson	27	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016	28.470368 -80.714262
McCollum		Dingman	2016	USDA-2448	3	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016	28.470368 -80.714262
McCollum		Dingman	2016	USDA-3267	9	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016	28.470368 -80.714262
McCollum		Dingman	2016	USDA-4996	13	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016	28.470368 -80.714262
McCollum		Dingman	2016	USDA-5512	9	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016	28.470368 -80.714262
McCollum		Dingman	2016	USDA-6377	9	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016	28.470368 -80.714262
McCollum		Dingman	2016	USDA-6385	10	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016	28.470368 -80.714262
McCollum		Dingman	2016	USDA-7652	9	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016	28.470368 -80.714262
McCollum		Dingman	2016	USDA-8402	12	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016	28.470368 -80.714262
McCollum		Dingman	2016	W. Murcott	5	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016	28.470368 -80.714262
				total	196				

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PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Black Buffum	2016	Hamlin	4	groups in one long row	Hamlin 4	New planting 2016	27.749013 -81.699113
McCollum		Black Buffum	2016	USDA-2279	9	groups in one long row	Hamlin 4	New planting 2016	27.749013 -81.699113
McCollum		Black Buffum	2016	USDA-23130	12	groups in one long row	Hamlin 4	New planting 2016	27.749013 -81.699113
McCollum		Black Buffum	2016	USDA-2448	6	groups in one long row	Hamlin 4	New planting 2016	27.749013 -81.699113
McCollum		Black Buffum	2016	USDA-3521	9	groups in one long row	Hamlin 4	New planting 2016	27.749013 -81.699113
McCollum		Black Buffum	2016	USDA-7452	10	groups in one long row	Hamlin 4	New planting 2016	27.749013 -81.699113
McCollum		Black Buffum	2016	USDA-7555	6	groups in one long row	Hamlin 4	New planting 2016	27.749013 -81.699113
McCollum		Black Buffum	2016	USDA-7650	6	groups in one long row	Hamlin 4	New planting 2016	27.749013 -81.699113
McCollum		Black Buffum	2016	USDA-7651	9	groups in one long row	Hamlin 4	New planting 2016	27.749013 -81.699113
McCollum		Black Buffum	2016	USDA-7652	1	groups in one long row	Hamlin 4	New planting 2016	27.749013 -81.699113
McCollum		Black Buffum	2016	USDA-7652 LT	6	groups in one long row	Hamlin 4	New planting 2016	27.749013 -81.699113
McCollum		Black Buffum	2016	USDA-7652 Top	2	groups in one long row	Hamlin 4	New planting 2016	27.749013 -81.699113
				total	80				
PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Bobo	2016	Early Pride	8	grouped by selection	Hamlin 3	New planting 2016	28.611175 -81.770197
McCollum		Bobo	2016	USDA-2279	30	grouped by selection	Hamlin 3	New planting 2016	28.611175 -81.770197
McCollum		Bobo	2016	USDA-23130	29	grouped by selection	Hamlin 3	New planting 2016	28.611175 -81.770197
McCollum		Bobo	2016	USDA-3521	20	grouped by selection	Hamlin 3	New planting 2016	28.611175 -81.770197
McCollum		Bobo	2016	USDA-3712	12	grouped by selection	Hamlin 3	New planting 2016	28.611175 -81.770197
McCollum		Bobo	2016	USDA-4265	1	grouped by selection	Hamlin 3	New planting 2016	28.611175 -81.770197
McCollum		Bobo	2016	USDA-7452	14	grouped by selection	Hamlin 3	New planting 2016	28.611175 -81.770197
McCollum		Bobo	2016	USDA-7555	10	grouped by selection	Hamlin 3	New planting 2016	28.611175 -81.770197
McCollum		Bobo	2016	USDA-7650	10	grouped by selection	Hamlin 3	New planting 2016	28.611175 -81.770197
McCollum		Bobo	2016	USDA-7651	15	grouped by selection	Hamlin 3	New planting 2016	28.611175 -81.770197
McCollum		Bobo	2016	USDA-7652 LT	6	grouped by selection	Hamlin 3	New planting 2016	28.611175 -81.770197
McCollum		Bobo	2016	USDA-7652 Top	7	grouped by selection	Hamlin 3	New planting 2016	28.611175 -81.770197
McCollum		Bobo	2016	Hamlin	3	grouped by selection	Hamlin 3	New planting 2016	28.611175 -81.770197
McCollum		Bobo	2016	Irr C-54-4	27	grouped by selection	Hamlin 3	New planting 2016	28.611175 -81.770197
McCollum		Bobo	2016	Seedless Temple	9	grouped by selection	Hamlin 3	New planting 2016	28.611175 -81.770197
McCollum		Bobo	2016	USDA-2448	1	grouped by selection	Hamlin 3	New planting 2016	28.611175 -81.770197
McCollum		Bobo	2016	USDA-57105	13	grouped by selection	Hamlin 3	New planting 2016	28.611175 -81.770197
McCollum		Bobo	2016	USDA-61344	2	grouped by selection	Hamlin 3	New planting 2016	28.611175 -81.770197
McCollum		Bobo	2016	USDA-6253	9	grouped by selection	Hamlin 3	New planting 2016	28.611175 -81.770197
McCollum		Bobo	2016	USDA-7652	3	grouped by selection	Hamlin 3	New planting 2016	28.611175 -81.770197
				total	229				

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PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Edison	2016	Early Pride	7	Replaced missing old trees	Hamlin 4	New planting 2016	28.066776 -80.895116
McCollum		Edison	2016	FF-1-105-106	10	Replaced missing old trees	Hamlin 4	New planting 2016	28.066776 -80.895116
McCollum		Edison	2016	FF-1-24-48	6	Replaced missing old trees	Hamlin 4	New planting 2016	28.066776 -80.895116
McCollum		Edison	2016	FF-1-37-12	10	Replaced missing old trees	Hamlin 4	New planting 2016	28.066776 -80.895116
McCollum		Edison	2016	FF-1-75-55	3	Replaced missing old trees	Hamlin 4	New planting 2016	28.066776 -80.895116
McCollum		Edison	2016	FF-1-76-50	5	Replaced missing old trees	Hamlin 4	New planting 2016	28.066776 -80.895116
McCollum		Edison	2016	FF-1-76-51	9	Replaced missing old trees	Hamlin 4	New planting 2016	28.066776 -80.895116
McCollum		Edison	2016	FF-1-76-52	18	Replaced missing old trees	Hamlin 4	New planting 2016	28.066776 -80.895116
McCollum		Edison	2016	FF-6-2-53	9	Replaced missing old trees	Hamlin 4	New planting 2016	28.066776 -80.895116
McCollum		Edison	2016	Hamlin	4	Replaced missing old trees	Hamlin 4	New planting 2016	28.066776 -80.895116
McCollum		Edison	2016	IRR. C. 54-4	8	Replaced missing old trees	Hamlin 4	New planting 2016	28.066776 -80.895116
McCollum		Edison	2016	FF-5-51-2	15	Replaced missing old trees	Hamlin 4	New planting 2016	28.066776 -80.895116
				total	104				
PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Field Manor	2016	FF-1-75-55	30	Replaced missing old trees	Hamlin 8	New planting 2016	28.399329 -80.717396
McCollum		Field Manor	2016	FF-1-76-50	23	Replaced missing old trees	Hamlin 8	New planting 2016	28.399329 -80.717396
McCollum		Field Manor	2016	FF-1-76-51	23	Replaced missing old trees	Hamlin 8	New planting 2016	28.399329 -80.717396
McCollum		Field Manor	2016	FF-1-76-52	21	Replaced missing old trees	Hamlin 8	New planting 2016	28.399329 -80.717396
McCollum		Field Manor	2016	Hamlin	8	Replaced missing old trees	Hamlin 8	New planting 2016	28.399329 -80.717396
				total	105				
PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum	Stover	Deseret	2016	Glenn	8	randomized	Glenn 8; Hamlin 10	New planting 2016	28.160519 -80.900984
McCollum	Stover	Deseret	2016	Hamlin	10	randomized	Glenn 8; Hamlin 10	New planting 2016	28.160519 -80.900984
McCollum	Stover	Deseret	2016	Thomson	8	randomized	Glenn 8; Hamlin 10	New planting 2016	28.160519 -80.900984
McCollum	Stover	Deseret	2016	USDA-4996	8	randomized	Glenn 8; Hamlin 10	New planting 2016	28.160519 -80.900984
McCollum	Stover	Deseret	2016	USDA-5106	8	randomized	Glenn 8; Hamlin 10	New planting 2016	28.160519 -80.900984
McCollum	Stover	Deseret	2016	USDA-7555	8	randomized	Glenn 8; Hamlin 10	New planting 2016	28.160519 -80.900984
McCollum	Stover	Deseret	2016	USDA-7650	8	randomized	Glenn 8; Hamlin 10	New planting 2016	28.160519 -80.900984
McCollum	Stover	Deseret	2016	USDA-7652	8	randomized	Glenn 8; Hamlin 10	New planting 2016	28.160519 -80.900984
				total	66				

