



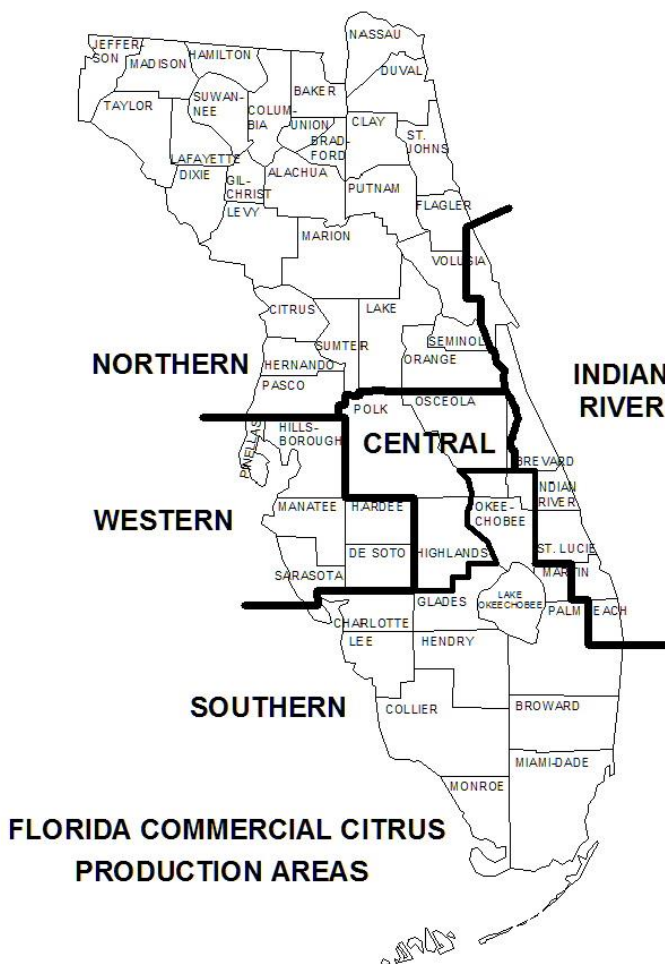
CITRUS FRUIT SIZE AND DROP

Cooperating with the Florida Department of Agriculture and Consumer Services
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Detailed Historic Florida Size and Drop Data Released

The tables on the following pages display the results of the final size and drop surveys for each of the past eight crop seasons by production area and age group. During the crop season, the state-level indications for size and drop are projected from the initial forecast month until the final forecast month (January for early-midseason oranges, February for grapefruit, and April for Valencia oranges). Sample size used in these surveys and the distribution of the sample groves around the State are chosen to minimize error in the state estimates of production; these estimates are not to be considered as accurate for the areas and age groups as at the State level.



Final Fruit Per Box, by Area and Age Groups – Florida: 2007-2008 through 2014-2015

[Survey data is considered final January 1 for early-midseason oranges]

Areas and age groups	Early-Midseason Oranges							
	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
	(number)	(number)	(number)	(number)	(number)	(number)	(number)	(number)
Indian River.....	260	247	270	281	273	298	302	285
Northern.....	254	263	223	308	246	292	324	299
Central	270	249	240	277	237	282	294	309
Western	276	259	242	278	230	270	288	318
Southern	249	265	265	278	231	264	267	279
3 - 5 Years	217	215	215	226	216	211	229	241
6 - 8 Years	218	255	206	245	207	251	271	303
9 - 13 Years	248	256	227	259	218	243	266	286
14 - 23 Years	271	261	251	286	237	285	290	301
24 yrs & over.....	270	255	257	288	245	284	296	314
State	264	257	246	280	235	274	286	302

Final Droppage, by Area and Age Groups – Florida: 2007-2008 through 2014-2015

[Survey data is considered final January 1 for early-midseason oranges]

