UF UNIVERSITY of FLORIDA
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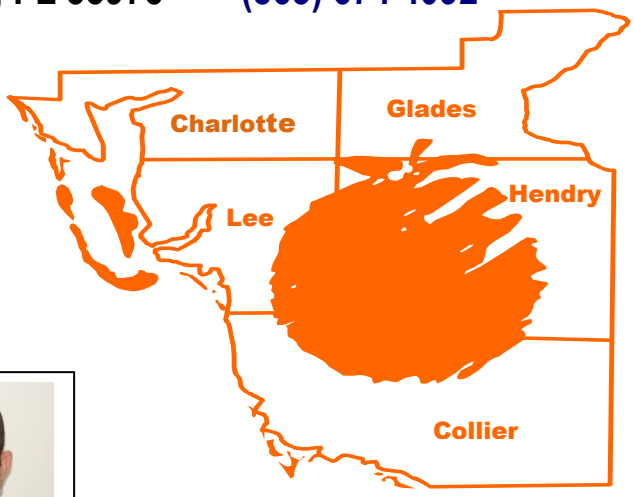
EXTENSION

Institute of Food and Agricultural Sciences

Hendry County Extension, P.O. Box 68, LaBelle, FL 33975 (863) 674 4092

Flatwoods Citrus



Vol. 24, No. 10 December 2021

Dr. Mongi Zekri
Multi-County Citrus Agent, SW Florida

Have a Happy Holiday Season and a Productive New Year!!!

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January 2022 Zoom Citrus Seminar

Date & Time: Wednesday, January 12, 2022, 10:00 AM – 11:00 AM
Title: **Scouting and Management of Citrus Diseases I (HLB, Phytophthora, Leprosis)**
Speaker: **Dr. Ozgur Batuman**, Assistant Professor, UF/IFAS Southwest Florida Research and Education Center, Immokalee
Coordinator: Dr. Mongi Zekri, Multi-County Citrus Extension Agent, UF-IFAS

1 CEU for pesticide license renewal, 1 CEU for certified crop advisors

Register in advance for this meeting:
https://ufl.zoom.us/meeting/register/tJMpcOisqTorHNw9BSz9IEsJLq8kQikBzKWx
After registering, you will receive a confirmation email containing information about joining the meeting.

February 2022 Zoom Citrus Seminar

Date & Time: Thursday, February 24, 2022, 10:00 AM – 11:00 AM
Title: **Scouting and Management of Citrus Diseases II (PFD, citrus black spot and citrus canker)**
Speaker: **Dr. Megan Dewdney**, Associate Professor, UF/IFAS Citrus Research & Education Center, Lake Alfred
Coordinator: Dr. Mongi Zekri, Multi-County Citrus Extension Agent, UF-IFAS

1 CEU for pesticide license renewal, 1 CEU for certified crop advisors

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After registering, you will receive a confirmation email containing information about joining the meeting.

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CEUs for pesticide license renewal

Earn CEU Credits NOW online through Southeast AgNet & Citrus Industry Magazine

http://citrusindustry.net/ceu/

The following series of articles and quizzes are available with their expiration dates noted:

- **2020 #4:** Protecting People From Pesticide Exposure (10/31/22)
- **2021 #3:** Before You Spray (7/31/22)
- **2021 #2:** When a Pesticide Doesn't Work (4/30/22)
- **2021 #1:** The Goals of Pest Management (1/31/22)

Each article grants one General Standards (Core) CEU when submitted and approved toward the renewal of a Florida Department of Agriculture and Consumer Services restricted-use pesticide license.

FYI, there are also CORE CEU available at Growing Produce
http://www.growingproduce.com/crop-protection/ceu-series/

http://www.growingproduce.com/crop-protection/ceu-series/

Online Pesticide CEUs
https://pested.ifas.ufl.edu/ceu/

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If you would like to be among them, please contact me at 863 674 4092 or maz@ufl.edu

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EL NIÑO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION

issued by

CLIMATE PREDICTION CENTER/NCEP/NWS
and the International Research Institute for Climate and Society
11 November 2021

ENSO Alert System Status: La Niña Advisory

Synopsis: **La Niña is likely to continue through the Northern Hemisphere winter 2021-22 (~90% chance) and into spring 2022 (~50% chance during March-May).**

La Niña strengthened in the last month, with below-average sea surface temperatures (SSTs) evident across most of the equatorial Pacific [Fig. 1]. In the last week, all of the Niño index values were between -0.7°C and -1.0°C, with the coolest anomalies in the Niño-3.4 region [Fig. 2]. Below-average subsurface temperatures (averaged from 180-100°W) were roughly the same amplitude at this time last month [Fig. 3], and reflected the prevalence of below-average temperatures in the eastern Pacific Ocean [Fig. 4]. Low-level easterly and upper-level westerly wind anomalies were again observed over parts of the equatorial Pacific, although weaker than last month. Tropical convection was suppressed near and west of the Date Line and was slightly enhanced over Indonesia [Fig. 5]. The Southern Oscillation Index and Equatorial Southern Oscillation Index remained positive. Overall, the coupled ocean-atmosphere system was consistent with La Niña.

The IRI/CPC plume average of forecasts for the Niño-3.4 SST index favors La Niña to continue through January-March 2022 season [Fig. 6]. The forecaster consensus anticipates La Niña to persist longer, potentially returning to ENSO-neutral during April-June 2022. The Niño-3.4 index has a 66% chance of reaching a value less than -1.0°C during November 2021 - January 2022, but only a 14% chance of being below -1.5°C. Thus, at its peak, a moderate-strength La Niña is favored. In summary, La Niña is likely to continue through the Northern Hemisphere winter 2021-22 (~90% chance) and into spring 2022 (~50% chance during March-May; click CPC/IRI consensus forecast for the chances in each 3-month period).