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PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum	Stover	Hunt Brothers	2015	Early Pride	2	randomized	Glenn 5; Hamlin 9	New planting in 2015	27.835109 -81.580981
McCollum	Stover	Hunt Brothers	2015	FF-1-35-21	6	randomized	Glenn 5; Hamlin 9	New planting in 2015	27.835109 -81.580981
McCollum	Stover	Hunt Brothers	2015	Glenn	5	randomized	Glenn 5; Hamlin 9	New planting in 2015	27.835109 -81.580981
McCollum	Stover	Hunt Brothers	2015	Hamlin	9	randomized	Glenn 5; Hamlin 9	New planting in 2015	27.835109 -81.580981
McCollum	Stover	Hunt Brothers	2015	Thomson	8	randomized	Glenn 5; Hamlin 9	New planting in 2015	27.835109 -81.580981
McCollum	Stover	Hunt Brothers	2015	USDA-2448	6	randomized	Glenn 5; Hamlin 9	New planting in 2015	27.835109 -81.580981
McCollum	Stover	Hunt Brothers	2015	USDA-3267	6	randomized	Glenn 5; Hamlin 9	New planting in 2015	27.835109 -81.580981
McCollum	Stover	Hunt Brothers	2015	USDA-4996	7	randomized	Glenn 5; Hamlin 9	New planting in 2015	27.835109 -81.580981
McCollum	Stover	Hunt Brothers	2015	USDA-5512	6	randomized	Glenn 5; Hamlin 9	New planting in 2015	27.835109 -81.580981
McCollum	Stover	Hunt Brothers	2015	USDA-6377	6	randomized	Glenn 5; Hamlin 9	New planting in 2015	27.835109 -81.580981
McCollum	Stover	Hunt Brothers	2015	USDA-6385	6	randomized	Glenn 5; Hamlin 9	New planting in 2015	27.835109 -81.580981
McCollum	Stover	Hunt Brothers	2015	USDA-7555	7	randomized	Glenn 5; Hamlin 9	New planting in 2015	27.835109 -81.580981
McCollum	Stover	Hunt Brothers	2015	USDA-7650	8	randomized	Glenn 5; Hamlin 9	New planting in 2015	27.835109 -81.580981
McCollum	Stover	Hunt Brothers	2015	USDA-7651	8	randomized	Glenn 5; Hamlin 9	New planting in 2015	27.835109 -81.580981
McCollum	Stover	Hunt Brothers	2015	USDA-7652	6	randomized	Glenn 5; Hamlin 9	New planting in 2015	27.835109 -81.580981
McCollum	Stover	Hunt Brothers	2015	USDA-8402	6	randomized	Glenn 5; Hamlin 9	New planting in 2015	27.835109 -81.580981
McCollum	Stover	Hunt Brothers	2015	W. Murcott	6	randomized	Glenn 5; Hamlin 9	New planting in 2015	27.835109 -81.580981
				total	108				
PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Banack	2016	USDA-10a715	9	Grouped by Scion and Rootstock	Jackson 11	New planting 2016	27.385252 -80.363638
McCollum		Banack	2016	USDA-3179	6	Grouped by Scion and Rootstock	Jackson 11	New planting 2016	27.385252 -80.363638
McCollum		Banack	2016	LP36-39	11	Grouped by Scion and Rootstock	Jackson 11	New planting 2016	27.385252 -80.363638
McCollum		Banack	2016	Jackson	11	Grouped by Scion and Rootstock	Jackson 11	New planting 2016	27.385252 -80.363638
McCollum		Banack	2016	USDA-1748	20	Grouped by Scion and Rootstock	Jackson 11	New planting 2016	27.385252 -80.363638
McCollum		Banack	2016	FF-5-93-42	8	Grouped by Scion and Rootstock	Jackson 11	New planting 2016	27.385252 -80.363638
McCollum		Banack	2016	USDA-1716	2	Grouped by Scion and Rootstock	Jackson 11	New planting 2016	27.385252 -80.363638
McCollum		Banack	2016	USDA-83227	8	Grouped by Scion and Rootstock	Jackson 11	New planting 2016	27.385252 -80.363638
				total	75				
PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Tom Hammond	2015	Early Pride	4	randomized fill in of missing trees	Early Pride 4	New planting 2015	27.617165 -80.650550
McCollum		Tom Hammond	2015	USDA-3521	6	randomized fill in of missing trees	Early Pride 4	New planting 2015	27.617165 -80.650550
McCollum		Tom Hammond	2015	USDA-2448	6	randomized fill in of missing trees	Early Pride 4	New planting 2015	27.617165 -80.650550
McCollum		Tom Hammond	2015	USDA-3267	6	randomized fill in of missing trees	Early Pride 4	New planting 2015	27.617165 -80.650550
McCollum		Tom Hammond	2015	USDA-5512	6	randomized fill in of missing trees	Early Pride 4	New planting 2015	27.617165 -80.650550
McCollum		Tom Hammond	2015	USDA-6377	6	randomized fill in of missing trees	Early Pride 4	New planting 2015	27.617165 -80.650550
McCollum		Tom Hammond	2015	USDA-6385	6	randomized fill in of missing trees	Early Pride 4	New planting 2015	27.617165 -80.650550
McCollum		Tom Hammond	2015	USDA-8402	6	randomized fill in of missing trees	Early Pride 4	New planting 2015	27.617165 -80.650550
McCollum		Tom Hammond	2015	W. Murcott	6	randomized fill in of missing trees	Early Pride 4	New planting 2015	27.617165 -80.650550
				total	52				

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PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Policiccio	2015	Early Pride	18	Grouped by Scion and Rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015	28.461624 -80.711383
McCollum		Policiccio	2015	USDA-2448	15	Grouped by Scion and Rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015	28.461624 -80.711383
McCollum		Policiccio	2015	USDA-3712	9	Grouped by Scion and Rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015	28.461624 -80.711383
McCollum		Policiccio	2015	USDA-7555	12	Grouped by Scion and Rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015	28.461624 -80.711383
McCollum		Policiccio	2015	USDA-7650	12	Grouped by Scion and Rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015	28.461624 -80.711383
McCollum		Policiccio	2015	USDA-7651	12	Grouped by Scion and Rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015	28.461624 -80.711383
McCollum		Policiccio	2015	USDA-7652	12	Grouped by Scion and Rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015	28.461624 -80.711383
McCollum		Policiccio	2015	USDA-1716	6	Grouped by Scion and Rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015	28.461624 -80.711383
McCollum		Policiccio	2015	USDA-1748	9	Grouped by Scion and Rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015	28.461624 -80.711383
McCollum		Policiccio	2015	Hamlin	3	Grouped by Scion and Rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015	28.461624 -80.711383
McCollum		Policiccio	2015	Hirado	3	Grouped by Scion and Rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015	28.461624 -80.711383
McCollum		Policiccio	2015	Irr. C-54-4	15	Grouped by Scion and Rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015	28.461624 -80.711383
McCollum		Policiccio	2015	Jackson	15	Grouped by Scion and Rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015	28.461624 -80.711383
McCollum		Policiccio	2015	Navel DPI-846-1-	12	Grouped by Scion and Rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015	28.461624 -80.711383
McCollum		Policiccio	2015	Navel DPI-846-2-C	12	Grouped by Scion and Rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015	28.461624 -80.711383
McCollum		Policiccio	2015	Navel DPI-846-3-S	12	Grouped by Scion and Rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015	28.461624 -80.711383
McCollum		Policiccio	2015	USDA-3227	15	Grouped by Scion and Rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015	28.461624 -80.711383
McCollum		Policiccio	2015	USDA-5106	7	Grouped by Scion and Rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015	28.461624 -80.711383
McCollum		Policiccio	2015	USDA-5512	3	Grouped by Scion and Rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015	28.461624 -80.711383
				total	202				
PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Roe	2014	Hamlin	9	Grouped by Scion and Rootstock	Hamlin 9	Juice quality data 2016	27.989335 -81.754444
McCollum		Roe	2014	USDA-1344	3	Grouped by Scion and Rootstock	Hamlin 9	Juice quality data 2016	27.989335 -81.754444
McCollum		Roe	2014	USDA-1842	6	Grouped by Scion and Rootstock	Hamlin 9	Juice quality data 2016	27.989335 -81.754444
McCollum		Roe	2014	USDA-2448	8	Grouped by Scion and Rootstock	Hamlin 9	Juice quality data 2016	27.989335 -81.754444
McCollum		Roe	2014	USDA-3267	6	Grouped by Scion and Rootstock	Hamlin 9	Juice quality data 2016	27.989335 -81.754444
McCollum		Roe	2014	USDA-4996	4	Grouped by Scion and Rootstock	Hamlin 9	Juice quality data 2016	27.989335 -81.754444
McCollum		Roe	2014	USDA-5113	9	Grouped by Scion and Rootstock	Hamlin 9	Juice quality data 2016	27.989335 -81.754444
McCollum		Roe	2014	USDA-7555	9	Grouped by Scion and Rootstock	Hamlin 9	Juice quality data 2016	27.989335 -81.754444
McCollum		Roe	2014	USDA-7650	9	Grouped by Scion and Rootstock	Hamlin 9	Juice quality data 2016	27.989335 -81.754444
McCollum		Roe	2014	USDA-7652	9	Grouped by Scion and Rootstock	Hamlin 9	Juice quality data 2016	27.989335 -81.754444
				total	72				