Areas and age groups	Early-Midseason Oranges							
	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
	(percent)	(percent)	(percent)	(percent)	(percent)	(percent)	(percent)	(percent)
Indian River.....	5	15	11	7	12	32	29	23
Northern.....	4	3	3	3	5	24	28	28
Central	5	5	7	4	9	17	20	22
Western	6	10	8	7	20	18	24	24
Southern	14	18	12	10	13	17	24	17
3 - 5 Years	4	7	8	7	44	24	35	31
6 - 8 Years	4	15	8	10	16	29	35	34
9 - 13 Years	5	8	8	6	13	21	25	28
14 - 23 Years	9	10	8	6	11	18	24	22
24 yrs & over.....	7	12	8	8	13	16	21	18
State	8	11	8	7	13	18	23	22

Final Fruit Per Box, by Area and Age Groups – Florida: 2007-2008 through 2014-2015

[Survey data is considered final April 1 for Valencia oranges]

Areas and age groups	Valencia Oranges							
	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
	(number)	(number)	(number)	(number)	(number)	(number)	(number)	(number)
Indian River.....	237	230	241	260	234	265	248	241
Northern.....	238	208	230	259	227	256	256	260
Central	229	218	215	224	209	243	256	260
Western	218	218	211	229	203	233	231	245
Southern	211	220	222	222	218	212	230	228
3 - 5 Years	176	207	189	216	170	205	190	184
6 - 8 Years	189	211	196	204	194	214	229	235
9 - 13 Years	214	213	200	209	204	223	222	235
14 - 23 Years	225	223	225	233	213	232	243	246
24 yrs & over.....	236	220	226	231	221	236	247	249
State	221	219	218	227	212	231	240	244

Final Droppage, by Area and Age Groups – Florida: 2007-2008 through 2014-2015

[Survey data is considered final April 1 for Valencia oranges]

Areas and age groups	Valencia Oranges							
	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
	(percent)	(percent)	(percent)	(percent)	(percent)	(percent)	(percent)	(percent)
Indian River.....	14	9	20	27	28	29	43	21
Northern.....	7	14	7	13	10	26	19	36
Central	14	14	11	13	16	21	34	26
Western	13	12	13	12	18	24	29	28
Southern	18	19	18	21	22	21	28	23
3 - 5 Years	12	14	7	31	18	38	45	22
6 - 8 Years	10	14	14	17	23	27	42	38
9 - 13 Years	10	11	9	10	21	27	34	28
14 - 23 Years	16	15	15	16	17	20	29	26
24 yrs & over.....	17	18	18	19	19	23	31	24
State	15	15	14	16	19	22	31	25

Final Fruit Per Box, by Area and Age Groups – Florida: 2007-2008 through 2014-2015

[Survey data is considered final February 1 for grapefruit]

Areas and age groups	White Grapefruit							
	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
	(number)	(number)	(number)	(number)	(number)	(number)	(number)	(number)
Indian River.....	101	84	98	102	104	123	122	114
Northern.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Central	97	93	90	94	90	108	110	110
Western	(D)	(D)	(D)	(D)	(D)	(D)	(D)	106
Southern	(D)	(D)	(D)	(D)	(D)	(D)	(D)	103
3 - 5 Years	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
6 - 8 Years	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
9 - 13 Years	100	83	100	100	94	123	131	121
14 - 23 Years	95	84	98	100	109	120	113	114
24 yrs & over.....	104	89	95	102	93	120	119	112
State	99	85	96	101	101	120	118	113

D Withheld to avoid disclosing data for individual operations.

Final Droppage, by Area and Age Groups – Florida: 2007-2008 through 2014-2015

[Survey data is considered final February 1 for grapefruit]

Areas and age groups	White Grapefruit							
	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
	(percent)	(percent)	(percent)	(percent)	(percent)	(percent)	(percent)	(percent)
Indian River.....	17	8	12	10	15	22	28	20
Northern.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Central	9	6	11	10	18	25	23	34
Western	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Southern	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3 - 5 Years	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
6 - 8 Years	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
9 - 13 Years	20	5	9	11	17	34	40	10
14 - 23 Years	21	8	10	11	19	19	21	31
24 yrs & over.....	16	10	14	11	13	24	33	23
State	18	9	12	11	16	22	29	24

D Withheld to avoid disclosing data for individual operations.