La Niña is anticipated to affect temperature and precipitation across the United States during the upcoming months (the 3-month seasonal temperature and precipitation outlooks will be updated on Thurs. Nov. 18th).

This discussion is a consolidated effort of the National Oceanic and Atmospheric Administration (NOAA), NOAA's National Weather Service, and their funded institutions. Oceanic and atmospheric conditions are updated weekly on the Climate Prediction Center web site (El Niño/La Niña Current Conditions and Expert Discussions). Additional perspectives and analysis are also available in an ENSO blog. A probabilistic strength forecast is available here. The next ENSO Diagnostics Discussion is scheduled for 9 December 2021.

To receive an e-mail notification when the monthly ENSO Diagnostic Discussions are released, please send an e-mail message to: ncep.list.enso-update@noaa.gov.

Climate Prediction Center
National Centers for Environmental Prediction
NOAA/National Weather Service
College Park, MD 20740

Flower Bud Induction Overview and Advisory

NOTICE FOR CITRUS EXTENSION AGENTS & SPECIALISTS AND GROWER NEWSLETTERS
The following information has been developed as part of the Decision Information System for Citrus. (http://disc.ifas.ufl.edu/bloom)

Dr. Tripti Vashisth, Horticulturist
Citrus Research & Education Center, Lake Alfred, FL

12/2/2021

Flower Bud Induction Advisory #1

Season Forecast: This is going to be a La Niña winter, second in a row, which means Florida will experience temperatures warmer than normal and rainfall lower than normal. We are in for a warm and dry winter weather!

Under these conditions, enough hours below 68° F are likely to accumulate to induce an economic level of flower buds but intermediate warm periods during the winter can lead to multiple flower cohorts and a very prolonged bloom. On the positive side if dry weather prevails during the bloom period there could potentially be lower incidence of postbloom fruit drop.

However, like last year we have been receiving good cold weather so far and if this continues along with dry weather we should expect to see one major concise bloom like last year (Spring 2021).

Current Condition: Currently, all the citrus producing regions have low to moderate flower bud induction, which means some inductive conditions have already occurred. So far Umatilla has accumulated about 618 IH, Lake Alfred about 560 IH, Immokalee about 374 IH, and Indian River has experienced 444 IH. It is still early in the induction but a warm spell can push some of those inducted-buds to flower. Next 10 days will be intermediate for cool temperature accumulation with about 60 to 150 IH, south to north. Few days of above average warm temperatures (75-80° F) is predicted, however, in absence of rainfall (it is predicted to stay dry for next several days) early flowering should not be the concern.

Cool weather stops growth and then promotes induction of flower buds as more cool weather accumulates. After moderate induction, a warm spell when coincides with rainfall can initiate differentiation, which after sufficient days of warm temperatures will lead to bloom. Trees will be very vulnerable to growth stimulation by a warm period after they accumulate 300-400 hours of cool temps if soil moisture is adequate.

Keep track of induction hours in your area and watch for projected warm periods from the weather services. Normal healthy trees could have their induction boosted by applying some drought stress. **Unfortunately, with vulnerable root systems associated with HLB you shouldn't risk heavier preharvest fruit drop of the current crop by using water stress to prevent unwanted early vegetative growth and enhance induction of flowers.** Based on weather predictions, if you are concerned about early flowering in your region, a gibberellic acid (GA) application can prevent some early flowering.

Flowering related management considerations for HLB-affected trees:

- DO NOT drought stress HLB-affected trees even though drought stress promotes flower induction and suppress vegetative growth, you should not risk current crop due to additional drought stress. Drought stress can exacerbate fruit drop. Daily, lower volume irrigations to minimize fall drought stress is suggested, especially when the weather is warm.
- Gibberellic acid sprays can be used to suppress early spring flowering but the timing of application is critical for GA to be effective. GA should be applied before warm temperatures (that is before differentiation begins). Previous research on HLB-affected trees in 2017-2018 (a La Niña winter) has shown that when GA applied monthly in fall, early flowering was suppressed. Therefore, if you have a weak crop load and are forecasted to have warm spells, GA application can be considered to suppress off season flowering. DO NOT spray GA after first of January to manage flowering. GA can keep the fruit green, therefore can be a concern for fresh market fruit.
- Flowering enhancing fertilizer to increase the number of flowers are NOT suggested for severely HLB-affected trees as they are very less likely to benefit because of two reasons: (1) HLB-affected trees have more dead wood therefore, there are fewer buds available to become flower, interestingly a good branch of severe HLB trees has same flowering potential as mild HLB trees. So additional flowering promoting fertilizer is not needed. (2) High twig dieback and low fruitlet retention is the main concern with severe HLB trees in regards to fruit set. Only 2% of the total flowers turn into harvestable crop therefore, pushing tree to flower more is not advisable as that is likely to waste trees' energy and resources in extra flowers.

Cost of Production for Processed Oranges in Southwest Florida in 2020/21

https://crec.ifas.ufl.edu/media/crecifasufledu/economics/2020_21_SW_Costs_20210825.pdf

Ariel Singerman, Associate Professor and Extension Economist University of Florida, IFAS, CREC, Lake Alfred, FL

This article presents estimates for the cost of production per acre for processed oranges grown in southwest Florida in 2020/21. The estimates were obtained by surveying growers by mail regarding the actual costs of their production programs, which allows reporting representative estimates of the current grove caretaking practices, input combinations, costs, and production levels in commercial operations. This is important because, since the outbreak of HLB, growers have been changing their practices from season to season in an attempt to cope with the disease. Thus, surveying growers allows not only to report estimates that closely reflect their cost but also to track the changes they make to their cultural practices. However, the cost estimates below do not represent any individual operation. Instead, their purpose is to serve as a benchmark for the Florida citrus industry.