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PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Pete Spyke	2014	Thomson	7	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point	27.390864 -80.464027
McCollum		Pete Spyke	2014	USDA-1589	10	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point	27.390864 -80.464027
McCollum		Pete Spyke	2014	USDA-2448	13	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point	27.390864 -80.464027
McCollum		Pete Spyke	2014	USDA-3267	16	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point	27.390864 -80.464027
McCollum		Pete Spyke	2014	USDA-4996	10	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point	27.390864 -80.464027
McCollum		Pete Spyke	2014	USDA-5113	9	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point	27.390864 -80.464027
McCollum		Pete Spyke	2014	USDA-6377	12	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point	27.390864 -80.464027
McCollum		Pete Spyke	2014	USDA-6385	13	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point	27.390864 -80.464027
McCollum		Pete Spyke	2014	USDA-7555	12	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point	27.390864 -80.464027
McCollum		Pete Spyke	2014	USDA-7650	13	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point	27.390864 -80.464027
McCollum		Pete Spyke	2014	USDA7652	10	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point	27.390864 -80.464027
McCollum		Pete Spyke	2014	USDA-8402	1	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point	27.390864 -80.464027
McCollum		Pete Spyke	2014	Hamlin	6	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point	27.390864 -80.464027
				total	132				
PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum	Stover	Pete Spyke	2015	Early Pride	11	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015	27.389719 -80.464062
McCollum	Stover	Pete Spyke	2015	Hamlin	4	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015	27.389719 -80.464062
McCollum	Stover	Pete Spyke	2015	Thomson	1	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015	27.389719 -80.464062
McCollum	Stover	Pete Spyke	2015	USDA-5106	15	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015	27.389719 -80.464062
McCollum	Stover	Pete Spyke	2015	USDA-2448	22	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015	27.389719 -80.464062
McCollum	Stover	Pete Spyke	2015	USDA-3267	5	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015	27.389719 -80.464062
McCollum	Stover	Pete Spyke	2015	USDA-5512	15	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015	27.389719 -80.464062
McCollum	Stover	Pete Spyke	2015	USDA-6377	6	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015	27.389719 -80.464062
McCollum	Stover	Pete Spyke	2015	USDA-6385	28	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015	27.389719 -80.464062
McCollum	Stover	Pete Spyke	2015	USDA-7555	21	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015	27.389719 -80.464062
McCollum	Stover	Pete Spyke	2015	USDA-7650	2	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015	27.389719 -80.464062
McCollum	Stover	Pete Spyke	2015	USDA-7651	4	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015	27.389719 -80.464062
McCollum	Stover	Pete Spyke	2015	USDA-7652	5	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015	27.389719 -80.464062
McCollum	Stover	Pete Spyke	2015	USDA-8402	2	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015	27.389719 -80.464062
McCollum	Stover	Pete Spyke	2015	W. Murcott	15	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015	27.389719 -80.464062
				total	156				

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PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Black Newsome	2012	USDA-1	15	group by selection	Owner's midswets and Navels	trees size and amt. fruit	27.718625 -81.69771
McCollum		Black Newsome	2012	Midsweet	1	group by selection	Owner's midswets and Navels	trees size and amt. fruit	27.718625 -81.69771
McCollum		Black Newsome	2012	USDA-1128	7	group by selection	Owner's midswets and Navels	trees size and amt. fruit	27.718625 -81.69771
McCollum		Black Newsome	2012	USDA-49105	14	group by selection	Owner's midswets and Navels	trees size and amt. fruit	27.718625 -81.69771
McCollum		Black Newsome	2012	USDA-5113	9	group by selection	Owner's midswets and Navels	trees size and amt. fruit	27.718625 -81.69771
McCollum		Black Newsome	2012	USDA-5150	15	group by selection	Owner's midswets and Navels	trees size and amt. fruit	27.718625 -81.69771
McCollum		Black Newsome	2012	USDA-5512	16	group by selection	Owner's midswets and Navels	trees size and amt. fruit	27.718625 -81.69771
McCollum		Black Newsome	2012	USDA-6253	12	group by selection	Owner's midswets and Navels	trees size and amt. fruit	27.718625 -81.69771
McCollum		Black Newsome	2012	USDA-7555	5	group by selection	Owner's midswets and Navels	trees size and amt. fruit	27.718625 -81.69771
McCollum		Black Newsome	2012	USDA-C544	16	group by selection	Owner's midswets and Navels	trees size and amt. fruit	27.718625 -81.69771
				total	110				
PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Black Babson Park	2015	Fallglo	60	Cross pollination trial	Fallglo 60	HLB Samples	27.810098 -81.525166
McCollum		Black Babson Park	2015	USDA-5512	300	Cross pollination trial	Fallglo 60	HLB Samples	27.810098 -81.525166
				total	360				
PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Watt	2016	USDA-2279	10	arranged by scion	Washington navel 48	New planting 2016	29.423450 -82.143909
McCollum		Watt	2016	USDA-3521	10	arranged by scion	Washington navel 48	New planting 2016	29.423450 -82.143909
McCollum		Watt	2016	Fisher Navel	47	arranged by scion	Washington navel 48	New planting 2016	29.423450 -82.143909
McCollum		Watt	2016	Navel DPI-846-1-	39	arranged by scion	Washington navel 48	New planting 2016	29.423450 -82.143909
McCollum		Watt	2016	Navel DPI-846-2-C	35	arranged by scion	Washington navel 48	New planting 2016	29.423450 -82.143909
McCollum		Watt	2016	Navel DPI-846-3-S	38	arranged by scion	Washington navel 48	New planting 2016	29.423450 -82.143909
McCollum		Watt	2016	Thomson	33	arranged by scion	Washington navel 48	New planting 2016	29.423450 -82.143909
McCollum		Watt	2016	Washington Navel	48	arranged by scion	Washington navel 48	New planting 2016	29.423450 -82.143909
McCollum		Watt	2016	Wild Turkey Navel	81	arranged by scion	Washington navel 48	New planting 2016	29.423450 -82.143909
				total	341				
PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Lee Bird	2015	USDA-5106	11	arranged by scion	Washington Navel 48	HLB observations to this point	28.768279 -80.872624
McCollum		Lee Bird	2015	USDA-3712	10	arranged by scion	Washington Navel 48	HLB observations to this point	28.768279 -80.872624
McCollum		Lee Bird	2015	FF-5-100-47	5	arranged by scion	Washington Navel 48	HLB observations to this point	28.768279 -80.872624
McCollum		Lee Bird	2015	USDA-3267	5	arranged by scion	Washington Navel 48	HLB observations to this point	28.768279 -80.872624
McCollum		Lee Bird	2015	Fisher Navel	29	arranged by scion	Washington Navel 48	HLB observations to this point	28.768279 -80.872624
McCollum		Lee Bird	2015	Furr	5	arranged by scion	Washington Navel 48	HLB observations to this point	28.768279 -80.872624
McCollum		Lee Bird	2015	Glenn Navel	19	arranged by scion	Washington Navel 48	HLB observations to this point	28.768279 -80.872624
McCollum		Lee Bird	2015	Lee Navel 1-N	12	arranged by scion	Washington Navel 48	HLB observations to this point	28.768279 -80.872624
McCollum		Lee Bird	2015	Lee Navel 2-C	14	arranged by scion	Washington Navel 48	HLB observations to this point	28.768279 -80.872624
McCollum		Lee Bird	2015	Lee Navel 3S	12	arranged by scion	Washington Navel 48	HLB observations to this point	28.768279 -80.872624
McCollum		Lee Bird	2015	Thompson Navel	7	arranged by scion	Washington Navel 48	HLB observations to this point	28.768279 -80.872624
McCollum		Lee Bird	2015	Tresca	22	arranged by scion	Washington Navel 48	HLB observations to this point	28.768279 -80.872624
McCollum		Lee Bird	2015	Washington Navel	37	arranged by scion	Washington Navel 48	HLB observations to this point	28.768279 -80.872624
				total	188				

