United States Department of Agriculture
National Agricultural Statistics Service

CITRUS

MARCH FORECAST
MATURITY TEST RESULTS AND FRUIT SIZE

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Florida All Orange Production is Down 5 Percent from the February Forecast
Florida Non-Valencia Orange Production Up 4 Percent
Florida Valencia Orange Production Down 12 Percent
Florida All Grapefruit Production Down 5 Percent
Florida All Tangerine and Tangelo Production Unchanged

FORECAST DATES - 2021-2022 SEASON	
April 8, 2022	June 10, 2022
May 12, 2022	July 12, 2022

Citrus Production by Type – States and United States

Crop and State	Production [1]		2021-2022 Forecasted Production [1]	
	2019-2020	2020-2021	February	March
	(1,000 boxes)	(1,000 boxes)	(1,000 boxes)	(1,000 boxes)
Non-Valencia Oranges [2]				
Florida	**29,650**	**22,700**	**17,500**	**18,200**
California [3]	43,300	40,600	39,000	39,000
Texas [3]	1,150	1,000	300	300
United States	74,100	64,300	56,800	57,500
Valencia Oranges				
Florida	**37,750**	**30,100**	**26,000**	**23,000**
California	10,800	9,500	8,600	8,600
Texas [3]	190	50	100	100
United States	48,740	39,650	34,700	31,700
All Oranges				
Florida	**67,400**	**52,800**	**43,500**	**41,200**
California	54,100	50,100	47,600	47,600
Texas [3]	1,340	1,050	400	400
United States	122,840	103,950	91,500	89,200
Grapefruit				
Florida-All	**4,850**	**4,100**	**4,100**	**3,900**
Red	**4,060**	**3,480**	**3,300**	**3,200**
White	**790**	**620**	**800**	**700**
California [3]	4,700	3,900	3,500	3,500
Texas [3]	4,400	2,400	1,600	1,600
United States	13,950	10,400	9,200	9,000
Lemons [3]				
Arizona	1,800	800	1,400	1,400
California	25,300	21,300	23,000	23,000
United States	27,100	22,100	24,400	24,400
Tangerines and Tangelos				
Florida	**1,020**	**890**	**800**	**800**
California [3 4]	22,400	28,100	21,000	21,000
United States	23,420	28,990	21,800	21,800

[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 (including Navel) and midseason varieties in Florida and Texas.
[3] Estimates carried forward from February.
[4] Includes tangors.

All Oranges 41.2 Million Boxes

The 2021-2022 Florida all orange forecast released today by the USDA Agricultural Statistics Board is 41.2 million boxes, down 2.30 million boxes from the February forecast. If realized, this will be 22 percent less than last season's final production. The forecast consists of 18.2 million boxes of non-Valencia oranges (early, mid-season, and Navel varieties) and 23.0 million boxes of 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 18.2 Million Boxes

The forecast of non-Valencia production is raised 700,000 boxes to 18.2 million boxes. The Row Count survey conducted February 23-24, 2022, showed 98 percent of the early and mid-season non-Valencia rows, excluding Navels, are harvested. Estimated utilization for non-Valencia oranges (including Navels) to February 1, with an allocation for non-certified fruit, is 18.1 million boxes. The Navel forecast, included in the non-Valencia portion of the forecast, is 490,000 boxes.

Valencia Oranges 23.0 Million Boxes

The forecast of Valencia production is lowered 3.0 million boxes from the February forecast and is now 23.0 million boxes. Current fruit size is below the minimum and is projected to be below the minimum at harvest, requiring 271 pieces to fill a 90-pound box. Current droppage is above the maximum and projected to be above the maximum at harvest. Harvest of Valencia oranges is still in the early stages.

All Grapefruit 3.90 Million Boxes

The forecast of all grapefruit production is lowered 200,000 boxes from February to 3.90 million boxes. The red grapefruit forecast is lowered to 3.20 million boxes. The white grapefruit forecast is lowered to 700,000 boxes. The Row Count survey conducted February 23-24, 2022, indicated 73 percent of grapefruit rows are harvested. Estimated utilization for white grapefruit to March 1, with an allocation for non-certified fruit is 370,000 boxes and for red grapefruit is 2.18 million boxes.

Tangerines and Tangelos 800,000 Boxes

The forecast for tangerines and tangelos is unchanged from the February forecast and is 800,000 boxes, 10 percent less than last season's utilization of 890,000 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 4.8 percent. If you exclude the three abnormal production seasons (three hurricane seasons), the "Root Mean Square Error" is 5.1 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 4.8 percent, including abnormal seasons, or 5.1 excluding abnormal seasons. Chances are 9 out of 10 (90 percent confidence level) that the difference will not exceed 8.3 percent including abnormal seasons or 8.8 percent excluding abnormal seasons.

Changes between the March 1 Florida all orange forecast and the final estimates during the past 20 years have averaged 3.93 million boxes (4.06 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 8 times, above 12 times, (below 7 times, above 10 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 2022

[Survey data is considered final in December for Navels, January for early and mid-season (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 & mid-season (Non-Valencia) [1]	18,171	571	39	326
Navel	864	150	28	137
Valencia	30,349	394	47	271
GRAPEFRUIT				
Red	1,776	393	28	127
White	314	481	15	104

[1] Excludes Navels.

Maturity

Regular bloom fruit samples were collected from groves on established routes February 23-24, 2022 in Florida's five major citrus producing areas and tested February 25, 2022. In the first table, all comparisons are made to the previous season. Acids are higher on Valencia oranges, while Brix, ratios, unfinished juice per box, and solids per box are all lower.