The number of acres managed by the combined operations of the sample of participating growers accounted for approximately 25,800 acres; representing 11% of the acreage devoted to oranges in Southwest Florida, which was estimated at 242,241 (USDANASS, 2020). The questionnaire asked growers to provide annual, per acre costs by program for a "typical" irrigated, mature grove (10+ years old), including costs related to their tree replacement program. The figures below were obtained by computing the weighted average of the responses by the acreage of each of the growers.

Table 1 shows the cultural cost of production by program. The estimates include both the cost of materials and the cost associated with their application. The total cost for weed management — which includes chemical and mechanical mowing as well as herbicides— was $215.64 per acre. At $479.71 per acre, foliar sprays represented the largest cost. Fertilizer was the second largest expense at $387.96 per acre. The expense for pruning was $33.58 per acre, while that for irrigation was $197.15 per acre. Adding all the costs listed above, the cultural cost of growing oranges for processing during 2019/20 without tree replacement was $1,314.04 per acre.

Growers were also asked to provide details regarding their reset practices, including the number of trees replaced in their groves. On average, growers replaced six trees per acre during 2020/21. The total cost of tree replacement, including tree removal, site preparation, and supplemental care of those six young trees was estimated at $193.75 per acre. Adding such figure to the total cost above adds up to a total production cost with tree replacement of $1,507.79 per acre.

Figure 1 depicts a double pie chart. The larger pie shows the cost of each program as well as the percentage relative to the total cultural production costs with tree replacement. The smaller pie in Figure 1 provides greater detail regarding the individual components included in foliar sprays. Insecticides accounted for $161 per acre (which represented 10% of the cultural cost of production); fungicides accounted for $132 per acre (9%); foliar nutritionals for $59 per acre (4%);

aerial application totaled $12 per acre (1%), 2 and ground application of materials was $117 per acre (8%).

Figure 2 shows a comparison of the cost of the caretaking programs in 2020/21 relative to 2019/20. The main changes in practices in 2020/21 compared to the previous season are as follows. First, the largest reduction in spending was for tree replacement, which was cutback, on average, by $99 per acre. The second-largest reduction was for foliar nutritionals. On average, growers cut back that program by $57 per acre, which represents almost a 50% change relative to last season. The third largest reduction was in pruning, which was reduced by $20 per acre compared to last season. The cutbacks were for most programs, and they were the rational response of growers to the significant decrease in prices during the previous season. The only program for which growers, on average, increased their spending significantly was fungicides—which, on average, increased by $88 per acre.

In addition to cultural costs, growers typically have to incur in other costs when managing their groves; these other costs include management, regulatory, and opportunity costs. Table 2 shows the total cost of production for processed oranges grown in southwest Florida during 2020/21 was $1,882.43 per acre, down $213 per acre compared to the previous season. Based on this estimate, the break-even prices per box and per pound solids for different levels of yield are presented in Table 3. Break-even prices were calculated on an on-tree and delivered-in basis. The latter assumes harvesting costs per box were $3.22 for Early and mids and $3.33 for Valencias. The calculations in Table 3 also include the Florida Department of Citrus (FDOC) assessment of $0.12 per box for the 2020/21 season. Thus, for example, the on-tree and delivered-in break-even prices for Early and mids for covering the total costs of production with yield at 150 boxes per acre were $2.44 and $3.09 per pound solids, respectively. For Valencias, the on-tree and delivered-in break-even prices for covering the total costs of production with yield at 150 boxes per acre were $2.22 and $2.83 per pound solids, respectively.

Summary

This article presents a summary of the 2020/21 costs of production for processed oranges grown in southwest Florida. The methodology chosen to collect the data consisted of surveying growers directly so as to reflect their costs. The main change this season was the decrease in the spending of almost all grove caretaking programs relative as a response to the decrease in prices that occurred in the previous season. The total cost of production for processed oranges in 2020/21 was $1,882.43 per acre. Typical users of these estimates include growers and consultants, who use them as a benchmark; property appraisers, who use them to compute the taxes for property owners; and researchers, who use the estimates to evaluate the economic feasibility of potential new technologies.

References:

USDA-NASS. 2020. Florida Citrus Statistics 2019/20.

Table 1. Cultural Costs of Production per Acre for Processed Oranges Grown in Southwest Florida, 2020/21

Costs represent a mature grove (10+ years old) including resets	Number of Applications	Materials Cost per acre ($)	Application Cost per acre ($)	Total Cost per acre ($)
Cultural Costs				
Weed Management				
Mowing (Chemical & mechanical)	6	1.49	77.75	79.24
Herbicides	4	83.65	52.75	136.40
Total Weed Management Costs				215.64
Foliar Sprays				
Insecticides		160.53		
Fungicides		131.95		351.52
Nutritionals		59.04		
Application:				
Ground	4		116.58	116.58
Aerial	1		11.61	11.61
Total Foliar Sprays Costs				479.71
Fertilizer				
Ground/Dry Fertilizer	3	215.42	25.80	241.21
Fertigation/Liquid Fertilizer	6	143.51	3.23	146.75
Total Fertilizer Costs				387.96
Pruning				
Topping & Hedging	1		33.28	33.28
Chop/Mow Brush	1		0.30	0.30
Total Pruning Costs				33.58
Irrigation				
Irrigation System[1]				76.36
Fuel for pump				120.80
Total Irrigation Costs				197.15
Total Cultural Production Costs without Tree Replacement				**1,314.04**
Tree Replacement (6 trees):				
Tree Removal (Clip-shear; use front-end loader)				32.00
Site Preparation and Plant Tree (Includes reset trees)				62.00
Supplemental Fertilizer, Sprays, Sprout, etc. (Trees 1-3 years old)				99.75
Total Tree Replacement Costs				193.75
Total Cultural Costs with Tree Replacement				**1,507.79**