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PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Mike Greene	2016	USDA-2448	3	arranged by scion	Washington Navel 9	New Planting 2016	29.418988 -82.106745
McCollum		Mike Greene	2016	Navel DPI-846-1-	4	arranged by scion	Washington Navel 9	New Planting 2016	29.418988 -82.106745
McCollum		Mike Greene	2016	Navel DPI-846-2-C	6	arranged by scion	Washington Navel 9	New Planting 2016	29.418988 -82.106745
McCollum		Mike Greene	2016	Navel DPI-846-3S	10	arranged by scion	Washington Navel 9	New Planting 2016	29.418988 -82.106745
McCollum		Mike Greene	2016	Thomson	15	arranged by scion	Washington Navel 9	New Planting 2016	29.418988 -82.106745
McCollum		Mike Greene	2016	Washington Navel	9	arranged by scion	Washington Navel 9	New Planting 2016	29.418988 -82.106745
				total	47				
PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Cody Estes	2013	Seedless Surprise	20	Randomized/multiple rootstock	Fallglo 35	HLB Observations and Dieback	27.565499 -80.579015
McCollum		Cody Estes	2013	Fallglo	35	Randomized/multiple rootstock	Fallglo 35	HLB Observations and Dieback	27.565499 -80.579015
McCollum		Cody Estes	2013	Early Pride	61	Randomized/multiple rootstock	Fallglo 35	HLB Observations and Dieback	27.565499 -80.579015
				total	116				
PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Cody Estes	2016	USDA 2279	6	Randomized/multiple rootstock	Owner's Mandarins	New Planting 2016	27.565499 -80.579015
McCollum		Cody Estes	2016	USDA 3521	6	Randomized/multiple rootstock	Owner's Mandarins	New Planting 2016	27.565499 -80.579015
McCollum		Cody Estes	2016	USDA 23130	6	Randomized/multiple rootstock	Owner's Mandarins	New Planting 2016	27.565499 -80.579015
				total	18				
PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Clewiston Field Trial	2013	Ambersweet	10	Randomized	All Released Scions	HLB, trees size and amt. fruit	27.435166 -80.428612
McCollum		Clewiston Field Trial	2013	Bower	10	Randomized	All Released Scions	HLB, trees size and amt. fruit	27.435166 -80.428612
McCollum		Clewiston Field Trial	2013	Dancy	10	Randomized	All Released Scions	HLB, trees size and amt. fruit	27.435166 -80.428612
McCollum		Clewiston Field Trial	2013	Fallglo	10	Randomized	All Released Scions	HLB, trees size and amt. fruit	27.435166 -80.428612
McCollum		Clewiston Field Trial	2013	Hirado	10	Randomized	All Released Scions	HLB, trees size and amt. fruit	27.435166 -80.428612
McCollum		Clewiston Field Trial	2013	Marsh	10	Randomized	All Released Scions	HLB, trees size and amt. fruit	27.435166 -80.428612
McCollum		Clewiston Field Trial	2013	Minneola	10	Randomized	All Released Scions	HLB, trees size and amt. fruit	27.435166 -80.428612
McCollum		Clewiston Field Trial	2013	Orlando Tangelo	10	Randomized	All Released Scions	HLB, trees size and amt. fruit	27.435166 -80.428612
McCollum		Clewiston Field Trial	2013	Sunburst	10	Randomized	All Released Scions	HLB, trees size and amt. fruit	27.435166 -80.428612
McCollum		Clewiston Field Trial	2013	Temple	10	Randomized	All Released Scions	HLB, trees size and amt. fruit	27.435166 -80.428612
McCollum		Clewiston Field Trial	2013	Triumph	10	Randomized	All Released Scions	HLB, trees size and amt. fruit	27.435166 -80.428612
McCollum		Clewiston Field Trial	2013	Valencia	10	Randomized	All Released Scions	HLB, trees size and amt. fruit	27.435166 -80.428612
				total	120				
PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Wade Alford	2014	USDA-3267	12	randomized fill in of missing trees	Owner's Navels and Satsuma	HLB observations to this point	29.492241 -81.586140
McCollum		Wade Alford	2014	USDA-6385	12	randomized fill in of missing trees	Owner's Navels and Satsuma	HLB observations to this point	29.492241 -81.586140
McCollum		Wade Alford	2014	USDA-7555	58	randomized fill in of missing trees	Owner's Navels and Satsuma	HLB observations to this point	29.492241 -81.586140
				total	82				

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PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
McCollum		Wade Alford	2015	Early Pride	12	randomized fill in of missing trees	Owner's Navels and Satsuma	HLB observations to this point	29.492241 -81.586140
McCollum		Wade Alford	2015	FF-1-105-106	12	randomized fill in of missing trees	Owner's Navels and Satsuma	HLB observations to this point	29.492241 -81.586140
McCollum		Wade Alford	2015	FF-1-37-12	8	randomized fill in of missing trees	Owner's Navels and Satsuma	HLB observations to this point	29.492241 -81.586140
McCollum		Wade Alford	2015	FF-1-76-51	3	randomized fill in of missing trees	Owner's Navels and Satsuma	HLB observations to this point	29.492241 -81.586140
McCollum		Wade Alford	2015	FF-1-76-52	6	randomized fill in of missing trees	Owner's Navels and Satsuma	HLB observations to this point	29.492241 -81.586140
McCollum		Wade Alford	2015	FF-1-83-227	3	randomized fill in of missing trees	Owner's Navels and Satsuma	HLB observations to this point	29.492241 -81.586140
McCollum		Wade Alford	2015	FF-1-84-2	2	randomized fill in of missing trees	Owner's Navels and Satsuma	HLB observations to this point	29.492241 -81.586140
McCollum		Wade Alford	2015	FF-5-51-2	3	randomized fill in of missing trees	Owner's Navels and Satsuma	HLB observations to this point	29.492241 -81.586140
McCollum		Wade Alford	2015	FF-6-2-53	9	randomized fill in of missing trees	Owner's Navels and Satsuma	HLB observations to this point	29.492241 -81.586140
McCollum		Wade Alford	2015	IRR. C-54-4	24	randomized fill in of missing trees	Owner's Navels and Satsuma	HLB observations to this point	29.492241 -81.586140
McCollum		Wade Alford	2015	Navel DPI-846-1-	4	randomized fill in of missing trees	Owner's Navels and Satsuma	HLB observations to this point	29.492241 -81.586140
McCollum		Wade Alford	2015	Navel DPI-846-2-C	4	randomized fill in of missing trees	Owner's Navels and Satsuma	HLB observations to this point	29.492241 -81.586140
McCollum		Wade Alford	2015	Navel DPI-846-3-S	1	randomized fill in of missing trees	Owner's Navels and Satsuma	HLB observations to this point	29.492241 -81.586140
McCollum		Wade Alford	2015	Washington Navel	3	randomized fill in of missing trees	Owner's Navels and Satsuma	HLB observations to this point	29.492241 -81.586140
				total	94				

