United States Department of Agriculture
National Agricultural Statistics Service

CITRUS

DECEMBER FORECAST
MATURITY TEST RESULTS AND FRUIT SIZE

Cooperating with the Florida Department of Agriculture and Consumer Services
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December 10, 2019

Florida All Orange Production Unchanged from October Forecast
Florida Non-Valencia Orange Production Unchanged
Florida Valencia Orange Production Unchanged
Florida All Grapefruit Production Up 7 percent
Florida All Tangerine and Tangelo Production Unchanged

FORECAST DATES - 2019-2020 SEASON

January 10, 2020	April 9, 2020
February 11, 2020	May 12, 2020
March 10, 2020	June 11, 2020
July 10, 2020	

Citrus Production by Type – States and United States

Crop and State	Production [1]		2019-2020 Forecasted Production [1]	
	2017-2018	2018-2019	October	December
	(1,000 boxes)	(1,000 boxes)	(1,000 boxes)	(1,000 boxes)
Non-Valencia Oranges [2]				
Florida	**18,950**	**30,400**	**32,000**	**32,000**
California [3]	35,900	40,800	38,000	38,000
Texas [3]	1,530	2,210	2,050	2,050
United States	56,380	73,410	72,050	72,050
Valencia Oranges				
Florida	**26,100**	**41,350**	**42,000**	**42,000**
California [3]	8,300	9,000	9,000	9,000
Texas [3]	350	290	650	650
United States	34,750	50,640	51,650	51,650
All Oranges				
Florida	**45,050**	**71,750**	**74,000**	**74,000**
California [3]	44,200	49,800	47,000	47,000
Texas [3]	1,880	2,500	2,700	2,700
United States	91,130	124,050	123,700	123,700
Grapefruit				
Florida-All	**3,880**	**4,510**	**4,600**	**4,900**
Red	**3,180**	**3,740**	**3,900**	**4,100**
White	**700**	**770**	**700**	**800**
California [3]	3,800	3,200	4,200	4,200
Texas [3]	4,800	6,100	5,700	5,700
United States	12,480	13,810	14,500	14,800
Lemons [3]				
Arizona	1,000	1,350	1,400	1,400
California	21,200	22,800	20,000	20,000
United States	22,200	24,150	21,400	21,400
Tangerines and Tangelos				
Florida [4]	**750**	**990**	**1,050**	**1,050**
California [3 5]	19,200	26,000	23,000	23,000
United States	19,950	26,990	24,050	24,050

[1] Net pounds per box: oranges in California-80, Florida-90, Texas-85; grapefruit in California and Texas-80, Florida-85; lemons-80; and tangerines and mandarins in California-80, Florida-95.
[2] Navel and miscellaneous varieties in California. Early non-Valencia (including Navel) and midseason non-Valencia varieties in Florida and Texas.
[3] Estimates carried forward from October.
[4] Includes all certified varieties of tangerines and tangelos.
[5] Includes tangelos and tangors.

All Oranges 74.0 Million Boxes

The 2019-2020 Florida all orange forecast released today by the USDA Agricultural Statistics Board is 74.0 million boxes, unchanged from the October forecast. If realized, this forecast will be 3 percent more than last season's final production. The forecast consists of 32.0 million boxes of the non-Valencia oranges (early, midseason, and Navel varieties) and 42.0 million boxes of the Valencia oranges. A 9-year regression has been used for comparison purposes. All references to "average", "minimum", and "maximum" refer to the previous 10 seasons, excluding the 2017-2018 season, which was affected by Hurricane Irma. Average fruit per tree includes both regular and first late bloom.

Non-Valencia Oranges 32.0 Million Boxes

The forecast of non-Valencia production is unchanged from the October forecast at 32.0 million boxes. Current fruit size is below average and projected to be below average at harvest. Current droppage is above average and is projected to be above average at harvest. The Navel forecast, included in the non-Valencia forecast, is unchanged at 800 thousand boxes, and is 3 percent of the non-Valencia total. Final Navel size is below average and droppage is above average.

Valencia Oranges 42.0 Million Boxes

The forecast of Valencia production is unchanged from the previous forecast at 42.0 million boxes. Current fruit size is below average and is projected to be below average at harvest. Current droppage is above average and projected to be above average at harvest.

All Grapefruit 4.90 Million Boxes

The forecast of all grapefruit production is up 7 percent from the October forecast and is now 4.90 million boxes. If realized, this forecast will be 9 percent more than last season's final production. The red grapefruit forecast is 4.10 million boxes. Fruit size of red grapefruit at harvest is projected to be slightly above average and droppage is projected to be above average. The white grapefruit forecast is 800,000 boxes. Projected fruit size of white grapefruit at harvest is above average; projected droppage is above average.