[1] Irrigation system includes: maintenance and repairs to emitters, clean ditches, ditch and canal maintenance, water control

Table 2. Total Costs of Production per Acre for Processed Oranges Grown in Southwest Florida, 2020/21

		Total Cost per acre ($)
Total Cultural Costs		1,507.79
Other Costs	Interest on Operating (Cultural) Costs	75.39
	Management Cost	144.00
	Property Tax/Water Management Assessment	28.73
	Interest on Average Capital Investment	126.52
Total Other Costs		374.64
Total Costs		**1,882.43**

Figure 1. Cultural Costs of Production (in dollars per acre) for Processed Oranges Grown in Southwest Florida, 2020/21

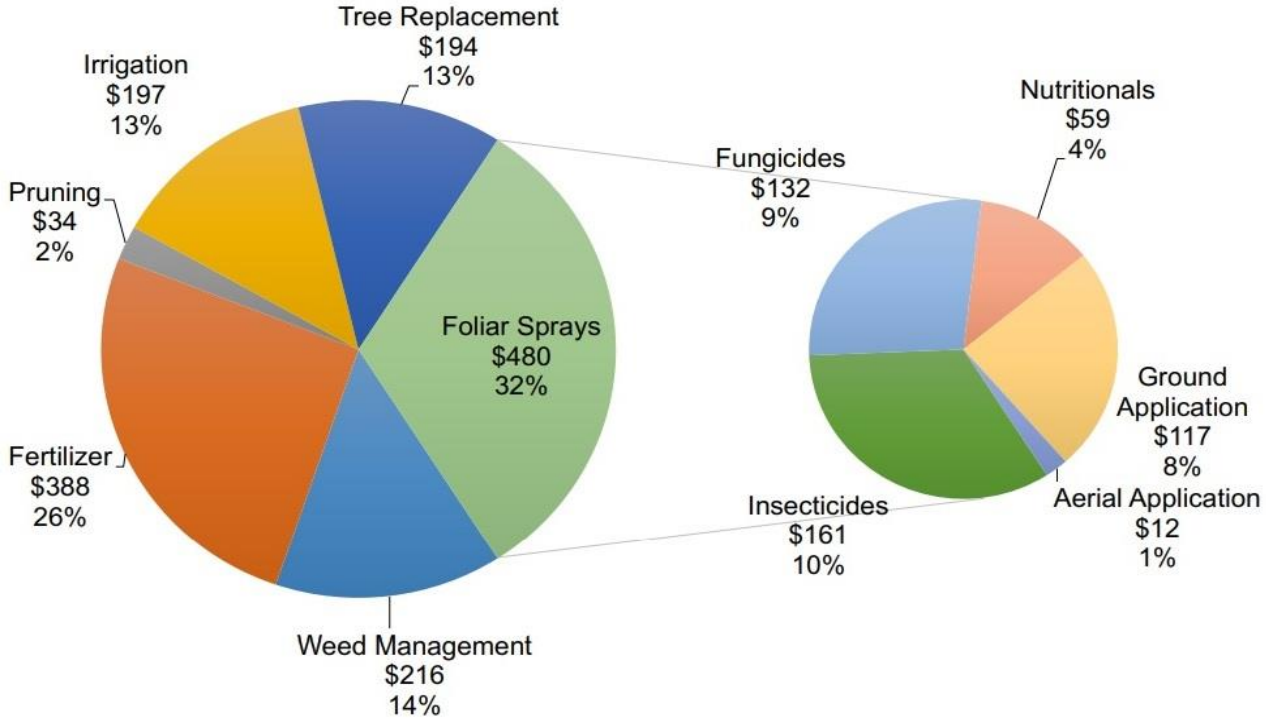


Table 3. Break-Even Price per Box and per Pound Solids for Processed Oranges Grown in Southwest Florida, 2020/21

A. Early and Mid-Season Oranges

	Yield (boxes per acre)								
	125	**150**	**175**	**200**	**225**	**250**	**275**	**300**	**325**
	dollars per acre								
Cost of Production per acre	1882	1882	1882	1882	1882	1882	1882	1882	1882
Pick and Haul per acre ($3.22/box)	403	483	564	644	725	805	886	966	1047
FDOC assessment ($0.12/box)	15	18	21	24	27	30	33	36	39
Total Delivered-in Cost per acre	**2300**	**2383**	**2467**	**2550**	**2634**	**2717**	**2801**	**2884**	**2968**

Break-even Price:	$ per box								
On-tree	15.06	12.55	10.76	9.41	8.37	7.53	6.85	6.27	5.79
Delivered-in	18.40	15.89	14.10	12.75	11.71	10.87	10.19	9.61	9.13

Break-even Price:[1]	$ per pound solids								
On-tree	2.92	2.44	2.09	1.83	1.62	1.46	1.33	1.22	1.12
Delivered-in	3.57	3.09	2.74	2.48	2.27	2.11	1.98	1.87	1.77

[1]Assumes 5.15 pound solids per box based on Florida Department of Citrus (FDOC) Processor Statistical Report for the 2020/21 season

B. Valencia Oranges

	Yield (boxes per acre)								
	125	**150**	**175**	**200**	**225**	**250**	**275**	**300**	**325**
	dollars per acre								
Cost of Production per acre	1882	1882	1882	1882	1882	1882	1882	1882	1882
Pick and Haul per acre ($3.33/box)	416	500	583	666	749	833	916	999	1082
FDOC assessment ($0.12/box)	15	18	21	24	27	30	33	36	39
Total Delivered-in Cost per acre	**2314**	**2400**	**2486**	**2572**	**2659**	**2745**	**2831**	**2917**	**3004**

Break-even Price:	$ per box								
On-tree	15.06	12.55	10.76	9.41	8.37	7.53	6.85	6.27	5.79
Delivered-in	18.51	16.00	14.21	12.86	11.82	10.98	10.30	9.72	9.24