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PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
Stover		Picos Block 6	2013	Bower	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Carrizo	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Clementine	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	FF-1-11-7	3	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	FF-1-34-11	3	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	FF-1-4-2	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	FF-1-42-70	3	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	FF-1-5-213	4	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	FF-1-57-105	3	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	FF-1-63-77	2	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	FF-1-63-85	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	FF-1-74-14	3	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	FF-1-75-113	6	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	FF-1-75-55	6	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	FF-1-76-50	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	FF-1-76-52	4	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	FF-1-78-62	6	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	FF-1-81-67	4	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	FF-1-84-2	3	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	FF-5-51-2	4	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Flame	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Fortune	7	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Ftp-4-4-1	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Ftp-6-16-172	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Ftp6-17-16	6	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Ftp-6-17-28	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Ftp-6-17-48	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Ftp-6-42-88	6	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Ftp-6-43-117	2	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Ftp-6-43-82	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Ftp6-44-6	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Ftp6-46-1	4	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Ftp-6-46-130	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Ftp-6-46-15	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Ftp6-46-3	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Ftp-6-47-119	4	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Ftp-6-49-11	3	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Ftp-6-49-96	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Jackson	6	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Lee	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Nova	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Orlando	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Osceola	4	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Seedless Surprise	5	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Sunburst	4	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Temple	6	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	US EarlyPride	4	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	US119	4	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
Stover		Picos Block 6	2013	Valencia	4	CRD		Growth, Clas, HLB semi-annually, fruit 2016	
				total	223				

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PI	CoPI	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year	GPS Position
Stover	Gmitter	Picos Block 8- Citrange	2011	FF-1-74-14	8	RCB	Temple 8; Hamlin 8; Navel 8	Tree growth Frt/tree 2013; Gmitter lead	
Stover	Gmitter	Picos Block 8- Citrange	2011	FF6-23-29	8	RCB	Temple 8; Hamlin 8; Navel 8	Tree growth Frt/tree 2013; Gmitter lead	
Stover	Gmitter	Picos Block 8- Citrange	2011	FF-5-14-31	8	RCB	Temple 8; Hamlin 8; Navel 8	Tree growth Frt/tree 2013; Gmitter lead	
Stover	Gmitter	Picos Block 8- Citrange	2011	FF-1-86-9	8	RCB	Temple 8; Hamlin 8; Navel 8	Tree growth Frt/tree 2013; Gmitter lead	
Stover	Gmitter	Picos Block 8- Citrange	2011	FF-6-20-61	8	RCB	Temple 8; Hamlin 8; Navel 8	Tree growth Frt/tree 2013; Gmitter lead	
Stover	Gmitter	Picos Block 8- Citrange	2011	US119	8	RCB	Temple 8; Hamlin 8; Navel 8	Tree growth Frt/tree 2013; Gmitter lead	
Stover	Gmitter	Picos Block 8- Citrange	2011	FF-5-15-107	8	RCB	Temple 8; Hamlin 8; Navel 8	Tree growth Frt/tree 2013; Gmitter lead	
Stover	Gmitter	Picos Block 8- Citrange	2011	FF 1-86-29	8	RCB	Temple 8; Hamlin 8; Navel 8	Tree growth Frt/tree 2013; Gmitter lead	
Stover	Gmitter	Picos Block 8- Citrange	2011	FF1-4-59	8	RCB	Temple 8; Hamlin 8; Navel 8	Tree growth Frt/tree 2013; Gmitter lead	
Stover	Gmitter	Picos Block 8- Citrange	2011	FF2160	8	RCB	Temple 8; Hamlin 8; Navel 8	Tree growth Frt/tree 2013; Gmitter lead	
Stover	Gmitter	Picos Block 8- Citrange	2011	FTP6-23-29	8	RCB	Temple 8; Hamlin 8; Navel 8	Tree growth Frt/tree 2013; Gmitter lead	
Stover	Gmitter	Picos Block 8- Citrange	2011	FTP6-43-82	8	RCB	Temple 8; Hamlin 8; Navel 8	Tree growth Frt/tree 2013; Gmitter lead	
Stover	Gmitter	Picos Block 8- Citrange	2011	FTP6-46-130	8	RCB	Temple 8; Hamlin 8; Navel 8	Tree growth Frt/tree 2013; Gmitter lead	
Stover	Gmitter	Picos Block 8- Citrange	2011	FTP6-49-96	8	RCB	Temple 8; Hamlin 8; Navel 8	Tree growth Frt/tree 2013; Gmitter lead	
Stover	Gmitter	Picos Block 8- Citrange	2011	Temple	8	RCB	Temple 8; Hamlin 8; Navel 8	Tree growth Frt/tree 2013; Gmitter lead	
Stover	Gmitter	Picos Block 8- Citrange	2011	Navel	8	RCB	Temple 8; Hamlin 8; Navel 8	Tree growth Frt/tree 2013; Gmitter lead	
Stover	Gmitter	Picos Block 8- Citrange	2011	Hamlin	8	RCB	Temple 8; Hamlin 8; Navel 8	Tree growth Frt/tree 2013; Gmitter lead	
				total	136	RCB	Temple 8; Hamlin 8; Navel 8	Tree growth Frt/tree 2013; Gmitter lead	
				Grand total	4437				

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Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
1	Whitmore 10B	2013	FF-1-4-59	5	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	Ftp-6-49-96	7	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	FF-1-5-35	4	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	FF-1-63-77	19	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	FF1--63-85	11	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	FF-1-70-5	20	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	FF-1-74-14	4	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	FF-1-75-113	20	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	FF-1-75-55	12	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	FF-1-76-50	12	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	FF-1-76-52	12	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	FF-1-83-179	4	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	FF-1-83-227	20	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	FF-1-84-2	4	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	Early Gold	14	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	Ftp-6-32-67	8	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	Hamlin	22	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	Tresca 10c	17	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	Tresca DPI	6	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	FF-1-76-51	3	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	FF-1-74-92	2	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	FF-1-74-52	6	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	FF-1-22-79	4	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	FF-1-35-21	4	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
1	Whitmore 10B	2013	FF-1-19-58	2	Randomized/multiple rootstock	Hamlin 22; Early Gold 14	measurements, yield, HLB rating 2016
			total	242			
Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
2	Whitmore Block 7	2013	FF-1-37-12	8	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016
2	Whitmore Block 7	2013	FF-1-63-77	8	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016
2	Whitmore Block 7	2013	FF-1-70-5	4	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016
2	Whitmore Block 7	2013	FF-1-74-14	8	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016
2	Whitmore Block 7	2013	FF-1-75-55	2	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016
2	Whitmore Block 7	2013	FF-1-76-50	2	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016
2	Whitmore Block 7	2013	FF-6-13-44	8	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016
2	Whitmore Block 7	2013	FF-6-15-93	12	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016
2	Whitmore Block 7	2013	FF-1-49-96	1	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016
2	Whitmore Block 7	2013	Furr	6	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016
2	Whitmore Block 7	2013	Irr Foster	8	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016
2	Whitmore Block 7	2013	Kishu	14	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016
2	Whitmore Block 7	2013	Nin-Kat	15	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016
2	Whitmore Block 7	2013	Ruby Red	9	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016
2	Whitmore Block 7	2013	Shiranui	8	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016
2	Whitmore Block 7	2013	US-119	8	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016
2	Whitmore Block 7	2013	Xie Shan	10	Randomized	Ruby Red 9	measurements, yield, HLB rating 2016
			total	131			

