



Current forecast update (variation regarding the September forecast):
Total orange crop production forecast: 314.11 million boxes (increased of 0.01%)
Hamlin, Westin and Rubi: 58.04 million boxes (increased of 1.6%)
Other early season: 16.84 million boxes (decreased of 1.2%)
Pera Rio: 93.95 million boxes (unchanged)
Valencia and Valencia Folha Murcha: 105.65 million boxes (decreased of 1.1%)
Natal: 39.63 million boxes (increased of 1.0%)

December, 12 2022

Publication Schedule 2022-2023
 3rd Crop forecast update: February 10, 2023
 Final crop forecast: April 10, 2023

Table 1 – Orange crop forecast update by sector and variety group – citrus belt

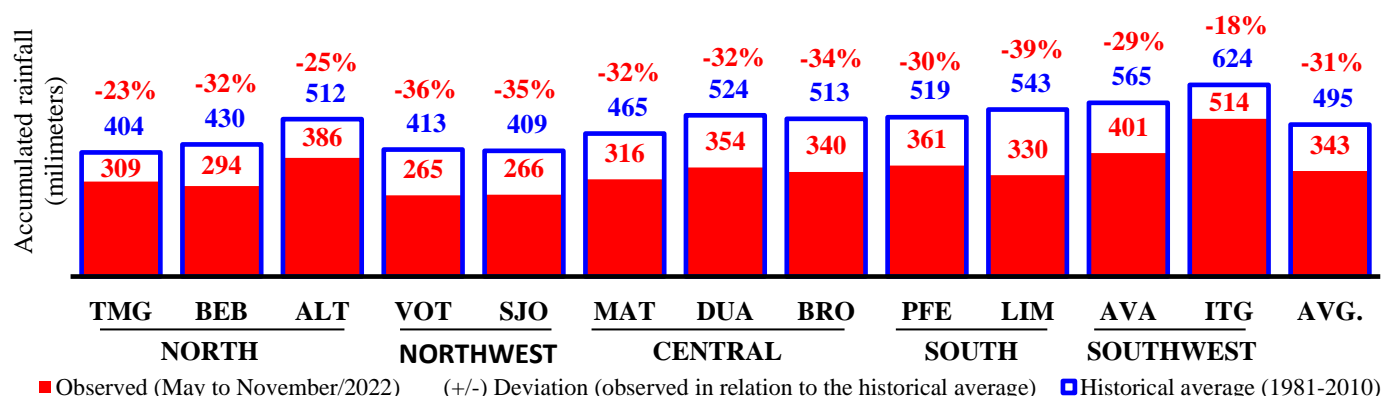
Month	Forecast components				Crop forecast update 2022-2023			Crop forecast update 2022-2023		
	September/2022 and December/2022 (strike-through values were presented in September, to their left are their respective values updated in December)				September/2022			December/2022		
Sector and variety group	Bearing trees	Fruit per tree at stripping	Fruit estimated per box	Estimated drop rate	Per tree	Per hectare	Total	Per tree	Per hectare	Total
	(1,000 trees)	(number)	(number)	(percentage)	(boxes/tree)	(boxes/hectare)	(1,000,000 boxes)	(boxes/tree)	(boxes/hectare)	(1,000,000 boxes)
CITRUS BELT										
Hamlin, Westin and Rubi....	26,151	859	310 311	10.40 10.80	2.18	1,005	57.10	2.22	1,021	58.04
Other early.....	9,044	638	265 267	13.40 11.00	1.88	945	17.04	1.86	934	16.84
Pera Rio.....	62,037	560	260	21.70	1.51	791	93.95	1.51	791	93.95
Valencia and Folha Murcha	53,741	686	237	24.00 23.50	1.99	955	106.78	1.97	945	105.65
Natal.....	18,999	722	235 240	24.00 23.50	2.06	1,006	39.22	2.09	1,016	39.63
Total.....	169,972	668	260 261	20.10 19.80	1.85	912	314.09	1.85	912	314.11
NORTH SECTOR										
Hamlin, Westin and Rubi....	6,891	744	304	9.80	1.96	852	13.49	1.97	857	13.58
Other early.....	1,887	726	263 268	7.70 7.20	2.18	981	4.11	2.21	996	4.17
Pera Rio.....	12,908	705	261 249	22.00 18.10	1.41	741	18.26	1.29	678	16.69
Valencia and Folha Murcha	13,428	481	219 224	22.80 21.80	1.91	887	25.64	1.92	890	25.75
Natal.....	4,069	609	220 229	20.80 21.00	2.25	1,002	9.15	2.34	1,041	9.51
Subtotal.....	39,183	607	251	18.70 17.30	1.80	854	70.65	1.78	843	69.70
NORTHWEST SECTOR										
Hamlin, Westin and Rubi....	2,060	680	329 332	15.20 15.50	1.54	683	3.17	1.57	696	3.23
Other early.....	1,733	725	260 279	12.10 9.20	1.57	856	2.72	1.63	887	2.82
Pera Rio.....	7,289	540	263 244	13.10 16.80	1.88	846	13.72	1.83	824	13.37
Valencia and Folha Murcha	3,142	617	241 236	25.50 27.00	1.75	845	5.51	1.74	841	5.48
Natal.....	1,497	631	244 255	39.90 24.70	1.92	876	2.88	1.62	736	2.42
Subtotal.....	15,721	630	266 259	18.70 18.80	1.78	827	28.00	1.74	807	27.32
CENTRAL SECTOR										
Hamlin, Westin and Rubi....	6,951	886	300 302	10.70 11.10	2.31	1,111	16.08	2.36	1,132	16.38
Other early.....	3,046	625	254 253	13.10 10.40	2.12	1,028	6.45	2.04	991	6.22
Pera Rio.....	18,673	670	246 274	25.20 23.80	1.31	713	24.46	1.44	784	26.89
Valencia and Folha Murcha	14,585	526	236 249	20.70 25.40	1.65	814	24.11	1.85	908	26.91
Natal.....	4,484	614	224 239	18.00 22.50	1.82	881	8.16	2.04	990	9.17
Subtotal.....	47,739	624	253 267	19.30 20.60	1.66	844	79.26	1.79	911	85.57
SOUTH SECTOR										
Hamlin, Westin and Rubi....	4,802	932	324 326	10.70 11.30	2.25	1,055	10.80	2.29	1,077	11.02
Other early.....	477	895	305 304	23.70 18.20	1.47	657	0.70	1.36	610	0.65
Pera Rio.....	12,219	611	278 265	22.60 26.40	1.59	821	19.46	1.61	827	19.62
Valencia and Folha Murcha	9,934	641	259 247	26.50 27.90	2.17	963	21.54	2.10	932	20.83
Natal.....	2,956	827	276 253	22.70 29.80	2.23	1,152	6.59	2.24	1,157	6.62
Subtotal.....	30,388	772	280 269	21.70 24.30	1.94	937	59.09	1.93	931	58.74
SOUTHWEST SECTOR										
Hamlin, Westin and Rubi....	5,447	975	312 314	9.70	2.49	1,165	13.56	2.54	1,188	13.83
Other early.....	1,901	705	283 287	19.00 16.00	1.61	920	3.06	1.57	896	2.98
Pera Rio.....	10,949	614	262 255	21.00 19.70	1.65	907	18.05	1.59	873	17.38
Valencia and Folha Murcha	12,652	585	237 232	25.70 18.70	2.37	1,232	29.98	2.11	1,096	26.68
Natal.....	5,992	753	231 239	27.10 21.50	2.08	1,073	12.44	1.99	1,027	11.91
Subtotal.....	36,941	721	259 257	21.20 17.50	2.09	1,089	77.09	1.97	1,028	72.78



