CITRUS ADVANCED TECHNOLOGY PROGRAM

QUARTERLY & FINAL REPORTS: Control of Citrus Greening, Canker & Emerging Diseases of Citrus

SELECT PERIOD					Quarterly Report Final			
Proposal Title								
Today's Date	Sponsoring Organization (drop-down)				Category (drop down)			
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REPORTO		brus-it is not ne	cessary in this	s public report	to disclose	your institution	is proprietary informati	ion of intellectual property.)
	USDA Coonerati	ve Valencia ro	otstock trial v	with Larry R	ack Polk (² ounty		
	USDA Cooperati Canony health: 5							
	USDA Cooperati Canopy health: 5	= thick, green	canopy; 1 =	very thin and	/or yellow c	anopy.		
		= thick, green 2018 Tree	a canopy; 1 = 2018 Yield	very thin and 2018	/or yellow c 2018	anopy. 2018 Yield		
	Canopy health: 5	= thick, green 2018 Tree survival	canopy; 1 = 2018 Yield per tree	very thin and 2018 Tree	/or yellow c 2018 Canopy	anopy. 2018 Yield efficiency	-	
	Canopy health: 5 Rootstock	= thick, green 2018 Tree survival (%)	canopy; 1 = 2018 Yield per tree (lbs)	very thin and 2018 Tree height (ft)	/or yellow c 2018 Canopy health	anopy. 2018 Yield efficiency (kg/m ³)	- -	
	Canopy health: 5 Rootstock US-2122	= thick, green 2018 Tree survival (%) 100	1 canopy; 1 = 2018 Yield per tree (lbs) 56 a	very thin and 2018 Tree height (ft) 5.5	/or yellow c 2018 Canopy health 3.9	anopy. 2018 Yield efficiency (kg/m ³) 21	-	
	Canopy health: 5 Rootstock US-2122 US-942	= thick, green 2018 Tree survival (%) 100 100	a canopy; 1 = 2018 Yield per tree (lbs) 56 a 49 ab	very thin and 2018 Tree <u>height (ft)</u> 5.5 5.9	//or yellow c 2018 Canopy health 3.9 4.2	anopy. 2018 Yield efficiency (kg/m ³) 21 16	-	
	Canopy health: 5 Rootstock US-2122 US-942 US-2121	= thick, green 2018 Tree survival (%) 100 100 100	a canopy; 1 = 2018 Yield per tree (lbs) 56 a 49 ab 46 a-c	very thin and 2018 Tree height (ft) 5.5 5.9 5.6	//or yellow c 2018 Canopy health 3.9 4.2 4.3	anopy. 2018 Yield efficiency (kg/m ³) 21 16 17	-	
	Canopy health: 5 Rootstock US-2122 US-942 US-2121 Sour orange	= thick, green 2018 Tree survival (%) 100 100 100 100	a canopy; 1 = 2018 Yield per tree (lbs) 56 a 49 ab 46 a-c 45 a-c	very thin and 2018 Tree height (ft) 5.5 5.9 5.6 5.3	//or yellow c 2018 Canopy health 3.9 4.2 4.3 3.1	ranopy. 2018 Yield efficiency (kg/m ³) 21 16 17 20	-	
	Canopy health: 5 Rootstock US-2122 US-942 US-2121 Sour orange US-896	= thick, green 2018 Tree survival (%) 100 100 100 100 100	a canopy; 1 = 2018 Yield per tree (lbs) 56 a 49 ab 46 a-c 45 a-c 44 a-d	very thin and 2018 Tree height (ft) 5.5 5.9 5.6 5.3 5.7	//or yellow c 2018 Canopy health 3.9 4.2 4.3 3.1 4.5	ranopy. 2018 Yield efficiency (kg/m ³) 21 16 17 20 15	- -	
