United States Department of Agriculture
National Agricultural Statistics Service

CITRUS

MARCH FORECAST
MATURITY TEST RESULTS AND FRUIT SIZE

Cooperating with the Florida Department of Agriculture and Consumer Services
851 Trafalgar Ct, Suite 310E, Maitland, FL 32751-4132
(407) 648-6013 · (855) 271-9801 FAX · www.nass.usda.gov/fl

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Florida All Orange Production is Down 1 Percent from the February Forecast
Florida Non-Valencia Orange Production Down 3 Percent
Florida Valencia Orange Production Unchanged
Florida All Grapefruit Production Down 8 Percent
Florida All Tangerine and Tangelo Production Unchanged

FORECAST DATES - 2019-2020 SEASON	
April 9, 2020	June 11, 2020
May 12, 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	February	March
	(1,000 boxes)	(1,000 boxes)	(1,000 boxes)	(1,000 boxes)
Non-Valencia Oranges [2]				
Florida	**18,950**	**30,400**	**31,000**	**30,000**
California [3]	35,900	40,800	40,000	40,000
Texas [3]	1,530	2,210	1,950	1,950
United States	56,380	73,410	72,950	71,950
Valencia Oranges				
Florida	**26,100**	**41,350**	**41,000**	**41,000**
California	8,300	9,000	9,000	8,500
Texas [3]	350	290	610	610
United States	34,750	50,640	50,610	50,110
All Oranges				
Florida	**45,050**	**71,750**	**72,000**	**71,000**
California	44,200	49,800	49,000	48,500
Texas [3]	1,880	2,500	2,560	2,560
United States	91,130	124,050	123,560	122,060
Grapefruit				
Florida-All	**3,880**	**4,510**	**5,900**	**5,400**
Red	**3,180**	**3,740**	**5,000**	**4,500**
White	**700**	**770**	**900**	**900**
California [3]	3,800	3,200	4,100	4,100
Texas [3]	4,800	6,100	6,200	6,200
United States	12,480	13,810	16,200	15,700
Lemons [3]				
Arizona	1,000	1,350	1,400	1,400
California	21,200	22,800	19,000	19,000
United States	22,200	24,150	20,400	20,400
Tangerines and Tangelos				
Florida [4]	**750**	**990**	**1,050**	**1,050**
California [3] [5]	19,200	26,000	22,000	22,000
United States	19,950	26,990	23,050	23,050

[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 February.
[4] Includes all certified varieties of tangerines and tangelos.
[5] Includes tangelos and tangors.

All Oranges 71.0 Million Boxes

The 2019-2020 Florida all orange forecast released today by the USDA Agricultural Statistics Board is lowered 1.00 million boxes to 71.0 million boxes. If realized, this will be down 1 percent from last season's final production. The forecast consists of 30.0 million boxes of the non-Valencia oranges (early, midseason, and Navel varieties) and 41.0 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 30.0 Million Boxes

The forecast of non-Valencia production is lowered 1.00 million boxes to 30.0 million boxes. The Row Count survey conducted February 25-26, 2020, showed 98 percent of the early-midseason rows are harvested. Estimated utilization for non-Valencia oranges to March 1, with an allocation for non-certified fruit, is 29.5 million boxes. The Navel forecast, included in the non-Valencia portion of the forecast, remains at 800,000 boxes.

Valencia Oranges 41.0 Million Boxes

The forecast of Valencia production is unchanged from the previous forecast at 41.0 million boxes. Current fruit size is below average and is projected to be below average at harvest, requiring 246 pieces to fill a 90 pound box. Droppage is above average and projected to be above average at harvest. Harvest of Valencia oranges is still in the early stages.

All Grapefruit 5.40 Million Boxes

The forecast of all grapefruit production is lowered 500,000 boxes to 5.40 million boxes. The white grapefruit forecast is unchanged from the previous forecast at 900,000 boxes. The red grapefruit forecast is lowered 500,000 boxes to 4.50 million boxes. The Row Count survey conducted February 25-26, 2020, indicated 69 percent of the red grapefruit rows and 71 percent of the white grapefruit rows are harvested. Estimated utilization for white grapefruit to March 1, with an allocation for non-certified fruit, is 653,000 boxes and for red grapefruit is 3.06 million boxes.

Tangerines and Tangelos 1.05 Million Boxes

The forecast for tangerine and tangelos is unchanged from the February forecast at 1.05 million boxes. Utilization to March 1, with an allocation for non-certified fruit, is 924,000 boxes. This forecast number includes all certified tangerine and tangelo varieties.