Tangerines and Tangelos 1.05 Million Boxes

The forecast for tangerine and tangelos is unchanged from the previous forecast at 1.05 million boxes, 6 percent more than last season's utilization of 990 thousand boxes. This forecast number includes all certified tangerine and tangelo varieties.

Reliability

To assist users in evaluating the reliability of the December 1 Florida production forecasts, the "Root Mean Square Error," a statistical measure based on past performance, is computed. The deviation between the December 1 production forecast and the final estimate is expressed as a percentage of the final estimate. The average of squared percentage deviations for the latest 20-year period is computed. The square root of the average becomes statistically the "Root Mean Square Error." Probability statements can be made concerning expected differences in the current forecast relative to the final end-of-season estimate, assuming that factors affecting this year's forecast are not different from those influencing recent years.

The "Root Mean Square Error" for the December 1 Florida all orange production forecast is 7.8 percent. However, if you exclude the three abnormal production seasons (three hurricane seasons), the "Root Mean Square Error" is 7.5 percent. This means chances are 2 out of 3 that the current all orange production forecast will not be above or below the final estimates by more than 7.8 percent, or 7.5 percent excluding abnormal seasons. Chances are 9 out of 10 (90 percent confidence level) that the difference will not exceed 13.4 percent, or 13.1 percent excluding abnormal seasons.

Changes between the December 1 Florida all orange forecast and the final estimates during the past 20 years have averaged 7.94 million boxes (7.37 million, excluding abnormal seasons), ranging from 0.95 million boxes to 19.0 million boxes including abnormal seasons, (1.00 to 19.0 million boxes excluding abnormal seasons). The December 1 forecast for all oranges has been below the final estimate 4 times, above 16 times, (below 4 times, above 13 times, excluding abnormal seasons). The difference does not imply that the December 1 forecasts this year are likely to understate or overstate final production.

Forecast Components, by Type – Florida: December 2019

[Survey data is considered final in December for Navels, January for early-midseason (non-Valencia) oranges, February for grapefruit, and April for Valencia oranges]

Type	Bearing trees	Fruit per tree	Droppage	Fruit per box
	(1,000 trees)	(number)	(percent)	(number)
ORANGES				
Early-midseason (Non-Valencia) [1]	19,529	775	27	313
Navel	932	236	26	139
Valencia	29,615	536	28	247
GRAPEFRUIT				
Red	2,150	415	36	119
White	356	453	30	108

[1] Excludes Navels.

Maturity

Regular bloom fruit samples (323 orange and 94 grapefruit) were collected from groves on established routes in Florida's five major citrus producing areas on November 21-22, 2019 and tested by the Florida Agricultural Statistics Service (FASS) on November 25-27, 2019.

Unadjusted Maturity Tests – Florida: 2018-2019 and 2019-2020

[Averages of regular bloom fruit from sample groves. Juice and solids per box are unadjusted and not comparable to juice processing plant test results. Samples were run through an FMC 091B machine using pneumatic pressure. This machine utilizes a 0.025 short strainer and a 1.00 inch orifice tube for the 3 inch cup and a 1.25 inch orifice tube for the 4 inch and 5 inch cups]