	Canopy health: 5 Rootstock US-2122 US-942 US-2121 Sour orange US-896 US-812	= thick, green 2018 Tree survival (%) 100 100 100 100 100 100	a canopy; 1 = 2018 Yield per tree (lbs) 56 a 49 ab 46 a-c 45 a-c 44 a-d 44 a-d	very thin and 2018 Tree height (ft) 5.5 5.9 5.6 5.3 5.7 5.7 5.7	//or yellow c 2018 Canopy health 3.9 4.2 4.3 3.1 4.5 4.3	ranopy. 2018 Yield efficiency (kg/m ³) 21 16 17 20 15 15	- -	
	Canopy health: 5 Rootstock US-2122 US-942 US-2121 Sour orange US-896 US-812 US-2134	= thick, green 2018 Tree survival (%) 100 100 100 100 100 100 100	a canopy; 1 = 2018 Yield per tree (lbs) 56 a 49 ab 46 a-c 45 a-c 45 a-c 44 a-d 44 a-d 43 a-d	very thin and 2018 Tree height (ft) 5.5 5.9 5.6 5.3 5.7 5.7 5.7 5.9	//or yellow c 2018 Canopy health 3.9 4.2 4.3 3.1 4.5 4.3 3.9	ranopy. 2018 Yield efficiency (kg/m ³) 21 16 17 20 15 15 13	-	
	Canopy health: 5 Rootstock US-2122 US-942 US-2121 Sour orange US-896 US-812 US-812 US-2134 X639	= thick, green 2018 Tree survival (%) 100 100 100 100 100 100 100 100	a canopy; 1 = 2018 Yield per tree (lbs) 56 a 49 ab 46 a-c 45 a-c 45 a-c 44 a-d 44 a-d 43 a-d 41 b-d	very thin and 2018 Tree height (ft) 5.5 5.9 5.6 5.3 5.7 5.7 5.7 5.7 5.9 6.2	//or yellow c 2018 Canopy health 3.9 4.2 4.3 3.1 4.5 4.3 3.9 4.2 4.3 3.9 4.2	ranopy. 2018 Yield efficiency (kg/m ³) 21 16 17 20 15 15 13 11	-	
	Canopy health: 5 Rootstock US-2122 US-942 US-2121 Sour orange US-896 US-812 US-2134	= thick, green 2018 Tree survival (%) 100 100 100 100 100 100 100	a canopy; 1 = 2018 Yield per tree (lbs) 56 a 49 ab 46 a-c 45 a-c 45 a-c 44 a-d 44 a-d 43 a-d 41 b-d 40 b-d	very thin and 2018 Tree height (ft) 5.5 5.9 5.6 5.3 5.7 5.7 5.7 5.9	//or yellow c 2018 Canopy health 3.9 4.2 4.3 3.1 4.5 4.3 3.9 4.2 4.3 3.1 4.5 4.3 3.9 4.2 4.3 4.4	ranopy. 2018 Yield efficiency (kg/m ³) 21 16 17 20 15 15 13	• - · · · · · · · · · · · · · · · · · · ·	
	Canopy health: 5 Rootstock US-2122 US-942 US-2121 Sour orange US-896 US-812 US-2134 X639 US-897 US-2141	= thick, green 2018 Tree survival (%) 100 100 100 100 100 100 100 100 100 10	a canopy; 1 = 2018 Yield per tree (lbs) 56 a 49 ab 46 a-c 45 a-c 45 a-c 44 a-d 44 a-d 43 a-d 41 b-d	very thin and 2018 Tree height (ft) 5.5 5.9 5.6 5.3 5.7 5.7 5.7 5.7 5.7 5.9 6.2 5.3 5.4	//or yellow c 2018 Canopy health 3.9 4.2 4.3 3.1 4.5 4.3 3.9 4.2 4.3 3.1 4.5 4.3 3.9 4.2 4.4 4.4	ranopy. 2018 Yield efficiency (kg/m ³) 21 16 17 20 15 15 13 11	• - · · · · · · · · · · · · · · · · · · ·	
	Canopy health: 5 Rootstock US-2122 US-942 US-2121 Sour orange US-896 US-812 US-2134 X639 US-897	= thick, green 2018 Tree survival (%) 100 100 100 100 100 100 100 100 100	a canopy; 1 = 2018 Yield per tree (lbs) 56 a 49 ab 46 a-c 45 a-c 45 a-c 44 a-d 44 a-d 43 a-d 41 b-d 40 b-d	very thin and 2018 Tree height (ft) 5.5 5.9 5.6 5.3 5.7 5.7 5.7 5.7 5.9 6.2 5.3	//or yellow c 2018 Canopy health 3.9 4.2 4.3 3.1 4.5 4.3 3.9 4.2 4.3 3.1 4.5 4.3 3.9 4.2 4.3 4.4	ranopy. 2018 Yield efficiency (kg/m ³) 21 16 17 20 15 15 13 11 17	• • •	