Reliability

To assist users in evaluating the reliability of the March 1 Florida production forecasts, the "Root Mean Square Error," a statistical measure based on past performance, is computed. The deviation between the March 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 March 1 Florida all orange production forecast is 4.6 percent. If you exclude the three abnormal production seasons (three hurricane seasons), the "Root Mean Square Error" is 4.8 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 4.6 percent, including abnormal seasons or 4.8 percent excluding abnormal seasons. Chances are 9 out of 10 (90 percent confidence level) that the difference will not exceed 7.9 percent including abnormal seasons, or 8.4 percent excluding abnormal seasons.

Changes between the March 1 Florida all orange forecast and the final estimates during the past 20 years have averaged 3.98 million boxes (4.12 million, excluding abnormal seasons), ranging from 0.05 million boxes to 10.7 million boxes including abnormal seasons, (0.30 to 10.7 million boxes excluding abnormal seasons). The March 1 forecast for all oranges has been below the final estimate 10 times, above 10 times, (below 9 times, above 8 times, excluding abnormal seasons). The difference does not imply that the March 1 forecasts this year are likely to understate or overstate final production.

Forecast Components, by Type – Florida: March 2020

[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	28	316
Navel	932	236	26	139
Valencia	29,615	536	29	246
GRAPEFRUIT				
Red	2,150	415	30	117
White	356	453	30	108

[1] Excludes Navels.

Maturity

Regular bloom fruit samples were collected from groves on established routes on February 25-26, 2020 in Florida's five major citrus producing areas and tested on February 27, 2020. Only Valencia oranges were collected and tested this month. In the first table, all comparisons are made to the previous season. Ratios are lower this season than last season. Unfinished juice per box and solids per box are lower this season than last season.

In the second table, results from tests on Indian River fruit and from other areas for this period are displayed.

Unadjusted Maturity Tests – Florida: March 1, 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)
Valencia Oranges (149-144)										
Sep 1	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Oct 1	1.91	1.98	8.56	9.09	4.54	4.65	46.28	47.46	3.96	4.31
Nov 1	1.52	1.48	9.15	9.48	6.10	6.51	49.82	51.66	4.56	4.89
Dec 1	1.26	1.24	9.59	9.49	7.68	7.84	52.16	53.73	5.01	5.10
Jan 1	1.05	1.04	10.54	10.14	10.18	9.85	52.78	54.59	5.56	5.53
Feb 1	1.00	0.91	11.12	10.58	11.18	11.71	52.24	55.20	5.80	5.84
Mar 1	0.85	0.83	11.54	10.96	13.71	13.36	53.65	55.50	6.19	6.08

(NA) Not available.

Unadjusted Maturity Test Averages, by Areas – Florida: March 1, 2018-2019 and 2019-2020

Fruit type (number of groves)	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)
Valencia Oranges										
Indian River (29-29)	0.92	0.87	12.18	11.07	13.36	12.79	54.65	55.47	6.65	6.15
Other Areas (120-115)	0.84	0.82	11.39	10.94	13.80	13.50	53.41	55.51	6.08	6.07

Size Frequency Measurement Distributions, by Type — Florida: February Survey

[Size frequency distributions from the February 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	2018	2019	2020	Type and number of fruit per 4/5 – bushel containers	2018	2019	2020
	(percent)	(percent)	(percent)		(percent)	(percent)	(percent)
VALENCIA ORANGES				**RED GRAPEFRUIT** [1]			
64 or less	3.4	0.8	1.6	32 or less	18.0	1.3	7.5
80	13.2	5.9	9.0	36	22.0	3.6	11.1
100	30.2	22.7	30.7	40	9.5	7.5	13.4
125	31.5	32.4	34.3	48	10.5	13.2	17.2
163 or more	21.7	38.2	24.4	56	8.0	16.8	14.9
				63 or more	32.0	57.6	35.9
HONEY TANGERINES				**WHITE GRAPEFRUIT** [1]			
80 or less	3.4	3.3	9.5	32 or less	0.0	5.6	2.2
100	14.7	17.2	21.1	36	0.0	6.4	5.7
120	27.9	23.9	25.9	40	0.0	7.5	11.1
176	19.8	20.4	16.1	48	15.0	8.6	13.9
210 or more	34.2	35.2	27.4	56	10.0	15.0	13.9
				63 or more	75.0	56.9	53.2

[1] Excludes seedy.

The charts below show the distribution of fruit sizes in 2019 compared to 2020. The diameter measurements shown are the minimum values of each eighth inch range, except for the smallest value.