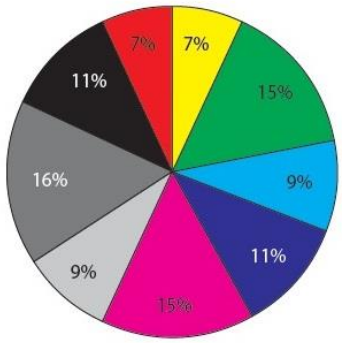
Break-even Price:[1]	$ per pound solids								
On-tree	2.66	2.22	1.90	1.66	1.48	1.33	1.21	1.11	1.02
Delivered-in	3.27	2.83	2.51	2.27	2.09	1.94	1.82	1.72	1.63

[1]Assumes 5.66 pound solids per box based on Florida Department of Citrus (FDOC) Processor Statistical Report for the 2020/21 season

CITRUS BUDWOOD, Annual Report, 2020-2021

Citrus Nursery Propagations 2020-2021

4,825,343 nursery propagations reported in 2020-2021from 45 citrus nurseries



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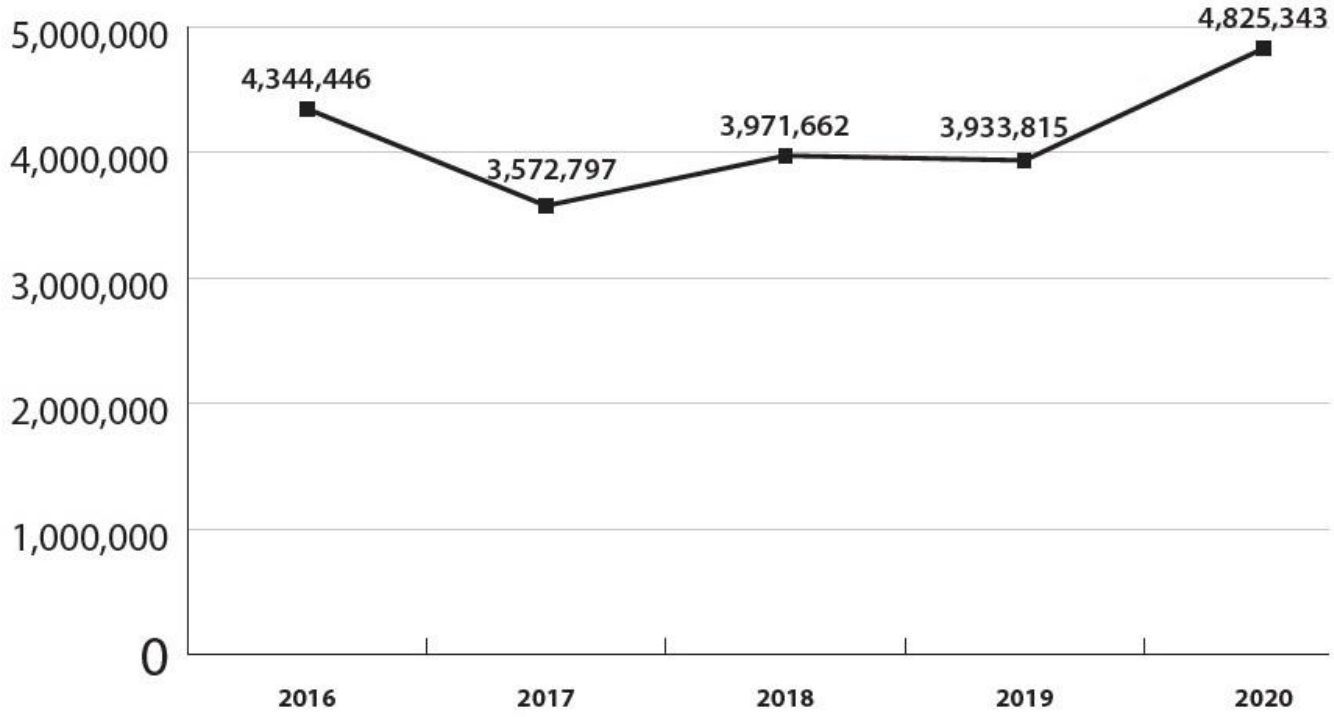
# Citrus Nurseries				
2020	2019	2018	2017	2016
3	1	1	3	4
7	5	10	10	18
4	5	2	9	6
5	4	8	7	6
7	6	4	3	3
4	6	3	0	4
7	4	7	6	8
5	2	5	4	3
3	3	1	2	1
0	1	0	0	1
45	37	41	44	54

Number Propagations Reported



CITRUS BUDWOOD

Annual Report

2020-2021

Top 15 Rootstocks 2020-2021						
	2020	# Budded	2019	2018	2017	2016
1	US-942	1,285,560	US-942	US-942	Swingle	Kuharske
2	Kuharske	841,448	Kuharske	Swingle	US-942	X-639
3	X-639	678,095	X-639	Kuharske	X-639	S/O
4	Swingle	468,558	Swingle	X-639	Kuharske	US-897
5	Own Root	408,793	US-897	Sour Orange	Sour Orange	SWG
6	US-812	296,664	US-812	US-802	US-802	US-942
7	Sour Orange	176,322	Sour Orange	Volkamer	US-897	US-802
8	US-897	160,288	US-802	US-812	UFR-04	US-812
9	Volkamer	135,977	Volkamer	US-897	US-812	Cleopatra
10	US-802	119,887	C-54	Rough Lemon	C-35	UFR-04
11	Rough Lemon	57,941	Rough Lemon	C-35	Cleopatra	Volkamer
12	C-35	39,142	UFR-04	UFR-04	Volkamer	Kinkoji
13	C-54	26,993	C-35	UFR-17	UFR-03	UFR-03
14	Poncirus trifoliata	18,106	C-57	Poncirus trifoliata	C-22	Carrizo
15	UFR-04	17,892	US-1777	US-1516	Carizzo	Rough Lemon