	Canopy health: 5 Rootstock US-2122 US-942 US-2121 Sour orange US-896 US-812 US-2134 X639 US-897 US-2141	= thick, green 2018 Tree survival (%) 100 100 100 100 100 100 100 100 100 10	a canopy; 1 = 2018 Yield per tree (lbs) 56 a 49 ab 46 a-c 45 a-c 45 a-c 44 a-d 44 a-d 43 a-d 41 b-d 39 b-d	very thin and 2018 Tree height (ft) 5.5 5.9 5.6 5.3 5.7 5.7 5.7 5.7 5.7 6.2 5.3 5.4 5.5 6.0	//or yellow c 2018 Canopy health 3.9 4.2 4.3 3.1 4.5 4.3 3.9 4.2 4.3 3.1 4.5 4.3 3.9 4.2 4.4 4.4	ranopy. 2018 Yield efficiency (kg/m ³) 21 16 17 20 15 15 13 11 17 16 15 13 11 17 16 15 11		
	Canopy health: 5 Rootstock US-2122 US-942 US-2121 Sour orange US-896 US-812 US-2134 X639 US-897 US-2141 US-2127	= thick, green 2018 Tree survival (%) 100 100 100 100 100 100 100 100 100 10	a canopy; 1 = 2018 Yield per tree (lbs) 56 a 49 ab 46 a-c 45 a-c 44 a-d 44 a-d 43 a-d 41 b-d 39 b-d 38 b-e	very thin and 2018 Tree height (ft) 5.5 5.9 5.6 5.3 5.7 5.7 5.7 5.7 5.7 5.9 6.2 5.3 5.4 5.5	//or yellow c 2018 Canopy health 3.9 4.2 4.3 3.1 4.5 4.3 3.9 4.2 4.3 3.9 4.2 4.4 4.4 3.5	ranopy. 2018 Yield efficiency (kg/m ³) 21 16 17 20 15 15 13 11 17 16 15 13 11 17 16 15	• 	
	Canopy health: 5 Rootstock US-2122 US-942 US-2121 Sour orange US-896 US-812 US-2134 X639 US-897 US-2141 US-2127 US-802	= thick, green 2018 Tree survival (%) 100 100 100 100 100 100 100 100 100 10	a canopy; 1 = 2018 Yield per tree (lbs) 56 a 49 ab 46 a-c 45 a-c 45 a-c 44 a-d 43 a-d 43 a-d 41 b-d 39 b-d 38 b-e 37 b-f	very thin and 2018 Tree height (ft) 5.5 5.9 5.6 5.3 5.7 5.7 5.7 5.7 5.7 6.2 5.3 5.4 5.5 6.0	//or yellow c 2018 Canopy health 3.9 4.2 4.3 3.1 4.5 4.3 3.9 4.2 4.4 4.4 3.5 3.9	ranopy. 2018 Yield efficiency (kg/m ³) 21 16 17 20 15 15 13 11 17 16 15 13 11 17 16 15 11	• • •	
	Canopy health: 5 Rootstock US-2122 US-942 US-2121 Sour orange US-896 US-812 US-2134 X639 US-897 US-2141 US-2127 US-802 Kuharske	= thick, green 2018 Tree survival (%) 100 100 100 100 100 100 100 100 100 10	a canopy; 1 = 2018 Yield per tree (lbs) 56 a 49 ab 46 a-c 45 a-c 44 a-d 43 a-d 43 a-d 41 b-d 39 b-d 38 b-e 37 b-f 37 b-f	very thin and 2018 Tree height (ft) 5.5 5.9 5.6 5.3 5.7 5.7 5.7 5.7 5.9 6.2 5.3 5.4 5.5 6.0 5.7	//or yellow c 2018 Canopy health 3.9 4.2 4.3 3.1 4.5 4.3 3.9 4.2 4.4 4.4 3.5 3.9 4.2 4.4 4.4 3.5 3.9 4.2	ranopy. 2018 Yield efficiency (kg/m ³) 21 16 17 20 15 15 13 11 17 16 15 13 11 17 16 15 13 11 17 16 13 11 17 16 13 11 17 16 13 11 17 16 13 11 17 16 13 11 13 13 11 13 13 13 13 13	- -	
	Canopy health: 5 Rootstock US-2122 US-942 US-2121 Sour orange US-896 US-812 US-812 US-2134 X639 US-2134 US-2134 US-2134 US-2127 US-2141 US-2127 US-802 Kuharske US-2108 US-1130	= thick, green 2018 Tree survival (%) 100 100 100 100 100 100 100 100 100 10	a canopy; 1 = 2018 Yield per tree (lbs) 56 a 49 ab 46 a-c 45 a-c 44 a-d 43 a-d 44 a-d 43 a-d 41 b-d 39 b-d 38 b-e 37 b-f 37 b-f 37 b-f	very thin and 2018 Tree height (ft) 5.5 5.9 5.6 5.3 5.7 5.7 5.7 5.9 6.2 5.3 5.4 5.5 6.0 5.7 5.7 5.4	//or yellow c 2018 Canopy health 3.9 4.2 4.3 3.1 4.5 4.3 3.9 4.2 4.3 3.1 4.5 4.3 3.9 4.2 4.3 3.9 4.2 4.3 3.9 4.2 3.1 4.5 3.9 4.2 3.5 3.9 4.2 3.5 3.9 4.2 3.9 4.2 3.5 3.9 4.2 3.9 4.2 3.5 3.9 4.2 3.9 4.2 3.5 3.9 4.2 3.9 4.2 3.5 3.9 4.2 3.9 4.2 3.9 4.2 3.9 4.2 3.9 4.2 3.9 4.2 3.9 4.2 3.9 4.2 3.9 4.2 3.8 3.9	ranopy. 2018 Yield efficiency (kg/m ³) 21 16 17 20 15 13 11 17 16 15 11 17 16 15 11 17 26 24		