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Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
3	Whitmore W Block 1	2016	USDA-7652LT	10	Replaced missing old trees	Hamlin 3; Valencia 5	New planting 2016
3	Whitmore W Block 1	2016	USDA-7650	10	Replaced missing old trees	Hamlin 3; Valencia 5	New planting 2016
3	Whitmore W Block 1	2016	USDA-7555	10	Replaced missing old trees	Hamlin 3; Valencia 5	New planting 2016
3	Whitmore W Block 1	2016	USDA83179	6	Replaced missing old trees	Hamlin 3; Valencia 5	New planting 2016
3	Whitmore W Block 1	2016	USDA7651	10	Replaced missing old trees	Hamlin 3; Valencia 5	New planting 2016
3	Whitmore W Block 1	2016	Hamlin	3	Replaced missing old trees	Hamlin 3; Valencia 5	New planting 2016
3	Whitmore W Block 1	2016	Valencia	5	Replaced missing old trees	Hamlin 3; Valencia 5	New planting 2016
			total	54			
Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
4	Picos Block 2e	2013	Early Gold	10	2 blocks	Early Gold 10; Hamlin 10	HLB Observations to this point
4	Picos Block 2e	2013	FF-1-75-113	10	2 blocks	Early Gold 10; Hamlin 10	HLB Observations to this point
4	Picos Block 2e	2013	FF-1-75-55	9	2 blocks	Early Gold 10; Hamlin 10	HLB Observations to this point
4	Picos Block 2e	2013	FF-1-76-50	11	2 blocks	Early Gold 10; Hamlin 10	HLB Observations to this point
4	Picos Block 2e	2013	FF-1-76-52	10	2 blocks	Early Gold 10; Hamlin 10	HLB Observations to this point
4	Picos Block 2e	2013	Hamlin 1-4-1	10	2 blocks	Early Gold 10; Hamlin 10	HLB Observations to this point
			total	60			
Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
5	O'Berry	2016	USDA-7555	37	Replaced missing old trees	Hamlin 4	New planting 2016
5	O'Berry	2016	USDA-7650	31	Replaced missing old trees	Hamlin 4	New planting 2016
5	O'Berry	2016	USDA7651	14	Replaced missing old trees	Hamlin 4	New planting 2016
5	O'Berry	2016	USDA-7652	34	Replaced missing old trees	Hamlin 4	New planting 2016
5	O'Berry	2016	Hamlin	4	Replaced missing old trees	Hamlin 4	New planting 2016
			total	120			
Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
6	Sunag 2015	2015	Early Pride	6	Randomized	Hamlin 10; Glenn 8	New Planting 2015
6	Sunag 2015	2015	Glen	8	Randomized	Hamlin 10; Glenn 8	New Planting 2015
6	Sunag 2015	2015	Hamlin	10	Randomized	Hamlin 10; Glenn 8	New Planting 2015
6	Sunag 2015	2015	Thompson	8	Randomized	Hamlin 10; Glenn 8	New Planting 2015
6	Sunag 2015	2015	USDA-2448	6	Randomized	Hamlin 10; Glenn 8	New Planting 2015
6	Sunag 2015	2015	USDA-3267	6	Randomized	Hamlin 10; Glenn 8	New Planting 2015
6	Sunag 2015	2015	USDA-4996	8	Randomized	Hamlin 10; Glenn 8	New Planting 2015
6	Sunag 2015	2015	USDA-5512	6	Randomized	Hamlin 10; Glenn 8	New Planting 2015
6	Sunag 2015	2015	USDA-6377	6	Randomized	Hamlin 10; Glenn 8	New Planting 2015
6	Sunag 2015	2015	USDA-6385	6	Randomized	Hamlin 10; Glenn 8	New Planting 2015
6	Sunag 2015	2015	USDA-7555	8	Randomized	Hamlin 10; Glenn 8	New Planting 2015
6	Sunag 2015	2015	USDA-7650	8	Randomized	Hamlin 10; Glenn 8	New Planting 2015
6	Sunag 2015	2015	USDA-7651	8	Randomized	Hamlin 10; Glenn 8	New Planting 2015
6	Sunag 2015	2015	USDA-7652	8	Randomized	Hamlin 10; Glenn 8	New Planting 2015
6	Sunag 2015	2015	USDA-8402	6	Randomized	Hamlin 10; Glenn 8	New Planting 2015
6	Sunag 2015	2015	W. Murcott	6	Randomized	Hamlin 10; Glenn 8	New Planting 2015
			total	114			
Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
	Sunag 2016	2016	USDA-3521	52	Parallel rows at owner's request	none	New planting 2016
Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
			total	102			

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Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
7	Carbeneau	2016	Early Pride	3	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016
7	Carbeneau	2016	USDA-7452	2	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016
7	Carbeneau	2016	USDA-7555	28	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016
7	Carbeneau	2016	USDA-7650	58	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016
7	Carbeneau	2016	USDA-7651	31	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016
7	Carbeneau	2016	USDA-7652	11	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016
7	Carbeneau	2016	USDA-7652 LT	4	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016
7	Carbeneau	2016	USDA-7652 Top	7	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016
7	Carbeneau	2016	USDA-83179	6	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016
7	Carbeneau	2016	USDA-83227	1	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016
7	Carbeneau	2016	USDA-1716	1	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016
7	Carbeneau	2016	USDA-1748	10	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016
7	Carbeneau	2016	Hamlin	12	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016
7	Carbeneau	2016	LP36-39	1	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016
7	Carbeneau	2016	Navel DPI-846-N	1	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016
7	Carbeneau	2016	Navel DPI-846-2c	12	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016
7	Carbeneau	2016	Navel DPI 846-3S	11	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016
7	Carbeneau	2016	Thompson	2	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016
7	Carbeneau	2016	Washington	1	Replaced missing old trees	Hamlin 12; Washington 1	New planting 2016
			total	202			
Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
8	Dingman	2016	Early Pride	3	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016
8	Dingman	2016	USDA-7650	14	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016
8	Dingman	2016	USDA-7555	8	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016
8	Dingman	2016	USDA-7651	10	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016
8	Dingman	2016	USDA-7652	4	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016
8	Dingman	2016	FF-5-93-42	5	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016
8	Dingman	2016	Glenn	29	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016
8	Dingman	2016	Hamlin	8	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016
8	Dingman	2016	Jackson	5	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016
8	Dingman	2016	LP-3639	4	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016
8	Dingman	2016	Thomson	27	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016
8	Dingman	2016	USDA-2448	3	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016
8	Dingman	2016	USDA-3267	9	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016
8	Dingman	2016	USDA-4996	13	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016
8	Dingman	2016	USDA-5512	9	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016
8	Dingman	2016	USDA-6377	9	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016
8	Dingman	2016	USDA-6385	10	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016
8	Dingman	2016	USDA-7652	9	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016
8	Dingman	2016	USDA-8402	12	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016
8	Dingman	2016	W. Murcott	5	Replaced missing old trees	Hamlin 8; Glenn 29	New planting 2016
			total	196			

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Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
9	Black Buffum	2016	Hamlin	4	groups in one long row	Hamlin 4	New planting 2016
9	Black Buffum	2016	USDA-2279	9	groups in one long row	Hamlin 4	New planting 2016
9	Black Buffum	2016	USDA-23130	12	groups in one long row	Hamlin 4	New planting 2016
9	Black Buffum	2016	USDA-2448	6	groups in one long row	Hamlin 4	New planting 2016
9	Black Buffum	2016	USDA-3521	9	groups in one long row	Hamlin 4	New planting 2016
9	Black Buffum	2016	USDA-7452	10	groups in one long row	Hamlin 4	New planting 2016
9	Black Buffum	2016	USDA-7555	6	groups in one long row	Hamlin 4	New planting 2016
9	Black Buffum	2016	USDA-7650	6	groups in one long row	Hamlin 4	New planting 2016
9	Black Buffum	2016	USDA-7651	9	groups in one long row	Hamlin 4	New planting 2016
9	Black Buffum	2016	USDA-7652	1	groups in one long row	Hamlin 4	New planting 2016
9	Black Buffum	2016	USDA-7652 LT	6	groups in one long row	Hamlin 4	New planting 2016
9	Black Buffum	2016	USDA-7652 Top	2	groups in one long row	Hamlin 4	New planting 2016
			total	80			
Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
10	Bobo	2016	Early Pride	8	grouped by selection	Hamlin 3	New planting 2016
10	Bobo	2016	USDA-2279	30	grouped by selection	Hamlin 3	New planting 2016
10	Bobo	2016	USDA-23130	29	grouped by selection	Hamlin 3	New planting 2016
10	Bobo	2016	USDA-3521	20	grouped by selection	Hamlin 3	New planting 2016
10	Bobo	2016	USDA-3712	12	grouped by selection	Hamlin 3	New planting 2016
10	Bobo	2016	USDA-4265	1	grouped by selection	Hamlin 3	New planting 2016
10	Bobo	2016	USDA-7452	14	grouped by selection	Hamlin 3	New planting 2016
10	Bobo	2016	USDA-7555	10	grouped by selection	Hamlin 3	New planting 2016
10	Bobo	2016	USDA-7650	10	grouped by selection	Hamlin 3	New planting 2016
10	Bobo	2016	USDA-7651	15	grouped by selection	Hamlin 3	New planting 2016
10	Bobo	2016	USDA-7652 LT	6	grouped by selection	Hamlin 3	New planting 2016
10	Bobo	2016	USDA-7652 Top	7	grouped by selection	Hamlin 3	New planting 2016
10	Bobo	2016	Hamlin	3	grouped by selection	Hamlin 3	New planting 2016
10	Bobo	2016	Irr C-54-4	27	grouped by selection	Hamlin 3	New planting 2016
10	Bobo	2016	Seedless Temple	9	grouped by selection	Hamlin 3	New planting 2016
10	Bobo	2016	USDA-2448	1	grouped by selection	Hamlin 3	New planting 2016
10	Bobo	2016	USDA-57105	13	grouped by selection	Hamlin 3	New planting 2016
10	Bobo	2016	USDA-61344	2	grouped by selection	Hamlin 3	New planting 2016
10	Bobo	2016	USDA-6253	9	grouped by selection	Hamlin 3	New planting 2016
10	Bobo	2016	USDA-7652	3	grouped by selection	Hamlin 3	New planting 2016
			total	229			
Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
11	Edison	2016	Early Pride	7	Replaced missing old trees	Hamlin 4	New planting 2016
11	Edison	2016	FF-1-105-106	10	Replaced missing old trees	Hamlin 4	New planting 2016
11	Edison	2016	FF-1-24-48	6	Replaced missing old trees	Hamlin 4	New planting 2016
11	Edison	2016	FF-1-37-12	10	Replaced missing old trees	Hamlin 4	New planting 2016
11	Edison	2016	FF-1-75-55	3	Replaced missing old trees	Hamlin 4	New planting 2016
11	Edison	2016	FF-1-76-50	5	Replaced missing old trees	Hamlin 4	New planting 2016
11	Edison	2016	FF-1-76-51	9	Replaced missing old trees	Hamlin 4	New planting 2016
11	Edison	2016	FF-1-76-52	18	Replaced missing old trees	Hamlin 4	New planting 2016
11	Edison	2016	FF-6-2-53	9	Replaced missing old trees	Hamlin 4	New planting 2016
11	Edison	2016	Hamlin	4	Replaced missing old trees	Hamlin 4	New planting 2016
11	Edison	2016	IRR. C. 54-4	8	Replaced missing old trees	Hamlin 4	New planting 2016
11	Edison	2016	FF-5-51-2	15	Replaced missing old trees	Hamlin 4	New planting 2016
			total	104			