Updated orange crop forecast¹ totals 314.11 million boxes

The second 2022-2023 orange crop forecast for the São Paulo and West-Southwest Minas Gerais citrus belt, published on December 12, 2022 by Fundecitrus in cooperation with Markestrat, FEA-RP/USP and FCAV/Unesp², is 314.11 million boxes of 40.8 kg each. This update indicates that the crop remains within expectations in relation to the projected scenario in September, with an increase of only 20 thousand boxes, which corresponds to 0.01%. As it is an inexpressive increase, the crop loss presented in the previous update of 0.9% in relation to the initial expectation is maintained, due to the volume of rainfall below the historical average. Approximately 22.77 million boxes of the total crop are expected to be produced in the Triângulo Mineiro.

According to data from Somar/Climatempo, the average rainfall in the citrus belt accumulated from May to November 2022 was 343 millimeters, which is 31% below the climatological normal (1981-2010). In all regions, the accumulated rainfall in this period was below the historical average: rainfall totaled 265 millimeters (-36%) in Votuporanga, 266 millimeters (-35%) in São José do Rio Preto, 294 millimeters (-32%) in Bebedouro, 309 millimeters (-23%) in Triângulo Mineiro, 316 millimeters (-32%) in Matão, 330 millimeters (-39%) in Limeira, 340 millimeters (-34%) in Brotas, 354 mm (-32%) in Duartina, 361 mm (-30%) in Porto Ferreira, 386 mm (-25%) in Altinópolis, 401 mm (-29%) in Avaré, and 514 mm (-18%) in Itapetininga; as shown in graph 1.



Graph 1 – Accumulated rainfall from May to November 2022 (observed and historical averages) in the citrus belt regions
Source: Fundecitrus, according to data from Somar/Climatempo Meteorologia.