Seed	Tissue Culture	Rooted Cutting
38 different rootstocks used	22 different rootstocks used	17 different rootstocks used
3,550,947 propagations	650,090 propagations	208,637 propagations
Top Seed = Kuharske	Top Tissue Culture = US 942	Top Rooted Cutting = US-942
(790,907 Propagations)	(583,560 Propagations)	(60,899 Propagations)

Top 15 Variety Clone

	Variety Clone	# Budded	Description
1	Valencia SPB-1-14-19	2,097,842	The first selections from open pollinated Valencia seedlings in a grove planted by Dr. and Mrs. Ausker Hughes near Plymouth in Orange County in 1941. Nucellar characteristics made them more cold hardy with better fruit production than the old-line selections. They have become the most popular Valencia selections in Florida. Similar to SPB-1-14-31, and SPB-1-12-7.
2	Vernia UF 35-15	464,156	Dr. Bill Castle's nucellar selection planted at Orie Lee's in St. Cloud. Entered into the program on 5/15/1996. The seed for the DPI-441 clone originated from the Coca Cola, Hodgson Grove, Indian Town, same as the Vernia-3 clone. Vernia is a Spanish variety; fruit medium-small, egg shaped, well colored, very prolific, fruit holds well, inclined to produce off bloom fruit, smaller than Valencia. The season is several weeks earlier than Valencia.
3	Hamlin 1-4-1	387,356	An old-line selection entered into the program by Ward's Nursery in Avon Park. This was the first Hamlin selection entered into the Budwood parent tree program in 1953 and still remains the most widely propagated early orange. It has typical Hamlin traits and excellent yields. Origin: Florida, chance seedling near Glenwood, 1879. Fruit medium-small, seeds few to none, rind thin, smooth, juicy, poor color. Season: Early.
4	Valencia F-55-4	281,808	The "55 series" are DPI nucellar lines. These selections are young nucellar lines from seedlings of fruit collected from the Hughes grove in Orange County. Fruit characteristics are typical of Valencia oranges. Trees are a little more vigorous than old line and Hughes nucellar selections. Fruit production has been slightly better than the Hughes selections and significantly better than the old lines. Similar to F-55-4, F-55-1, S-F-55-28, and F-55-23. Planted in I/4 Foundation Grove in 1961.
5	Meyer Le US	150,059	Received budwood from the USDA 1/26/1996. Originally brought into the USA by Frank Meyer in 1908 who was a USDA plant explorer. Origin: China, also known as Peking lemon. A typical Meyer lemon type popular with homeowners. Everflowering mainly in spring, large yellow fruit, smooth skin, lower acidity, more cold tolerant than other lemons, tender and juicy, moderately seedy (10), low spreading growth habit. Season: Fruit throughout the year, mainly winter, November-March.
6	Star Ruby Gft DPI-60	134,489	One of the first new citrus varieties approved to bring into Florida for release to growers. The variety was requested by Dr. Bill Cooper, USDA, in a letter dated 4/13/1970. Ten budsticks were dispatched from the original Texas tree identified as 61-3 on 6/24/1971 Originated from Texas A&I from irradiated seed of Hudson grapefruit variety 1959 and released to Texas growers 1970. The principal advantages are the deep red internal color and the exterior red blush. Leaves blotchy, chlorotic areas. Sensitive to some herbicides, foot rot, and cold. Fruit quality is not as good as Ruby Red with slightly smaller fruit size. Released 4/21/1977.
7	Key Lime SPB-51-12	118,594	Most likely collected from Avon Park bombing range around 1957. This is the main key lime clone utilized in the nursery industry. Origin: W. Indies. Very small fruit, thin rind, smooth, moderately seedy 3-5, greenish yellow. Season: Everbearing, mainly winter.
8	Valencia SPB-1-14-31	96,097	Similar to SPB-1-14-19, and SPB-1-12-7.
9	Ray Ruby Gft CGIP-103	74,665	Originated from a Ruby Red grapefruit mutation. Discovered in 1970 in a Weslaco, Texas Ruby Red grove by Robert Ray. Flesh color and exterior blush more red than Ruby Red but not as intense as Star Ruby. Good red fruit color, slightly less than Flame. Good fruit size and shape. Excellent quality, comparable to Ruby Red. Good yields. Released in 1986.
10	Bearss Le SPB-341-95-33	71,127	Entered into program, 11/1/1966 from the Coca Cola Hodgson grove at Indiantown. Minute Maid trees established from budwood from the original Bearss seedling trees at Lutz, Florida. The major lemon selection grown in Florida. Similar to Lisbon, vigorous, less thorny than normal, 1-6 seeds, scab susceptible, peel oil 14.12+ lbs./ton. Season: July-December, summer bearing.
11	Flame Gft US 1-26-71	70,161	Originated from seedlings planted in Florida from the Henderson variety which came from Texas. Entered into program by Jack Hearn 7/17/1981; released by the USDA in 1987. The fruit color is nearly as good as Star Ruby and has a decent blush. Holds flesh color well into season.
12	Valquarius LT UF SF14W-62	58,558	Entered by Dr. Jude Grosser, CREC, 9/4/2012. Maturity is four to eight weeks ahead of the standard Valencia variety. Good juice color gives it potential to become a favored midseason processed orange variety. (Mid-January-February) License has been granted to the New Varieties Development and Management Corporation.
13	Orri CGIP-134	55,442	Orri mandarin derived from irradiated budwood of Orah mandarin (a Temple x Dancy hybrid) by citrus breeders in Israel. Seedless to few seeds, easy to peel with an excellent flavor. Patented.
14	Persian Lime SPB-7	50,841	The original tree owned by E. J. Norman of Homestead was entered into the program in 1954 by Coral Reef Nursery. The variety is also known as a Tahiti lime. Normally seedless with a high degree of monoembryony, most likely a hybrid, fruit medium small, smooth, thin rind, juicy. Season: Everbearing, mainly winter, June-September.
15	Hamlin 8-1-4	47,642	Parent tree entered into the program from the Story Property in Winter Garden in 1953. A top yielding clone in the Budwood Foundation Grove. Has typical Hamlin traits and excellent yields.