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Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
12	Field Manor	2016	FF-1-75-55	30	Replaced missing old trees	Hamlin 8	New planting 2016
12	Field Manor	2016	FF-1-76-50	23	Replaced missing old trees	Hamlin 8	New planting 2016
12	Field Manor	2016	FF-1-76-51	23	Replaced missing old trees	Hamlin 8	New planting 2016
12	Field Manor	2016	FF-1-76-52	21	Replaced missing old trees	Hamlin 8	New planting 2016
12	Field Manor	2016	Hamlin	8	Replaced missing old trees	Hamlin 8	New planting 2016
			total	105			
Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
13	Deseret	2016	Glenn	8	randomized	Glenn 8; Hamlin 10	New planting 2016
13	Deseret	2016	Hamlin	10	randomized	Glenn 8; Hamlin 10	New planting 2016
13	Deseret	2016	Thomson	8	randomized	Glenn 8; Hamlin 10	New planting 2016
13	Deseret	2016	USDA-4996	8	randomized	Glenn 8; Hamlin 10	New planting 2016
13	Deseret	2016	USDA-5106	8	randomized	Glenn 8; Hamlin 10	New planting 2016
13	Deseret	2016	USDA-7555	8	randomized	Glenn 8; Hamlin 10	New planting 2016
13	Deseret	2016	USDA-7650	8	randomized	Glenn 8; Hamlin 10	New planting 2016
13	Deseret	2016	USDA-7652	8	randomized	Glenn 8; Hamlin 10	New planting 2016
			total	66			
Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
14	Hunt Brothers	2015	Early Pride	2	randomized	Glenn 5; Hamlin 9	New planting in 2015
14	Hunt Brothers	2015	FF-1-35-21	6	randomized	Glenn 5; Hamlin 9	New planting in 2015
14	Hunt Brothers	2015	Glenn	5	randomized	Glenn 5; Hamlin 9	New planting in 2015
14	Hunt Brothers	2015	Hamlin	9	randomized	Glenn 5; Hamlin 9	New planting in 2015
14	Hunt Brothers	2015	Thomson	8	randomized	Glenn 5; Hamlin 9	New planting in 2015
14	Hunt Brothers	2015	USDA-2448	6	randomized	Glenn 5; Hamlin 9	New planting in 2015
14	Hunt Brothers	2015	USDA-3267	6	randomized	Glenn 5; Hamlin 9	New planting in 2015
14	Hunt Brothers	2015	USDA-4996	7	randomized	Glenn 5; Hamlin 9	New planting in 2015
14	Hunt Brothers	2015	USDA-5512	6	randomized	Glenn 5; Hamlin 9	New planting in 2015
14	Hunt Brothers	2015	USDA-6377	6	randomized	Glenn 5; Hamlin 9	New planting in 2015
14	Hunt Brothers	2015	USDA-6385	6	randomized	Glenn 5; Hamlin 9	New planting in 2015
14	Hunt Brothers	2015	USDA-7555	7	randomized	Glenn 5; Hamlin 9	New planting in 2015
14	Hunt Brothers	2015	USDA-7650	8	randomized	Glenn 5; Hamlin 9	New planting in 2015
14	Hunt Brothers	2015	USDA-7651	8	randomized	Glenn 5; Hamlin 9	New planting in 2015
14	Hunt Brothers	2015	USDA-7652	6	randomized	Glenn 5; Hamlin 9	New planting in 2015
14	Hunt Brothers	2015	USDA-8402	6	randomized	Glenn 5; Hamlin 9	New planting in 2015
14	Hunt Brothers	2015	W. Murcott	6	randomized	Glenn 5; Hamlin 9	New planting in 2015
			total	108			
Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
15	Banack	2016	USDA-10a715	9	Grouped by Scion and Rootstock	Jackson 11	New planting 2016
15	Banack	2016	USDA-3179	6	Grouped by Scion and Rootstock	Jackson 11	New planting 2016
15	Banack	2016	LP36-39	11	Grouped by Scion and Rootstock	Jackson 11	New planting 2016
15	Banack	2016	Jackson	11	Grouped by Scion and Rootstock	Jackson 11	New planting 2016
15	Banack	2016	USDA-1748	20	Grouped by Scion and Rootstock	Jackson 11	New planting 2016
15	Banack	2016	FF-5-93-42	8	Grouped by Scion and Rootstock	Jackson 11	New planting 2016
15	Banack	2016	USDA-1716	2	Grouped by Scion and Rootstock	Jackson 11	New planting 2016
15	Banack	2016	USDA-83227	8	Grouped by Scion and Rootstock	Jackson 11	New planting 2016
			total	75			

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Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
16	Tom Hammond	2015	Early Pride	4	randomized fill in of missing trees	Early Pride 4	New planting 2015
16	Tom Hammond	2015	USDA-3521	6	randomized fill in of missing trees	Early Pride 4	New planting 2015
16	Tom Hammond	2015	USDA-2448	6	randomized fill in of missing trees	Early Pride 4	New planting 2015
16	Tom Hammond	2015	USDA-3267	6	randomized fill in of missing trees	Early Pride 4	New planting 2015
16	Tom Hammond	2015	USDA-5512	6	randomized fill in of missing trees	Early Pride 4	New planting 2015
16	Tom Hammond	2015	USDA-6377	6	randomized fill in of missing trees	Early Pride 4	New planting 2015
16	Tom Hammond	2015	USDA-6385	6	randomized fill in of missing trees	Early Pride 4	New planting 2015
16	Tom Hammond	2015	USDA-8402	6	randomized fill in of missing trees	Early Pride 4	New planting 2015
16	Tom Hammond	2015	W. Murcott	6	randomized fill in of missing trees	Early Pride 4	New planting 2015
			total	52			
Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
17	Policiccio	2015	Early Pride	18	grouped by scion and rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015
17	Policiccio	2015	USDA-2448	15	grouped by scion and rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015
17	Policiccio	2015	USDA-3712	9	grouped by scion and rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015
17	Policiccio	2015	USDA-7555	12	grouped by scion and rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015
17	Policiccio	2015	USDA-7650	12	grouped by scion and rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015
17	Policiccio	2015	USDA-7651	12	grouped by scion and rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015
17	Policiccio	2015	USDA-7652	12	grouped by scion and rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015
17	Policiccio	2015	USDA-1716	6	grouped by scion and rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015
17	Policiccio	2015	USDA-1748	9	grouped by scion and rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015
17	Policiccio	2015	Hamlin	3	grouped by scion and rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015
17	Policiccio	2015	Hirado	3	grouped by scion and rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015
17	Policiccio	2015	Irr. C-54-4	15	grouped by scion and rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015
17	Policiccio	2015	Jackson	15	grouped by scion and rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015
17	Policiccio	2015	Navel DPI-846-1-N	12	grouped by scion and rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015
17	Policiccio	2015	Navel DPI-846-2-C	12	grouped by scion and rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015
17	Policiccio	2015	Navel DPI-846-3-S	12	grouped by scion and rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015
17	Policiccio	2015	USDA-3227	15	grouped by scion and rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015
17	Policiccio	2015	USDA-5106	7	grouped by scion and rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015
17	Policiccio	2015	USDA-5512	3	grouped by scion and rootstock	Hamlin 3 Hirado 3 Early Pride 18	New planting 2015
			total	202			
Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
19	Roe	2014	Hamlin	9	grouped by scion and rootstock	Hamlin 9	Juice quality data 2016
19	Roe	2014	USDA-1344	3	grouped by scion and rootstock	Hamlin 9	Juice quality data 2016
19	Roe	2014	USDA-1842	6	grouped by scion and rootstock	Hamlin 9	Juice quality data 2016
19	Roe	2014	USDA-2448	8	grouped by scion and rootstock	Hamlin 9	Juice quality data 2016
19	Roe	2014	USDA-3267	6	grouped by scion and rootstock	Hamlin 9	Juice quality data 2016
19	Roe	2014	USDA-4996	4	grouped by scion and rootstock	Hamlin 9	Juice quality data 2016
19	Roe	2014	USDA-5113	9	grouped by scion and rootstock	Hamlin 9	Juice quality data 2016
19	Roe	2014	USDA-7555	9	grouped by scion and rootstock	Hamlin 9	Juice quality data 2016
19	Roe	2014	USDA-7650	9	grouped by scion and rootstock	Hamlin 9	Juice quality data 2016
19	Roe	2014	USDA-7652	9	grouped by scion and rootstock	Hamlin 9	Juice quality data 2016
			total	72			