	Canopy health: 5 Rootstock US-2122 US-942 US-2121 Sour orange US-896 US-812 US-2134 X639 US-2134 US-2141 US-2127 US-2121 Sour orange Sour oran	= thick, green 2018 Tree survival (%) 100 100 100 100 100 100 100 100 100 10	a canopy; 1 = 2018 Yield per tree (lbs) 56 a 49 ab 46 a-c 45 a-c 44 a-d 44 a-d 43 a-d 41 b-d 40 b-d 39 b-d 38 b-e 37 b-f 37 b-f 37 b-f 37 b-f 37 b-f 36 b-f	very thin and 2018 Tree height (ft) 5.5 5.9 5.6 5.3 5.7 5.7 5.7 5.9 6.2 5.3 5.4 5.5 6.0 5.7 5.4 4.6 5.0	//or yellow c 2018 Canopy health 3.9 4.2 4.3 3.1 4.5 4.3 3.9 4.2 4.4 4.4 3.5 3.9 4.2 4.4 4.4 3.5 3.9 4.2 3.8 3.8 4.2	ranopy. 2018 Yield efficiency (kg/m ³) 21 16 17 20 15 15 13 11 17 16 15 11 13 15 24 18		
	Canopy health: 5 Rootstock US-2122 US-942 US-2121 Sour orange US-896 US-812 US-2134 X639 US-2134 US-2141 US-2127 US-2127 US-802 Kuharske US-2108 US-2131 US-2125	= thick, green 2018 Tree survival (%) 100 100 100 100 100 100 100 100 100 10	a canopy; 1 = 2018 Yield per tree (lbs) 56 a 49 ab 46 a-c 45 a-c 44 a-d 44 a-d 43 a-d 41 b-d 40 b-d 39 b-d 38 b-e 37 b-f 37 b-f 37 b-f 37 b-f 36 b-f 36 c-f	very thin and 2018 Tree height (ft) 5.5 5.9 5.6 5.3 5.7 5.7 5.7 5.9 6.2 5.3 5.4 5.5 6.0 5.7 5.4 4.6 5.0 5.2	Vor yellow c 2018 Canopy health 3.9 4.2 4.3 3.1 4.5 4.3 3.9 4.2 4.4 4.4 3.5 3.9 4.2 4.4 4.4 3.5 3.9 4.2 3.8 3.8 4.2 3.5	ranopy. 2018 Yield efficiency (kg/m ³) 21 16 17 20 15 15 13 11 17 16 15 11 13 15 24 18 16		
	Canopy health: 5 Rootstock US-2122 US-942 US-2121 Sour orange US-896 US-812 US-2134 X639 US-2134 US-2141 US-2127 US-2121 Sour orange Sour oran	= thick, green 2018 Tree survival (%) 100 100 100 100 100 100 100 100 100 10	a canopy; 1 = 2018 Yield per tree (lbs) 56 a 49 ab 46 a-c 45 a-c 44 a-d 44 a-d 43 a-d 41 b-d 40 b-d 39 b-d 38 b-e 37 b-f 37 b-f 37 b-f 37 b-f 37 b-f 36 b-f	very thin and 2018 Tree height (ft) 5.5 5.9 5.6 5.3 5.7 5.7 5.7 5.9 6.2 5.3 5.4 5.5 6.0 5.7 5.4 4.6 5.0	//or yellow c 2018 Canopy health 3.9 4.2 4.3 3.1 4.5 4.3 3.9 4.2 4.4 4.4 3.5 3.9 4.2 4.4 4.4 3.5 3.9 4.2 3.8 3.8 4.2	ranopy. 2018 Yield efficiency (kg/m ³) 21 16 17 20 15 15 13 11 17 16 15 11 13 15 24 18		

Mean separations shown for significant ANOVA within the yield column were by Duncan's multiple range test at P<0.05

5.3

5.5

5.1

3.9

3.7

3.5

2.6

2.3

25 f-h

23 gh

14 hi

8 i

100

100

76

100

PI First Name PI Last Name Email Phone

US-2101

US-2401

US-2126

US-1103

Organization **CRDF Project Number Project Duration** (years) Total Funds (current year)

Year of Project

11

8

7

10