COLD HARDINESS AND COLD PROTECTION

Two major environmental factors in Florida citrus that regulate cold hardiness are temperature and water.

At 55^0 F, citrus plant growth slows. As temperatures remain below 55^0 F, citrus trees will continue to acquire acclimation to these cooler temperatures. This process is reversible during warm winter periods, and de-acclimation (loss of acclimation) can occur. The greatest amount of citrus acclimation occurs during consistently cool fall and winters. Once de-acclimation occurs citrus trees will generally not re-acclimate to the same level prior to the onset of de-acclimation.

Irrigation and fall/winter rainfall can have a pronounced effect on the citrus acclimation process. Drought induced stress has been shown to increase the tolerance of citrus trees to freezing temperatures when compared to well watered or over watered citrus trees in Florida. However, excessively drought stressed trees are more susceptible to freeze damage.

Critical Temperatures for Florida Citrus

It is very important to know the critical temperature at which freezing temperatures can damage citrus. Minimum temperature indicating thermometers are a wise investment for any grower concerned with freeze/frost protection. Thermometers should be installed in the coldest grove locations. They should be placed at a height of 42 inches (4.5 ft) on a stand, sheltered at the top and facing north. In citrus trees, there can be a great deal of variation in the minimum temperature at which plant damage will occur.

The reference temperature and duration for the initiation of the freezing process in round oranges is 28^0 F for four hours. Tangerines and fruit with smaller mass would receive freeze damage after shorter durations, while grapefruit would require longer durations.

Minimum temperatures of 26^0 F will damage fully mature, harden-off leaves that have not received any acclimation. Minimum temperatures of 30^0 F can significantly damage unhardened new flush leaves. Leaves that have received extensive acclimation have been shown to survive temperatures as low as 20^0 F in Florida.

Protecting citrus trees from cold damage

Cultural practices can have a major influence on the cold hardiness of citrus trees. A clean, hard-packed soil surface intercepts and stores more solar radiation during the day and releases more heat at night than a surface covered with vegetation or a newly tilled area. Irrigation should be applied minimally during the fall and winter. Reducing irrigation results in an increase in the cold tolerance of citrus trees and enhances tree stress resulting in an increase in the formation of flower buds. Excessive application of nutrients should be avoided late in the fall especially with young citrus trees. Heavy hedging or topping during the winter can reduce citrus cold hardiness by reducing canopy integrity that would trap heat released by the soil. This should be avoided.

Water from micro sprinkler irrigation protects young trees by transferring heat to the tree and the environment. The heat provided is from two sources, sensible heat and the latent heat of fusion. Most irrigation water comes out of the ground at 68° to 72°F, depending on the depth of the well. The major source of heat from irrigation is provided when the water in the liquid form changes to ice (latent heat of fusion).

As long as water is constantly changing to ice, the temperature of the ice-water mixture will remain at 32°F. The higher the rate of water application to a given area, the greater is the amount of heat energy that is applied. When expecting a freeze, turn on the water early before the air temperature reaches 32^0F. Remember that in cold pockets, the ground surface can be colder than the air temperature reading in a thermometer shelter. Once irrigation has begun, the system must run for the duration of the time plant temperatures are below the critical temperature. Growers are recommended to use the information at the FAWN website (**http://fawn.ifas.ufl.edu**) to determine when it would be safe to turn off or on their micro-sprinkler irrigation system. For more details, go to http://edis.ifas.ufl.edu/HS179, http://edis.ifas.ufl.edu/CH182, http://edis.ifas.ufl.edu/CH054

In bedded groves to provide additional cold protection, water should also be pumped high in the ditches the day before and during the time of freezing weather.

Gulf Citrus Growers Association Scholarship Foundation, Inc.

11741 Palm Beach Blvd., #202, Fort Myers, FL 33905
(239) 690-0281 / Fax: (239) 690-0857

About the Gulf Citrus Growers Association

The citrus growers of southwest Florida are committed to supporting education as a long-term investment in the future of our industry. The first Gulf Citrus scholarship was awarded in 1992 through the Gulf Citrus Growers Association, a trade organization representing growers in Charlotte, Collier, Glades, Hendry and Lee Counties.

The Gulf Citrus Growers Association Scholarship Foundation was established in 2000 as a non-profit entity to oversee the distribution of these awards. Scholarship applications are accepted throughout the year and are reviewed semi-annually by a Scholarship Selection Committee comprised of academic and industry members. The number and amount of awards vary depending upon the number of applications received and available funds.

Applicants who are not selected may submit a new application for consideration in the next selection cycle. Previous award winners may also reapply.

Scholarship Criteria

Preferred requirements for scholarships are as follows:

AA, BS, MS and **PhD Degrees:**

- Completion of all placement testing and a **declared major** in agriculture or related major.
- Completion of **12 credit hours** towards agriculture or related degree.
- Minimum overall grade point average of **2.5** for AA and BS degrees; **3.0** for MS and PhD degrees.
- A demonstrated **commitment** to complete the degree at a state college, community college or university.

Applicants must complete the attached application and have their official transcripts sent directly by their universities to:

Gulf Citrus Growers Association Scholarship Foundation, Inc.
Dr. Mongi Zekri, Application Coordinator
Hendry County Extension Office
P. O. Box 68
LaBelle, FL 33975
(863) 674-4092 / Fax: (863) 674-4636
E-mail: maz@ufl.edu

*****APPLICATION & OFFICIAL TRANSCRIPTS MUST BE RECEIVED NO LATER THAN JULY 31 OR JANUARY 5*****

Gulf Citrus Growers Association Scholarship Foundation, Inc.