Fruit type (number of groves) test date	Acid		Solids (Brix)		Ratio		Unfinished juice per box		Solids per box	
	2018-2019	2019-2020	2018-2019	2019-2020	2018-2019	2019-2020	2018-2019	2019-2020	2018-2019	2019-2020
	(percent)	(percent)	(percent)	(percent)			(pounds)	(pounds)	(pounds)	(pounds)
ORANGES										
Early N-V (120-119)										
Sep 1	1.19	1.21	8.84	9.06	7.51	7.59	43.68	45.13	3.86	4.09
Oct 1	0.86	0.89	9.22	9.69	10.94	11.05	49.09	49.57	4.52	4.80
Nov 1	0.69	0.64	9.75	10.26	14.36	16.08	50.27	51.37	4.90	5.27
Dec 1	0.62	0.60	10.05	10.46	16.47	17.61	52.03	52.68	5.23	5.51
Midseason N-V (54-54)										
Sep 1	1.32	1.37	8.93	9.04	6.85	6.71	44.58	45.46	3.98	4.11
Oct 1	0.94	1.04	9.30	9.76	10.03	9.55	49.83	49.38	4.64	4.81
Nov 1	0.80	0.76	10.01	10.35	12.80	13.85	50.94	51.67	5.09	5.34
Dec 1	0.72	0.67	10.30	10.63	14.50	15.94	52.41	52.85	5.40	5.62
Valencia (150-150)										
Sep 1	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Oct 1	1.90	1.97	8.56	9.08	4.54	4.68	46.30	47.73	3.96	4.33
Nov 1	1.52	1.47	9.15	9.48	6.11	6.57	49.87	51.73	4.56	4.90
Dec 1	1.26	1.24	9.60	9.48	7.70	7.88	52.15	53.82	5.01	5.11
GRAPEFRUIT										
Red Seedless (46-48)										
Sep 1	1.44	1.53	9.72	10.11	6.78	6.65	38.86	39.51	3.78	4.00
Oct 1	1.22	1.31	9.48	10.25	7.81	7.87	44.72	46.29	4.24	4.74
Nov 1	1.16	1.19	10.00	10.39	8.69	8.77	50.17	49.12	5.01	5.11
Dec 1	1.16	1.17	9.95	10.09	8.68	8.65	52.36	51.96	5.21	5.23
White Seedless (47-46)										
Sep 1	1.52	1.63	9.83	10.32	6.46	6.36	36.61	38.72	3.60	3.99
Oct 1	1.36	1.40	9.64	10.36	7.09	7.40	42.59	46.11	4.11	4.77
Nov 1	1.26	1.25	9.78	10.07	7.80	8.12	48.06	49.72	4.70	5.01
Dec 1	1.19	1.21	9.82	10.05	8.27	8.34	49.56	53.53	4.87	5.38

(NA) Not available.

Unadjusted Maturity Test Averages, by Areas – Florida: December 2018-2019 and 2019-2020

Fruit type (number of groves) test date	Acid		Solids (Brix)		Ratio		Unfinished juice per box		Solids per box	
	2018-2019	2019-2020	2018-2019	2019-2020	2018-2019	2019-2020	2018-2019	2019-2020	2018-2019	2019-2020
	(percent)	(percent)	(percent)	(percent)			(pounds)	(pounds)	(pounds)	(pounds)
ORANGES										
Early N-V										
Indian River (9-9)	0.66	0.61	10.15	10.74	15.61	17.64	48.97	51.37	4.98	5.52
Other Areas [1] (111-110)	0.61	0.60	10.04	10.43	16.54	17.61	52.28	52.79	5.25	5.51
Midseason N-V										
Indian River (2-2)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Other Areas [1] (52-52)	0.72	0.67	10.29	10.63	14.55	16.01	52.50	52.47	5.40	5.57
Valencia										
Indian River (29-29)	1.39	1.52	9.98	9.88	7.28	6.59	51.75	54.29	5.17	5.37
Other Areas [1] (121-121)	1.23	1.17	9.51	9.39	7.80	8.19	52.25	53.70	4.97	5.04
GRAPEFRUIT										
Red Seedless										
Indian River (38-41)	1.14	1.17	9.90	10.19	8.77	8.74	50.15	52.16	4.97	5.30
Other Areas [1] (8-7)	1.24	1.18	10.16	9.54	8.30	8.12	46.13	50.75	4.69	4.83
White Seedless										
Indian River (39-40)	1.19	1.20	9.92	10.11	8.37	8.43	49.81	53.87	4.94	5.45
Other Areas [1] (8-6)	1.21	1.24	9.34	9.67	7.76	7.79	48.38	51.31	4.52	4.96

(D) Withheld to avoid disclosing data for individual operations.
[1] Includes Central, Northern, Southern, and Western areas.

Size Frequency Measurement Distributions, by Type – Florida: November

[Size frequency distributions from the November size survey are shown in the following table. The distributions are by percent of fruit falling within the size range of each 4/5-bushel container. These frequency distributions include fruit from regular bloom and exclude fruit from summer bloom]