Final Fruit Per Box, by Area and Age Groups – Florida: 2007-2008 through 2014-2015

[Survey data is considered final February 1 for grapefruit]

Areas and age groups	Colored Grapefruit							
	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
	(number)	(number)	(number)	(number)	(number)	(number)	(number)	(number)
Indian River.....	110	97	109	112	110	133	125	114
Northern.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Central	102	94	103	103	91	113	105	130
Western	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Southern	104	100	111	117	100	109	129	142
3 - 5 Years	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
6 - 8 Years	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
9 - 13 Years	109	93	113	109	(D)	151	117	117
14 - 23 Years	113	96	112	107	97	119	123	132
24 yrs & over.....	104	98	106	116	115	127	122	113
State	109	97	109	111	105	125	123	117

D Withheld to avoid disclosing data for individual operations.

Final Droppage, by Area and Age Groups – Florida: 2007-2008 through 2014-2015

[Survey data is considered final February 1 for grapefruit]

Areas and age groups	Colored Grapefruit							
	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
	(percent)	(percent)	(percent)	(percent)	(percent)	(percent)	(percent)	(percent)
Indian River.....	11	9	11	8	19	25	23	25
Northern.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Central	5	11	4	6	8	13	21	40
Western	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Southern	20	27	15	20	16	7	33	32
3 - 5 Years	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
6 - 8 Years	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
9 - 13 Years	17	14	3	4	(D)	21	23	15
14 - 23 Years	15	14	11	10	14	17	27	27
24 yrs & over.....	9	10	11	9	20	22	24	27
State	13	12	10	9	18	21	25	27

D Withheld to avoid disclosing data for individual operations.

Methodology

The annual citrus crop production forecast is based on estimates and projections from actual counts and measurements, avoiding observations based on opinion or judgment. These objective procedures are simple in concept but complex in planning, management for efficiency, and quality assurance.

The four basic parameters used in the forecast are (1) number of bearing trees, (2) number of fruit per tree, (3) fruit size, and (4) fruit loss from droppage. The general model incorporates the estimated total fruit (bearing trees times average fruit per tree), reduced for droppage (the fraction of fruit counted at the initial survey visit, but lost to droppage before it was harvested), divided by the number of fruit projected to make a standard box at harvest (using the fruit size survey).

$$\text{Production Indicator} = \frac{\text{Bearing Trees} \times \text{Fruit per Tree} \times \text{Percent Remaining at Harvest}}{\text{Pieces of Fruit per Box}}$$

The sample design used to obtain each parameter stratifies the State's citrus belt into five nearly homogeneous areas and the bearing trees into five age groups. Sample groves for surveying are selected from the citrus tree inventory using probability sampling procedures. The samples are mapped on digital imagery and indexed for reference.

Size and fruit drop are monthly indications of the fruit size and the amount of fruit that has fallen from the citrus sample tree from the previous month. Fruit size measurement and droppage surveys are conducted monthly from August to harvest on two trees in each of over 1,800 sample groves.

Circumference calipers, which have proven to be the most sensitive tool to measure subtle changes in size, are used for this survey. Fruit size is projected to harvest by use of growth charts, historical relationships of current survey data to final results, and other relationships to detect similar-year growth. Fruit circumference is converted to number of fruit per box to report the forecast in boxes. Fruit droppage is the final factor which must be considered to develop a reliable forecast of production. This requires monthly observations of fruit loss from chosen sample branches. These sample branches are tagged and the fruit is first counted in August. Then at monthly intervals, the same branches are recounted. Cumulative fruit loss for the season and historical data from previous seasons are used to project fruit loss to harvest time. The October forecast is subject to change in later months due to weather and growing conditions that affect fruit sizing and droppage rates.