11741 Palm Beach Blvd., #202, Fort Myers, FL 33905
(239) 690-0281 / Fax: (239) 690-0857

Scholarship Application

Personal Data

Name: _____Date of Birth:_____

Home Address: _____

City/State: _____ Zip: _____ Phone: _____

Mailing Address: _____

City/State: _____ Zip: _____ Phone: _____

E-mail: _____

Employer: _____

Address: _____

City/State: _____ Zip: _____ Phone: _____

Does your employer reimburse you for tuition or other expenses incurred toward your degree? Yes ____ No _____

Educational Information

College or University in which you are enrolled: _____

Department / Degree Program: _____

I am working toward the following: AA ____ BS _____ MS _____ PhD _____ Other _____

Courses Taken in Major *(completed)*:

_____

_____

_____

_____

Courses (*in which you are currently enrolled)*:

_____

_____

Total Credit Hours Toward Degree: _____ Cumulative Grade Point Average (GPA): _____

Expected Date of Graduation: _____

Please answer the following questions in complete sentences with as much detail as possible.

What are your career goals? _____

_____

_____

_____

_____

What is the potential value of your education to the citrus industry *in southwest Florida*?

_____

_____

_____

_____

_____

_____

I authorize the release of this application and any relevant supporting information to persons involved in the selection of recipients for Gulf Citrus Growers Association scholarships.

_____ _____

Applicant's Signature Date

*****APPLICATION & OFFICIAL TRANSCRIPTS MUST BE RECEIVED NO LATER THAN JULY 31 OR JANUARY 5*****

Please return this application and have your official transcripts sent directly by your university to:

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Dr. Mongi Zekri, Application Coordinator
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(863) 674-4092 / Fax: (863) 674-4636
E-mail: maz@ufl.edu

Citrus Spray Programs

Dr. Jawwad Qureshi and Dr. Phil Stansly, UF IFAS- Immokalee

Asian citrus psyllid (ACP) control has been the main objective of Florida citrus growers due to its role in the spread of huanglongbing (HLB) since 2005. While some may question the value of controlling ACP in trees with high HLB incidence, replicated field studies have shown the economic benefit of maintaining young flush pathogen free. Good ACP control starts with effective dormant sprays that will control ACP when populations are low, reduce its infestation and thus HLB infection of the all-important spring flush. Pyrethroids (e.g., Danitol, Baythroid or Mustang) and organophosphates (e.g., dimethoate or Imidan) provide great winter season control of ACP. Best not to use pyrethroids or OPs again during the year except for border sprays which will reduce the need for whole block applications. Follow up with bloom sprays of labeled products to clean up stragglers. Subsequent whole block sprays should target ACP as well as other pests like rust mites and leafminers that may be problematic.

The table below provides some examples of products for different months, depending on which pests are of major concern at the time. Neonicotinoids have not been included as spray option due to their importance for controlling ACP in young trees through soil application. Make choices based on: (1) effectiveness against ACP and other pests that may be problematic, (2) avoiding repetition of any insecticide mode of action in the interest of resistance management, and (3) rebuilding and maintaining an effective natural enemy complex in the grove. Confining the broad-spectrum insecticides (pyrethroids and organo-phosphates) to the winter season and border sprays during growing season will help conserve these products as well as populations of beneficial insects and mites.

Spray Options for Citrus Pest Management

Dormant Season — **Growing Season**

Months	Nov-Dec	Jan	Feb-Mar	Apr	May - June	July - Aug	Sep-Oct
Products *** Labeled for bloom**	OP[1] (e.g. Imidan, Dimethoate)	Pyrethroid[2] (Mustang Danitol Baythroid)	*Sivanto[3] *Movento[4] *Portal[5] *Micromite[6] Intrepid[7] Exirel[8]	Portal[5] Micromite[6] Exirel[8] Apta[9] Sivanto[3] Oil[13]	Movento[4] Delegate[11] Abamectin[12] Knack[14] Exirel[8] Apta[9] Sivanto[3] Oil[13] MinectoPro[10]	Sivanto[3] Apta[9] OP[1] MinectoPro[10] Oil[13]	Movento[4] Delegate[11] Apta[9] Sivanto[3] Oil[13]
Pests	ACP Weevils	ACP Weevils	ACP, Mites Leafminer Weevils Scales Aphids	ACP Mites Leafminer Weevils Aphids	ACP Rust mite Leafminer Scales	ACP	ACP Rustmite Leafminer

ACP[+++ 1,2,3,4,8,9,10] ACP[++ 5,11] ACP[+ 6,12, 13] Leafminer[6,7,8, 10,11,12,13] Rustmite[4, 6,12,13]
Scales[4,12,13] Aphids[3,4] Mealybugs[3,4] (+++ excellent, ++ good, + fair)

Sending hard copies of this Flatwoods Citrus newsletter by regular mail will stop by the end of this year. You will receive your copy only through e-mail.

☐ If you did not receive the ***Flatwoods Citrus*** newsletter and would like to be on our mailing list, please check this box and complete the information requested below.

☐ If you wish to be removed from our mailing list, please check this box and complete the information requested below.

Please send: Dr. Mongi Zekri
Multi-County Citrus Agent
Hendry County Extension Office
P.O. Box 68
LaBelle, FL 33975
E-mail: maz@ufl.edu

Subscriber's Name:_____

Company:_____

Phone:_____

E-mail:_____

Racial-Ethnic Background

__American Indian or native Alaskan
__Asian American
__Hispanic
__White, non-Hispanic
__Black, non-Hispanic

Gender

__Female
__Male