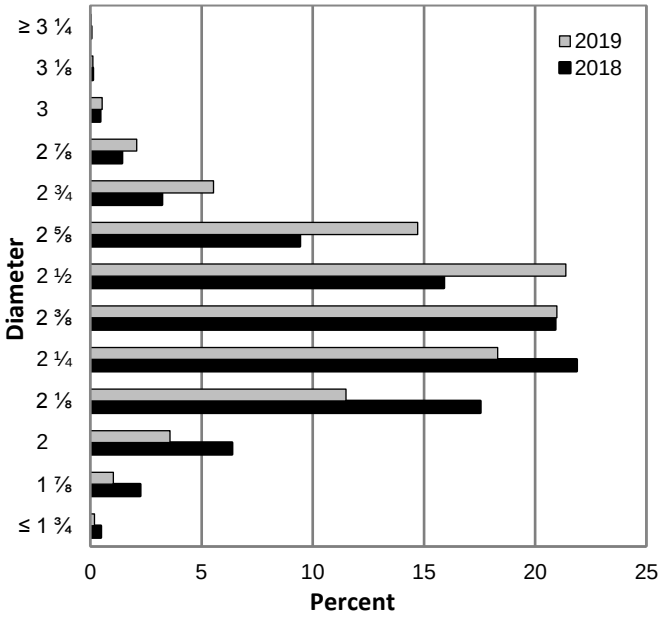
Type and number of fruit per 4/5–bushel containers	2017	2018	2019
	(percent)	(percent)	(percent)
NON-VALENCIA ORANGES [1]			
64 or less	0.5	0.1	0.1
80	4.0	1.1	1.4
100	18.0	7.0	12.0
125	34.9	22.4	30.9
163 or more	42.6	69.4	55.6
NAVEL ORANGES			
64 or less	43.7	45.2	50.9
80	32.2	25.6	26.5
100	15.3	18.4	15.9
125	7.0	7.5	5.1
163 or more	1.8	3.3	1.6
VALENCIA ORANGES			
64 or less	1.2	0.2	0.3
80	6.8	1.7	3.2
100	23.7	13.5	20.3
125	34.5	30.3	35.1
163 or more	33.8	54.3	41.1
TANGELOS			
80 or less	27.7	9.6	37.3
100	21.5	20.4	19.1
120	20.8	29.2	15.4
156 or more	30.0	40.8	28.2

Type and number of fruit per 4/5–bushel containers	2017	2018	2019
	(percent)	(percent)	(percent)
RED GRAPEFRUIT			
32 or less	4.1	0.8	1.3
36	11.9	2.5	5.6
40	14.2	6.8	10.5
48	16.2	11.4	16.6
56	12.5	13.6	17.5
63 or more	41.1	64.9	48.5
WHITE GRAPEFRUIT [2]			
32 or less	4.0	2.4	3.2
36	11.7	7.6	8.9
40	12.4	12.1	15.8
48	16.6	16.2	15.4
56	14.2	13.1	13.9
63 or more	41.1	48.6	42.8
SUNBURST TANGERINES			
100 or less	23.6	7.1	18.3
120	20.4	17.1	15.6
176	14.6	14.6	13.9
210 or more	41.4	61.2	52.2
HONEY TANGERINES			
80 or less	0.9	0.5	1.7
100	4.8	2.3	4.8
120	15.7	10.8	16.7
176	19.3	16.9	22.3
210 or more	59.3	69.5	54.5

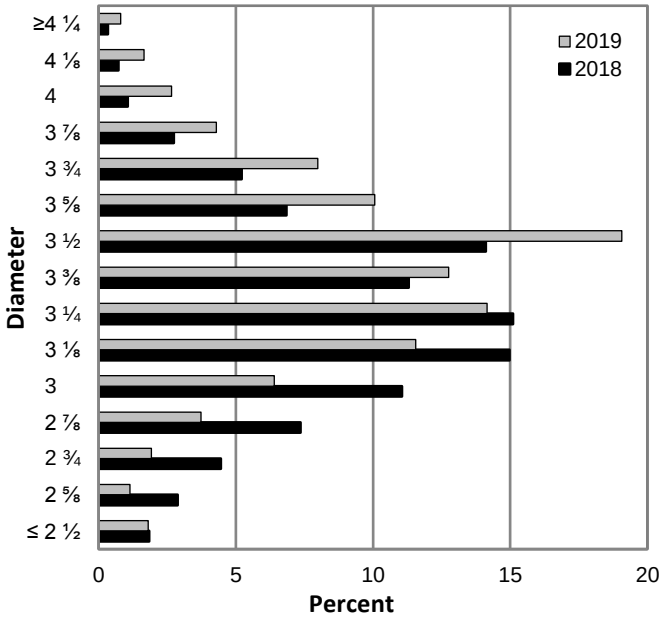
[1] Excludes Navels.
[2] Excludes seedy.

The charts below show the distribution of fruit sizes in 2018 compared to 2019. The diameter measurements shown are the minimum values of each eighth inch range, except for the smallest values.

Fruit Size Frequency Measurements, Non-Valencia Oranges [1], by Diameter - Florida: November



Fruit Size Frequency Measurements, Red Grapefruit, by Diameter - Florida: November



[1] Excludes Navels.