This rainfall regime is mainly associated with the influence of the La Niña phenomenon, which has remained at moderate intensity since May. In addition to lower volumes, rains fell in isolated spots, and were uneven even among neighboring municipalities. The effects of reduced rainfall were mitigated by the better distribution of rains over the seven months following harvest and lower temperatures in November. From the current month until the end of the crop season, rains are usually heavier, which contributes to the growth of oranges. On the other hand, during the summer, they usually occur in the form of storms (with showers and strong winds) accentuating the early fruit drop.

Considering all varieties in this new projection, 260 fruits are needed to compose a 40.8 kg box, which means one fewer orange compared to the scenario in September. This amount of fruit is equivalent to oranges with 157 grams/5.54 oz, which is similar to the average weight observed in the last five crops.

The average fruit size of Hamlin, Westin and Rubi varieties projected in September 2022 at 311 fruits per box (131 grams/4.62 oz per fruit) was updated to 310 fruits per box (132 grams/4.66 oz per fruit). The size of oranges of the other early varieties is updated from 267 fruits per box (153 grams/5.40 oz per fruit) to 265 fruits per box (154/5.43 oz grams per fruit). The size of the Pera Rio variety is maintained at 260 fruits per box (157 grams/5.54 oz per fruit) as well as sizes of the Valencia and Valencia Folha Murcha varieties, at 237 fruits per box (172 grams/6.07 oz per fruit). The size of the Natal variety is updated from the projection of 240 fruits per box (170 grams/6.00 oz per fruit) to 235 fruits per box (174/6.14 oz grams per fruit). Fruit sizes by sector and variety are presented in Table 2.

Table 2 – Average fruit sizes by sector and variety¹

Group of varieties	Sector					
	North	Northwest	Central	South	Southwest	Total
Hamlin, Westin and Rubi.....	304	329 332	300 302	324 326	312 314	310 311
Other earlies.....	263 268	260 279	254 253	305 304	283 287	265 267
Pera Rio.....	261 249	263 244	246 274	278 265	262 255	260
Valencia and V. Folha Murcha...	219 224	241 236	236 249	259 247	237 232	237
Natal.....	220 229	244 255	224 239	276 253	231 239	235 240
Total.....	251	266 259	253 267	280 269	259 257	260 261

¹ The precision of the overall average of the citrus belt is higher than that of the sectors, ages or variety groups, due to the larger sample size.



The projected fruit drop rate increases from 19.80% to 20.10%, in average, all varieties considered. The drop rate distributed among varieties shows an updated 10.40% for Hamlin, Westin and Rubi, and 13.40% for other early varieties; 21.70% for Pera Rio, 24% for Valencia and Valencia Folha Murcha, and 24% for Natal. Drop rates per sector and variety are presented in Table 3.

Table 3 – Average drop rates by sector and variety¹

Group of varieties	Sector					
	(hatched values were presented in September and their respective values updated in December are on the left)					
	North	Northwest	Central	South	Southwest	Total
	(percentual)	(percentual)	(percentual)	(percentual)	(percentual)	(percentual)
Hamlin, Westin and Rubi.....	9.80	15.20 15.50	10.70 11.10	10.70 11.30	9.10 9.70	10.40 10.80
Other earlies.....	7.70 7.20	12.10 9.20	13.10 10.40	23.70 18.20	19.00 16.00	13.40 11.00
Pera Rio.....	22.00 18.10	13.10 16.80	25.20 23.80	22.60 26.40	21.00 19.70	21.70
Valencia and V. Folha Murcha....	22.80 21.80	25.50 27.00	20.70 25.40	26.50 27.90	25.70 18.70	24.00 23.50
Natal.....	20.80 21.00	39.30 24.70	18.00 22.50	22.70 29.80	27.10 21.50	24.00 23.50
Total.....	18.70 17.30	18.70 18.80	19.30 20.60	21.70 24.30	21.20 17.50	20.10 19.80

¹ The precision of the overall average of the citrus belt is higher than that of the sectors, ages or variety groups, due to the larger sample size.

In mid-November, harvest reached about 60% completion, but it is still at a slower pace, mainly due to the high concentration of fruit from the second bloom. Harvest of the early varieties Hamlin, Westin and Rubi has already reached completion. Harvest completion is 94%, for the other earlies Valencia Americana, Seleta, Pineapple and Alvorada 74% for Pera Rio, 34% for Valencia and Valencia Folha Murcha, and 24% for Natal.

The method used for the update is the same adopted in the previous crop season. Information was obtained from the monitoring survey started in May on 1,200 plots that are no longer visited when fruit harvest is complete. Other data used in this study is size of fruit received throughout the crop season by orange juice companies associated to Fundecitrus – Citrosuco, Cutrale and Louis Dreyfus – for industrial processing. Each processing company supplies individual data under confidentiality to the independent consulting firm for the calculation of the average size of processed fruit.

¹ Hamlin, Westin, Rubi, Valencia Americana, Seleta, Pineapple, Alvorada, Pera Rio, Valencia, Valencia Folha Murcha and Natal.

² Department of math and science, FCAV/Unesp Jaboticabal Campus.