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Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
20	Pete Spyke	2014	Thomson	7	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point
20	Pete Spyke	2014	USDA-1589	10	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point
20	Pete Spyke	2014	USDA-2448	13	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point
20	Pete Spyke	2014	USDA-3267	16	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point
20	Pete Spyke	2014	USDA-4996	10	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point
20	Pete Spyke	2014	USDA-5113	9	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point
20	Pete Spyke	2014	USDA-6377	12	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point
20	Pete Spyke	2014	USDA-6385	13	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point
20	Pete Spyke	2014	USDA-7555	12	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point
20	Pete Spyke	2014	USDA-7650	13	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point
20	Pete Spyke	2014	USDA7652	10	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point
20	Pete Spyke	2014	USDA-8402	1	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point
20	Pete Spyke	2014	Hamlin	6	grouped in rows between owner's Pages and Minneolas	Hamlin 6	Observations to this point
			total	132			
Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
21	Pete Spyke	2015	Early Pride	11	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015
21	Pete Spyke	2015	Hamlin	4	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015
21	Pete Spyke	2015	Thomson	1	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015
21	Pete Spyke	2015	USDA-5106	15	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015
21	Pete Spyke	2015	USDA-2448	22	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015
21	Pete Spyke	2015	USDA-3267	5	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015
21	Pete Spyke	2015	USDA-5512	15	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015
21	Pete Spyke	2015	USDA-6377	6	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015
21	Pete Spyke	2015	USDA-6385	28	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015
21	Pete Spyke	2015	USDA-7555	21	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015
21	Pete Spyke	2015	USDA-7650	2	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015
21	Pete Spyke	2015	USDA-7651	4	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015
21	Pete Spyke	2015	USDA-7652	5	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015
21	Pete Spyke	2015	USDA-8402	2	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015
21	Pete Spyke	2015	W. Murcott	15	Partially randomized	Hamlin 4 Early Pride 11	New planting 2015
			total	156			
Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
22	Black Newsome	2012	USDA-1	15	group by selection	Owner's midsweets and Navels	trees size and amt. fruit
22	Black Newsome	2012	Midsweet	1	group by selection	Owner's midsweets and Navels	trees size and amt. fruit
22	Black Newsome	2012	USDA-1128	7	group by selection	Owner's midsweets and Navels	trees size and amt. fruit
22	Black Newsome	2012	USDA-49105	14	group by selection	Owner's midsweets and Navels	trees size and amt. fruit
22	Black Newsome	2012	USDA-5113	9	group by selection	Owner's midsweets and Navels	trees size and amt. fruit
22	Black Newsome	2012	USDA-5150	15	group by selection	Owner's midsweets and Navels	trees size and amt. fruit
22	Black Newsome	2012	USDA-5512	16	group by selection	Owner's midsweets and Navels	trees size and amt. fruit
22	Black Newsome	2012	USDA-6253	12	group by selection	Owner's midsweets and Navels	trees size and amt. fruit
22	Black Newsome	2012	USDA-7555	5	group by selection	Owner's midsweets and Navels	trees size and amt. fruit
22	Black Newsome	2012	USDA-C544	16	group by selection	Owner's midsweets and Navels	trees size and amt. fruit
			total	110			
Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
23	Black Babson Park	2015	Fallglo	60	Cross pollination trial		HLB Samples
23	Black Babson Park	2015	USDA-5512	300	Cross pollination trial		HLB Samples

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Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
24	Watt	2016	USDA-2279	10	arranged by scion	Washington navel 48	New planting 2016
24	Watt	2016	USDA-3521	10	arranged by scion	Washington navel 48	New planting 2016
24	Watt	2016	Fisher Navel	47	arranged by scion	Washington navel 48	New planting 2016
24	Watt	2016	Navel DPI-846-1-N	39	arranged by scion	Washington navel 48	New planting 2016
24	Watt	2016	Navel DPI-846-2-C	35	arranged by scion	Washington navel 48	New planting 2016
24	Watt	2016	Navel DPI-846-3-S	38	arranged by scion	Washington navel 48	New planting 2016
24	Watt	2016	Thomson	33	arranged by scion	Washington navel 48	New planting 2016
24	Watt	2016	Washington Navel	48	arranged by scion	Washington navel 48	New planting 2016
24	Watt	2016	Wild Turkey Navel	81	arranged by scion	Washington navel 48	New planting 2016
			total	341			
Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
25	Lee Bird	2015	USDA-5106	11	arranged by scion	Washington Navel 48	HLB observations to this point
25	Lee Bird	2015	USDA-3712	10	arranged by scion	Washington Navel 48	HLB observations to this point
25	Lee Bird	2015	FF-5-100-47	5	arranged by scion	Washington Navel 48	HLB observations to this point
25	Lee Bird	2015	USDA-3267	5	arranged by scion	Washington Navel 48	HLB observations to this point
25	Lee Bird	2015	Fisher Navel	29	arranged by scion	Washington Navel 48	HLB observations to this point
25	Lee Bird	2015	Furr	5	arranged by scion	Washington Navel 48	HLB observations to this point
25	Lee Bird	2015	Glenn Navel	19	arranged by scion	Washington Navel 48	HLB observations to this point
25	Lee Bird	2015	Lee Navel 1-N	12	arranged by scion	Washington Navel 48	HLB observations to this point
25	Lee Bird	2015	Lee Navel 2-C	14	arranged by scion	Washington Navel 48	HLB observations to this point
25	Lee Bird	2015	Lee Navel 3S	12	arranged by scion	Washington Navel 48	HLB observations to this point
25	Lee Bird	2015	Thompson Navel	7	arranged by scion	Washington Navel 48	HLB observations to this point
25	Lee Bird	2015	Tresca	22	arranged by scion	Washington Navel 48	HLB observations to this point
25	Lee Bird	2015	Washington Navel	37	arranged by scion	Washington Navel 48	HLB observations to this point
			total	188			
Trial	Site	Year Planted	Selections planted	# trees	Experimental Design	Standards and # trees	Data Collected / Year
26	Mike Greene	2016	USDA-2448	3	arranged by scion	Washington Navel 9	New Planting 2016
26	Mike Greene	2016	Navel DPI-846-1-N	4	arranged by scion	Washington Navel 9	New Planting 2016
26	Mike Greene	2016	Navel DPI-846-2-C	6	arranged by scion	Washington Navel 9	New Planting 2016
26	Mike Greene	2016	Navel DPI-846-3S	10	arranged by scion	Washington Navel 9	New Planting 2016
26	Mike Greene	2016	Thomson	15	arranged by scion	Washington Navel 9	New Planting 2016
26	Mike Greene	2016	Washington Navel	9	arranged by scion	Washington Navel 9	New Planting 2016
			total	47			
			grand total	3288			