In the second table, results from tests on Indian River fruit and from other areas for this period are displayed. Acid and Brix readings are higher on Indian River Fruit, with lower ratios. Unfinished juice per box and solids per box are also higher on Indian River fruit.

Unadjusted Maturity Tests — Florida: March 1, 2020-2021 and 2021-2022

[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	
	2020-2021	2021-2022	2020-2021	2021-2022	2020-2021	2021-2022	2020-2021	2021-2022	2020-2021	2021-2022
	(percent)	(percent)	(percent)	(percent)			(pounds)	(pounds)	(pounds)	(pounds)
Valencia Oranges (140-130)										
Sep 1	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Oct 1	1.79	2.01	8.76	8.68	4.96	4.36	48.54	46.52	4.25	4.04
Nov 1	1.47	1.58	8.84	9.10	6.06	5.86	50.70	49.07	4.48	4.47
Dec 1	1.23	1.36	9.18	9.25	7.58	6.91	53.00	51.20	4.87	4.74
Jan 1	1.08	1.18	9.61	9.47	8.96	8.11	53.67	52.76	5.16	5.00
Feb 1	1.00	1.07	10.14	9.80	10.27	9.27	53.98	52.55	5.47	5.15
Mar 1	0.87	0.98	10.48	10.02	12.24	10.25	53.99	53.89	5.66	5.40

NA Not available.

Unadjusted Maturity Test Averages, by Areas — Florida: March 1, 2020-2021 and 2021-2022

Fruit type (number of groves)	Acid		Solids (Brix)		Ratio		Unfinished juice per box		Solids per box	
	2020-2021	2021-2022	2020-2021	2021-2022	2020-2021	2021-2022	2020-2021	2021-2022	2020-2021	2021-2022
	(percent)	(percent)	(percent)	(percent)			(pounds)	(pounds)	(pounds)	(pounds)
Valencia Oranges										
Indian River (28-28)	0.92	1.07	11.22	10.48	12.36	9.87	53.90	54.11	6.06	5.67
Other Areas (112-102)	0.85	0.96	10.30	9.89	12.21	10.36	54.01	53.83	5.57	5.33

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

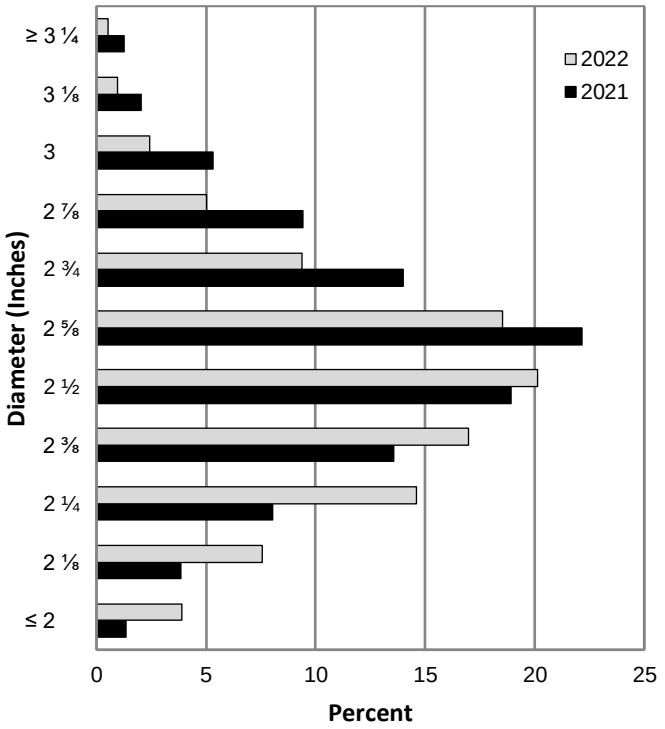
[Size frequency distributions from the February size survey are shown in the following table. The distributions are by percent of fruit falling within the size range of each 4/5-bushel container. These frequency distributions include fruit from regular bloom and exclude fruit from summer bloom]

Type and number of fruit per 4/5 – bushel containers	2020	2021	2022	Type and number of fruit per 4/5 – bushel containers	2020	2021	2022
	(percent)	(percent)	(percent)		(percent)	(percent)	(percent)
VALENCIA ORANGES				**WHITE GRAPEFRUIT [1]**			
64 or less	1.6	2.1	0.9	32 or less	2.2	3.8	11.4
80	9.0	10.7	4.9	36	5.7	4.1	18.6
100	30.7	28.4	19.5	40	11.1	13.8	26.4
125	34.3	32.0	31.7	48	13.9	20.6	20.0
163 or more	24.4	26.8	43.0	56	13.9	19.7	7.9
RED GRAPEFRUIT [1]				63 or more	53.2	38.0	15.7
32 or less	7.5	1.5	5.6				
36	11.1	5.6	9.8				
40	13.4	9.5	7.7				
48	17.2	15.3	9.6				
56	14.9	17.4	14.1				
63 or more	35.9	50.7	53.2				

[1] Excludes seedy.

The charts below show the distribution of fruit sizes in 2021 compared to 2022. The diameter measurements shown are the minimum values of each eighth inch range, except for the smallest value.

Fruit Size Frequency Measurements, Valencia Oranges, by Diameter - Florida: February Survey



Fruit Size Frequency Measurements, Red Seedless Grapefruit, by Diameter - Florida: February Survey